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Focus on
"Trauma and Emergency Surgery"
and not only...

Official publication of

Albanian Society for Trauma and Emergency Surgery
ASTES

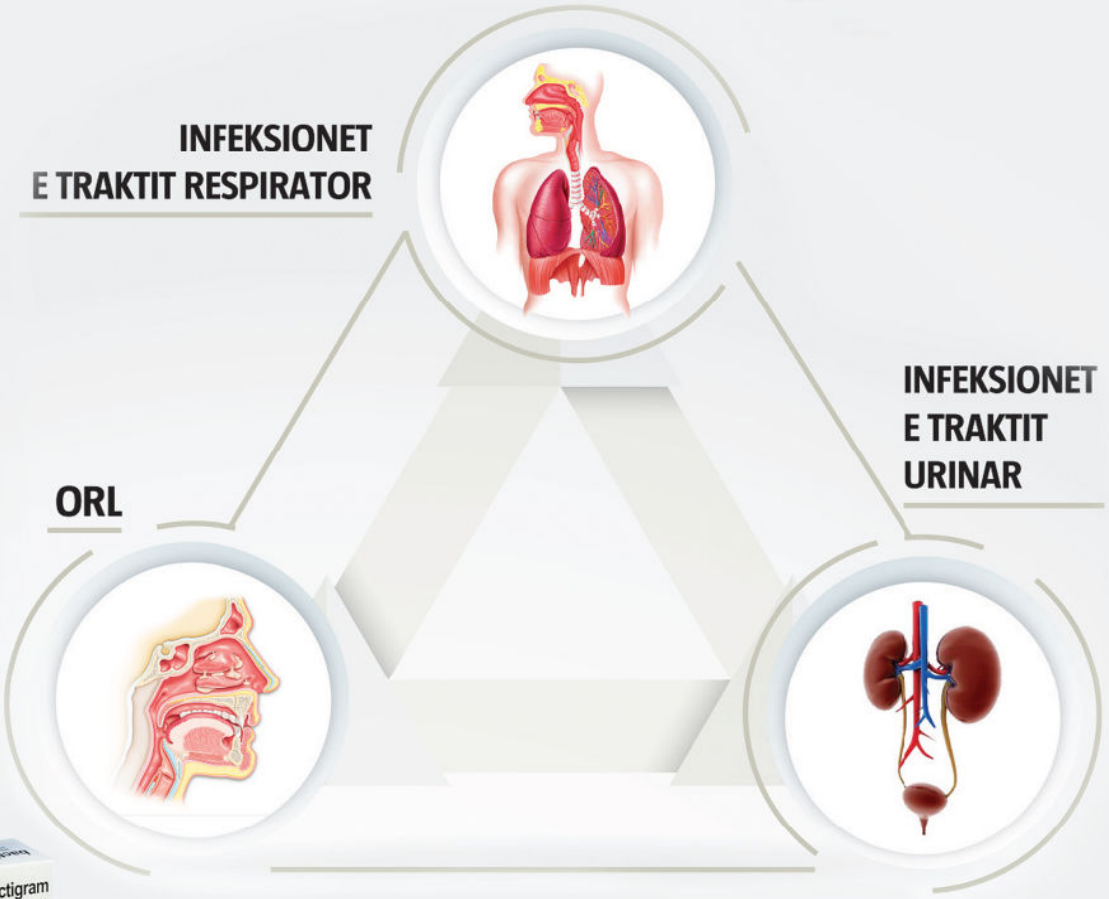
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Original Article

Epidemiological study of 1368 cases of surgical repair for traumatic peripheral nerve injury.

Ridvan Alimehmeti[1], Gramoz Brace[1], Ermira Pajaj[1], Alda Kika[2], Jetmira Kerxhalliu[1], Norik Bardhi[1], Myfit Saraci[1], Arsen Seferi[1]

https://doi.org/10.32391/ajtes.v3i1.23

Abstract

Background: Traumatic injury of the peripheral nerves should be treated in specialized centres. This study presents the epidemiological data of 1368 consecutive patients operated for peripheral nerve injuries beside the Service of neurosurgery, Department of Neurosciences, UHC "Mother Theresa", Tirana. In order to obtain the necessary data for this study we revised the clinical records, surgical registers and pre, intra and postoperative photo/video of the cases operated for peripheral nervous system injuries. A data recording program of the surgery cases was built *ad hoc*, categorizing the cases according to several variables. The data collected from the operated cases were manually inserted to be processed by the program. Results of informatics elaboration of the data were obtained, reviewed and categorized by: age, gender, type of trauma, localization of injury and type of nerve repair.

Future studies to be conducted in this field will focus in determining the level of nerve injury, time from the injury to intervention, distance from the site of trauma to the effector organ. The data will build necessary information for data mining, which based on these important factors that influence the result of nerve repair, will be useful for the prediction of the result in new patients harbouring peripheral nerve injury before undergoing surgery.

Keywords: peripheral nerve, trauma, data mining, repair

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Introduction

Traumatic injury of the peripheral nerves has been long treated with surgery in specialized centres. This study presents the epidemiological data of 1368 consecutive operated cases at the Neurosurgery Service, Department of Neurosciences, UHC "Mother Theresa", Tirana.

The aim of this retrospective study is to analyse data from surgical cases operated for peripheral nerve injury, perform an epidemiological analysis and create a database that will be used in the future studies of this field, as well as help to predict the progress of new cases that will be subject to nerve repair surgery.

In order to obtain the necessary data for this study, clinical records, operator registers and case files for peripheral nervous system injuries, have been revised thoroughly.

A data recording program of the surgery cases has been established, whereby the data processing is performed accurately and in real time, categorizing the cases according to several variables.

The program was designed to perform epidemiology analysis of 1368 cases. The data collected were manually inserted in the program, so as to be processed by the program. The results obtained were then reviewed and categorized by: *age, gender, type of injury, localization of injury and type of nerve repair.*

Methodology

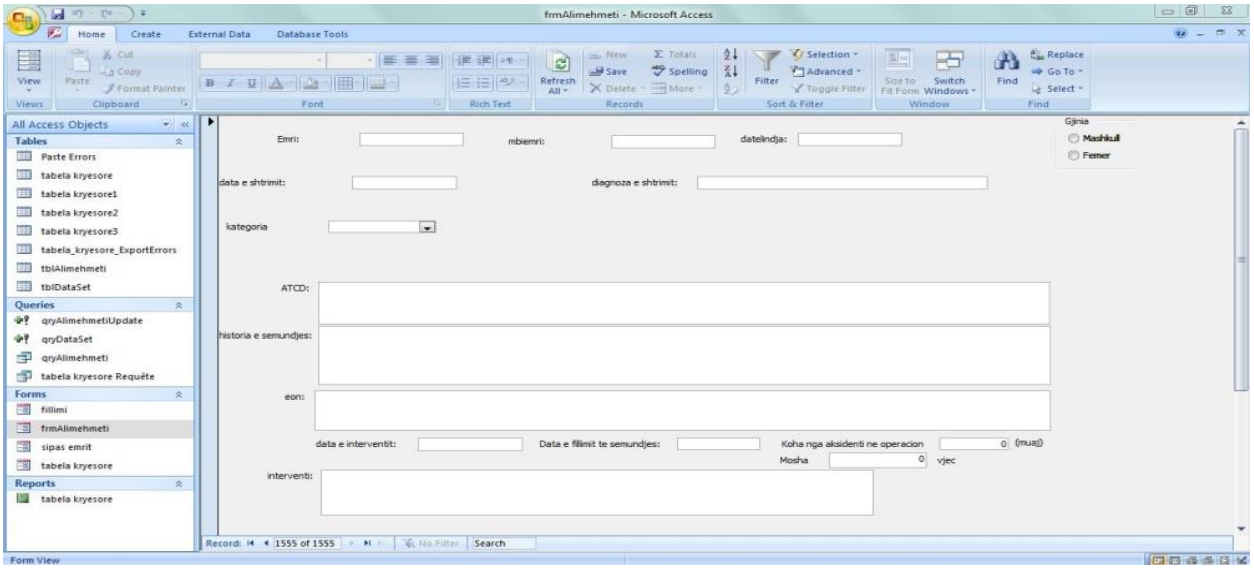


Figure 1*: View of the program for recording and analyzing the data.*

Results

- **General**:

A total of 1368 cases were subjected to surgical interventions for peripheral nerves, out of which 346 cases were traumatic, or at a rate of 25.2%. *Figure 2* shows the distribution of the operated cases in the period 2006 – 2017 per each year. Only the cases with full record were included in this study. The patients lacking important information mentioned above were excluded from this study.

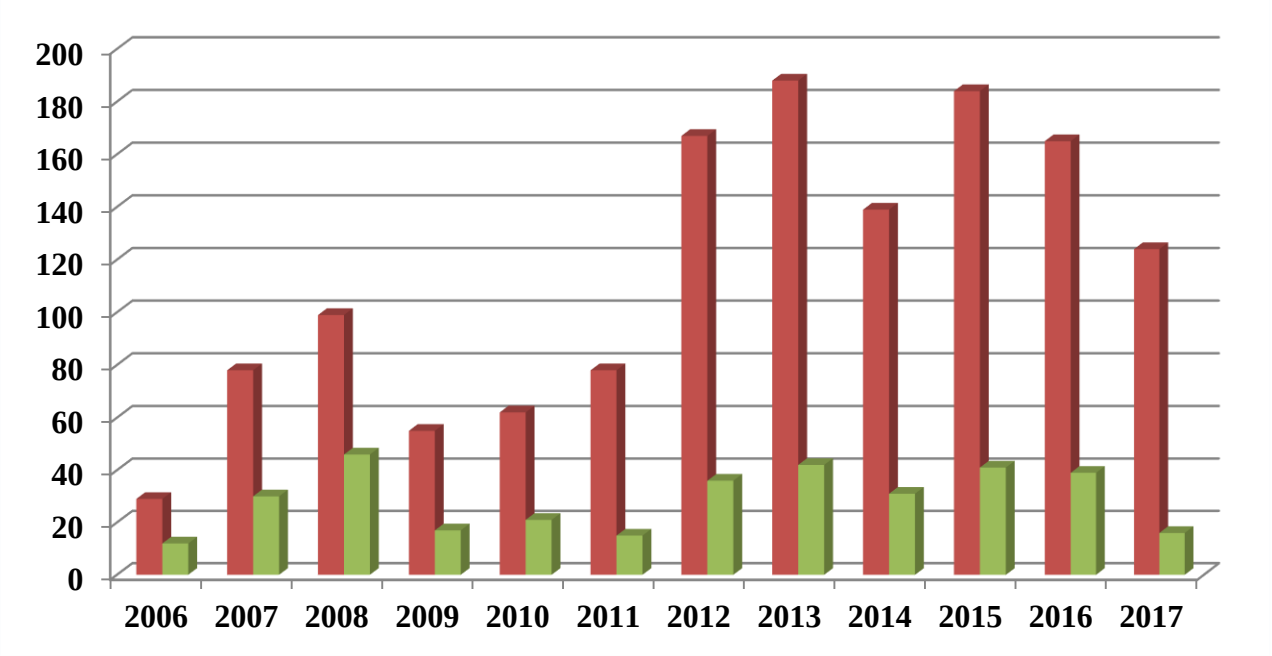


Figure 2: *Distribution of operated cases according to annual report*

Figure 2 shows that the highest number of traumatic cases assisted was in 2008, where 46 cases harbouring nerve injury out of 99 peripheral nerve cases were treated (46.5% of cases were traumatic). The ratio of general number of operated cases for peripheral nerve to those operated for nerve injury has been recorded to be the lowest in the year 2006 (31.04%) and the highest in the year 2013 (21.97%). In the last year studied, therefore, in 2017 there was a decrease in the number of traumatic cases where only 12.9% (16 cases) were traumatic.

- **Age:**

The age of the patient cases included in the study varies from 4 months old to 71 years old. The median age 35.3 (3) years of age and the mean age was 32.2 years.

- **Gender:**

In traumatic cases studied were 80 females and 266 males.

- **Type of injury:**

In the studied cases it was noted that the major cause of peripheral nervous injury was cutting with sharp objects that constituted 41% of the cases. The results obtained from the analysis of the data are presented in the diagram below ***Figure 3*:**

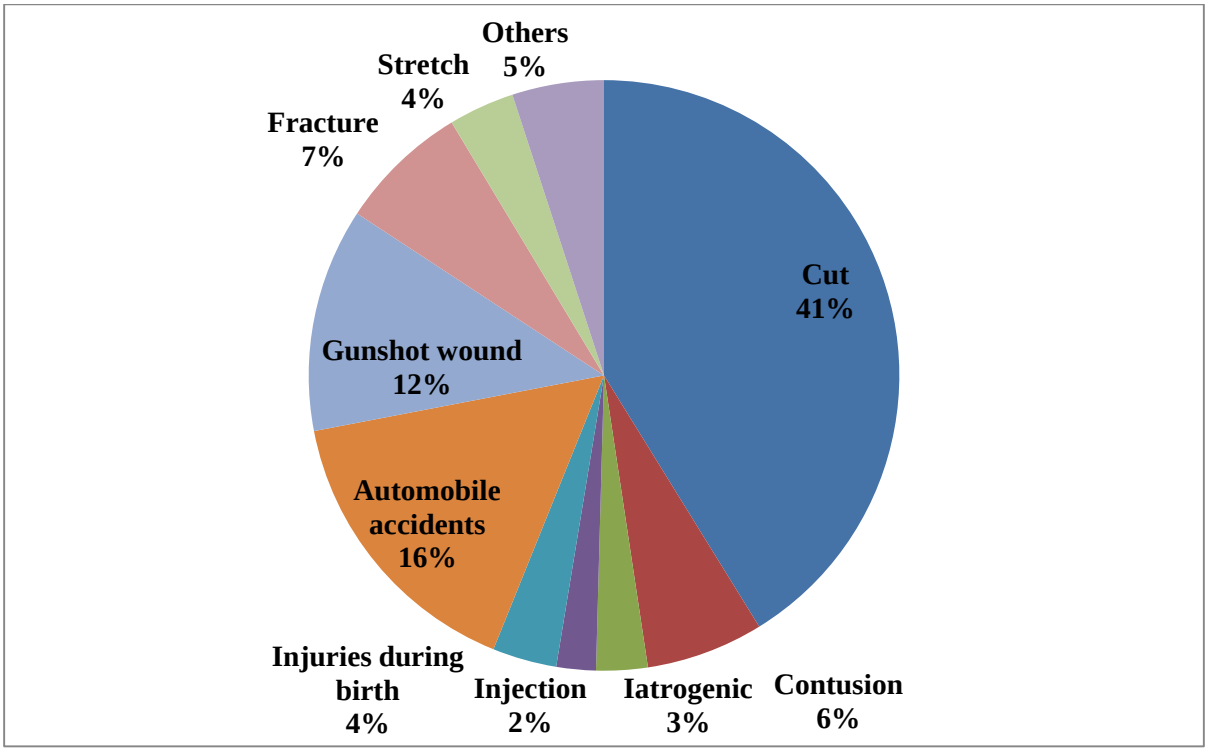


***Figure 3**: Distribution of cases according to modality of trauma.*

Another major cause, apart from cutting with sharp objects, was automobile accidents and injuries from gunshot with respectively 16% and 12% of traumatic cases (n=22 for accidents and n=17 for gunshot wound). It is also import to mention that during our study we came across with cases that was with birth trauma, approximately 3.5%.

:

- **Location of injury:**

The cases were analysed and grouped into three groups; in traumatic cases affecting the superior extremity, those affecting the inferior extremity and the trauma of the brachial plexus. The results obtained are presented in the *Figure 4*:

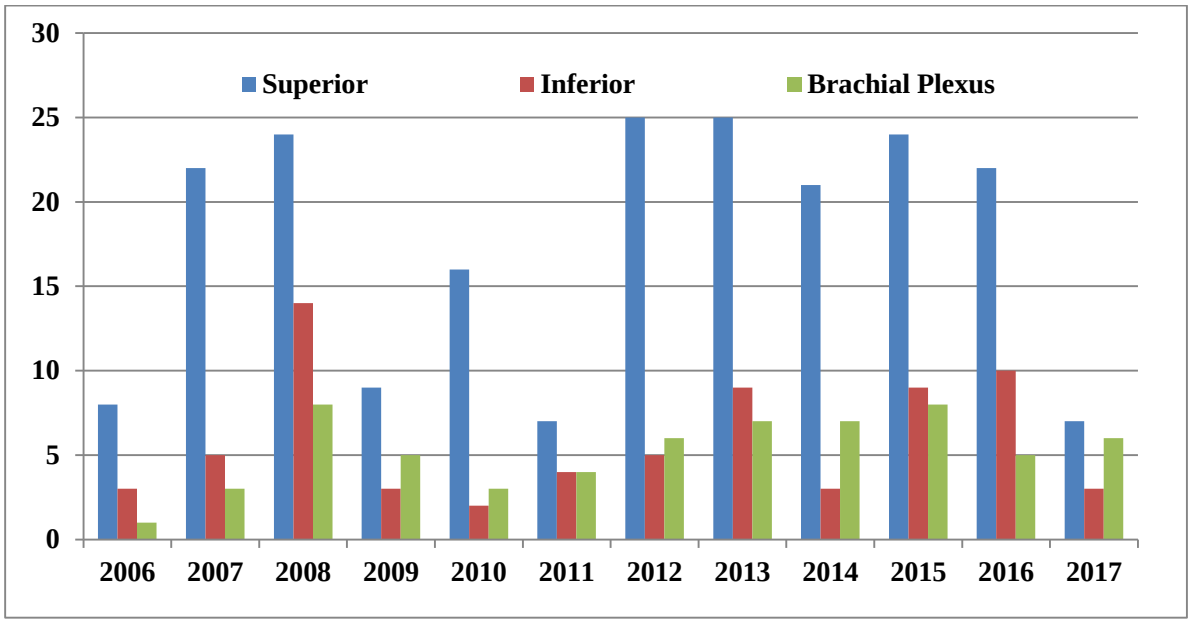


Figure 4: *Distribution of cases according to location of trauma*

After categorizing the cases according to the affected area, we investigated further in detail to see the nerves involved in these areas. From this analysis of the data we gained the following results:

a. The most common affected nerve in the superior extremity was *ulnar* nerve in 120 cases, followed by *median* nerve in 82 cases and *radial* nerve in 46 cases;

b. In the inferior extremity the most commonly affected nerve resulted to be the *ischiatic* nerve which was represented by 35 cases, followed by *peroneal* nerve in 26 cases. Other nerves were least affected selectively by trauma (*tibial* nerve - 8 cases, *femoral* nerve 2 cases, etc).

- **Types of repair interventions:**

The importance of this study also rely on evidencing the type of the surgical repair on the injured nerve(s) implemented in the treatment of these trauma cases.
From the analysis of the data we obtained the following results as presented in the graph below *Figure 5*:

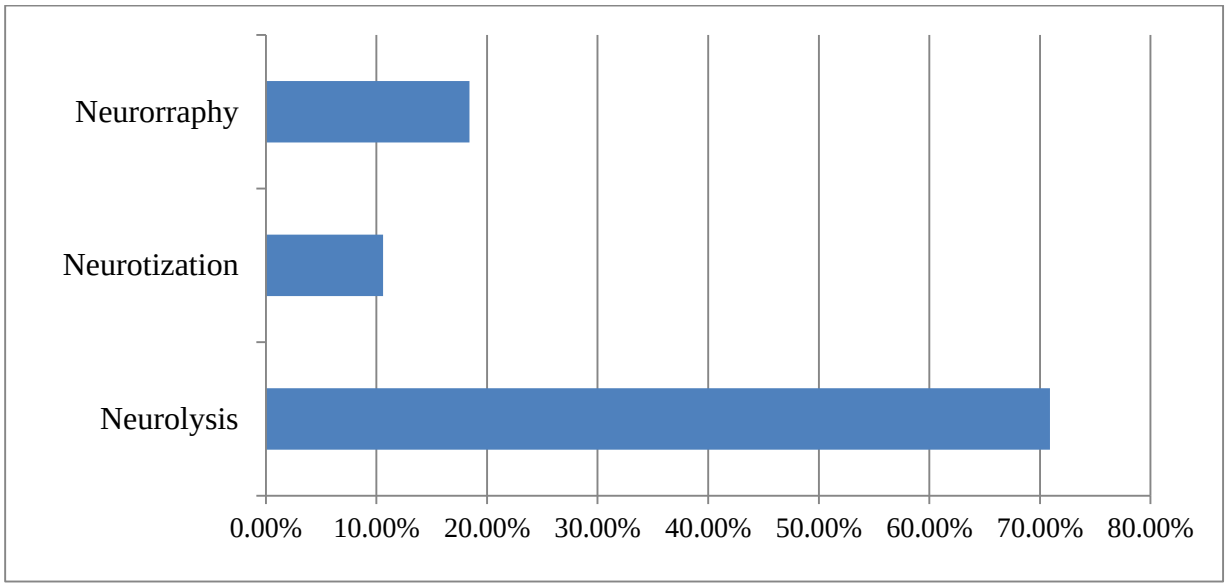


Figure 5: *Types of repair interventions*

Neurolysis was practiced in 70% of cases treated by our department. Neurorraphy which includes end-to-end coaptation and *sural* nerve grafting is used in 18% of cases. In the cases treated with neurorraphy, in 61.5% of the cases it was used sural nerve grafting.

Conclusions

Neurosurgical repair of traumatic injury of the peripheral nerves at the Service of Neurosurgery UHC, recognizes all categories of traumatic injury. Computerization for data processing and recording helps greatly in the precision of epidemiological data and constitutes the base that, with the help of data mining, also enables prediction the outcome of the surgeries in new cases.

Future studies to be conducted in this field will focus in determining the level of nerve injury, time from the injury to intervention, distance from the site of trauma to the effector organ. The data will build necessary information for data mining, which based on these important factors that influence the result of nerve repair, will be useful for the prediction of the result in new patients harbouring peripheral nerve injury before undergoing surgery.

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Original Article

Effects of octreotide and allopurinol on liver histology and functions in surgical jaundice: An experimental study

Effects of octreotide and allopurinol in surgical jaundice.

Özgür Ekinci[1], Tunç Eren[1], Aman Gapbarov[1], Mert Gacemer[1], Tulay Ozkinet[2], Faik Çelik[1]

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Abstract

Aim: Mechanical jaundice may lead to adverse metabolic effects in surgical patients. Our aim was to investigate the effects of octreotid and allopurinol on liver histology and functions in rats with experimantally created mechanical jaundice.

Methods: The subjects were divided into five main groups. The rats in Group I (Control) received no interventions. In Group II, common bile duct ligation (CBDL) was performed. In Group III, the same ligation procedure was performed followed by the administration of octreotid. In Group IV, the rats received allopurinol following CBDL and in Group V (Sham), the common bile duct was dissected and left intact. After sacrification of each rat on the seventh postoperative day, blood samples were collected for serum hematocrit, direct bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), amylase, and albumin measurements in addition to the histopathologic examinations of the collected tissue specimens from the liver, terminal ileum, and pancreas. According to statistical analysis, a value of $p<0.05$ was considered as significant.

Results: The direct bilirubin, AST and ALT levels were detected to be significantly elevated in the groups II, III and IV, in which CBDL was performed ($p<0.05$). While significant reductions of serum direct bilirubin, AST and ALT levels were detected in the octreotide group, these parameters were significantly elevated in the allopurinol group ($p<0.05$ and $p<0.05$, respectively). There was no significant difference of hematocrit and albumine levels among the study groups ($p>0.05$). Additionally, in the allopurinol group four rats were found to have increased serum amylase levels and the histopathologic evaluations of their pancreatic samples revealed findings of pancreatitis. According to the histopathologic examinations, significant alterations were detected between the control and sham groups (groups I, V) and the CBDL groups (groups II, III, IV). However, these histopathological findings revealed no significant differences within the subgroup of subjects including CBDL alone (Group II), and CBDL along with the administration of either octreotide (Group III), or allopurinol (Group IV).

Conclusion: The use of octreotide in mehanical jaundice may have protective metabolic effects. Further studies are considered necessary to be carried to support these findings.

Keywords: jaundice, octreotide, allopurinol, general surgery.

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Full Text

Introduction

The liver secretes a daily average of 1-1.5 liters of bile which is passed into the intestines through the bile ducts. Obstruction of bile flow to the duodenum at any reasons (stones, tumors, stenosis, inflammation, external compression) results in the accumulation of bile in the extra- and intrahepatic bile ducts as this congestion is defined as mechanical (surgical) jaundice. The bilirubin mechanism fails in cases of mechanical jaundice leading to elevated direct bilirubin levels which is associated with specific symptoms & signs including yellowing of the scleras, darkening of urine, pale stool and pruritus [1]. The most important secondary effect of mechanical jaundice is the development of infection proximally to the obstruction which may lead to ascending cholangitis and the most common causative microorganism is Escherichia coli [2,3].

The discovery of somatostatin, which is a natural pancreatic hormone, and the studies on its effects and role in several diseases lead to the development of synthetic somatostatin analogs such as octreotid (Sandostatin®, SMS 201-995) [4]. Octreotid has a wide indication spectrum especially in enterocutaneous fistulas, portal hypertension and acute pancreatitis.

Allopurinol, which is a xanthine oxidase inhibitor, is conventionaly used to treat gout and it is also used in other conditions for supportive treatment such as to reduce the adverse effects of chemotherapy given that the enzyme xanthine oxidase is effective on the purine metabolism [5,6]. The enzyme xanthine oxidase enzyme is predominantly found in the liver [7,8].

Mechanical jaundice may lead to adverse metabolic effects and general anesthesia primarily poses an increased risk in these cases. Pre-existing comorbidities including diabetes mellitus, malignancy and infections, significantly increase morbidity & mortality rates. In this study, we aimed to investigate the effects of octreotid and allopurinol on liver histology and functions in rats with experimantally created mechanical jaundice.

Methods

This study was carried out at Istanbul University, Experimental Medicine Research Institute, Laboratory Animal Science Department with the approval of the Animal Experiments Local Ethics Committee of Istanbul University. Fifty male Wistar Albino rats, with weights between 150 and 200 grams, were used in the study. All subjects were fed with standard laboratory food and water.

The subjects were divided into five main groups each of which consisted of 10 rats. The groups were set as; Group I: Control

(C), Group II: Common bile duct ligation (CBDL), Group III: CBDL + octreotid (CBDL+O), Group IV: CBDL + Allopurinol (CBDL+A), and Group V: Sham laparotomy (Sh). The rats in Group C received no interventions. In Group II (CBDL), a laparotomy was performed under ether anesthesia after shaving of the abdomen and the common bile duct was ligated with 3-0 silk ***(Figure 1).***

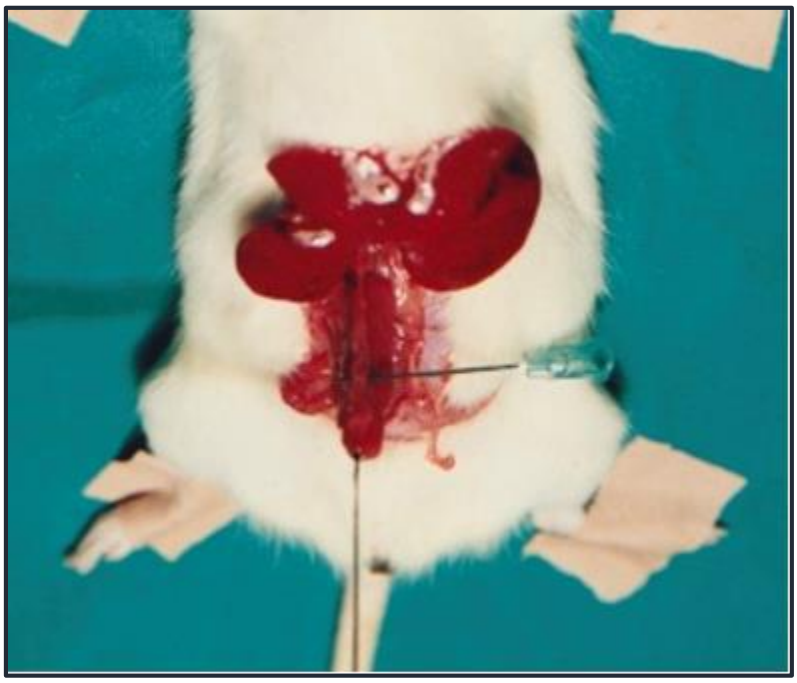


Figure 1. *The surgical preparation of the common bile duct.*

In Group III (CBDL+O), the same ligation procedure was performed followed by the subcutaneous administration of octreotid at a dose of 0.1 mg/kg for seven days postoperatively before the rats were sacrificed. In Group IV (CBDL+A), the rats received 0.1 mg/kg of allopurinol enterally through a polyethylene nasogastric tube for seven days postoperatively before sacrification following the bile duct ligation procedure. In Group V (Sh), the common bile duct was dissected, seperated from the surrounding tissue and left intact without ligation. All rats had their laparotomy incision closure via two layered continuous suturing with use of 3-0 prolene.

The development of mechanical jaundice was verified clinically by acholic stool, urine darkening and biochemical findings in the rats that underwent common bile duct ligation. Following the sacrification of each rat on the seventh postoperative day, a laparotomy was created for the subjects in Group I (C), and a relaparotomy was performed in all subjects of the remaining study groups. The rats blood samples were collected

via cardiac puncture for the measurements of serum hematocrit (Hct), direct bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), amylase and albumine levels. After abdominal exploration, the tissue specimens collected from the liver, terminal ileum, and pancreas were fixated in 10% formaline solution and the histopathologic examinations were carried out by a single pathologist in our institution.

Additional to the descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, maximum), the analysis of variance (ANOVA) was used to compare quantitative data between the groups and for the comparison of qualitative data, the Kruskal-Wallis test was used. A value of $p<0.05$ was considered as statistically significant.

Results

The direct bilirubin, AST and ALT levels were detected to be significantly elevated in Groups II (CBDL), III (CBDL+O) and IV (CBDL+A) when compared with Groups I (C) and V (Sh) ($p<0.05$). While statistically significant reductions of serum direct bilirubin, AST, and ALT levels were detected in Group III (CBDL+O) when compared with Group II (CBDL), these parameters were significantly elevated in Group IV (CBDL+A) when compared to the remaining study groups ($p<0.05$ and $p<0.05$, respectively) (Table 1).

There was no statistically significant difference of Hct and albumine levels among the study groups ($p>0.05$) ***(Table 1).***

	Group I	***Group II***	***Group III***	***Group IV***	***Group V***	
	Control	***CBDL***	***CBDL+O***	***CBDL+A***	***Sham***	*p*
D. Bil. ***(mg/dL)***	0.36±0.06	8.72±0.80	8.44±0.29	10.98±0.71	0.35±0.07	**<0.05 (I, V < III < II < IV)**
AST ***(IU/L)***	57.60±8.98	131.30±40.89	116.20±17.07	184.00±8.51	59.70±7.01	**<0.05 (I, V < III < II < IV)**
ALT ***(IU/L)***	130.30±9.03	293.30±75.02	289.00±72.45	425.00±12.09	134.30±15.37	**<0.05 (I, V < III < II < IV)**
Hct ***(%)***	35.9±1.91	35.5±1.65	36.2±1.48	35.6±1.50	35.5±1.16	**>0.05**
Albumin ***(g/dL)***	3.97±0.13	3.95±0.14	3.90±0.15	3.91±0.22	3.97±0.13	**>0.05**

CBDL: Common bile duct ligatioan **O: Octreotide** **A: Allopurinol**
D. Bil: Direct bilirubin **Hct: Hematocrit**

Table 1. *The comparisons of direct bilirubin, AST and ALT levels among the study groups.*

No significant difference was detected according to serum amylase levels among the study groups except Group IV (CBDL+A) as four rats were found to have increased serum amylase levels in this group and the histopathologic evaluations of the pancreatic samples of these four subjects revealed findings of pancreatitis ***(Table 2).***

Group IV ***(CBDL + A)***

Subject no. ***(#)***	**Amylase** *(IU/ml)*
1	60
2	65
3	70
4	**455**
5	70
6	**458**
7	**600**
8	60
9	61
10	**470**

CBDL: Common bile duct ligation
A: Allopurinol

Table 2. *Summary of the serum amylase measurements in Group IV (CBDL+A) showing significantly elevated levels in subjects 4, 6, 7 and 10.*

According to the examinations of the tissue samples collected from the liver, terminal ileum, and pancreas, significant histopathological alterations were detected in Groups II (CBDL), III (CBDL+O) and IV (CBDL+A) when compared with the Groups I (C) and V (Sh). However, these histopathological findings of the tissue samples revealed no significant differences within the subgroup of subjects having undergone bile duct ligation when compared among Groups II (CBDL), III (CBDL+O) and IV (CBDL+A).

In the subgroup of subjects having undergone bile duct ligation, the histopathological alterations of the terminal ileal specimens included flattening of the mucosa, heavy cellular infiltration of lymphocytes, plasma cells, neutrophils and eosinophils in the lamina propria and serosa as well as mesothelial cellular proliferations. In the intestinal mucosa, the glands were visualized to be partially atrophic. Additionally, in this subroup, the histopathological alternations of the liver sections included dilation of the bile ducts and vessels, endothelial proliferation in the vessels lumens, periductal mesenchymal cell proliferation, lymphocyte, plasma cell and leukocyte infiltration, and endothelial proliferation. Vacuolization of hepatocytes and degenerative changes were remarkable. Dilation and erythrocyte accumulation were observed in the sinusoids as well ***(Figure 2).***

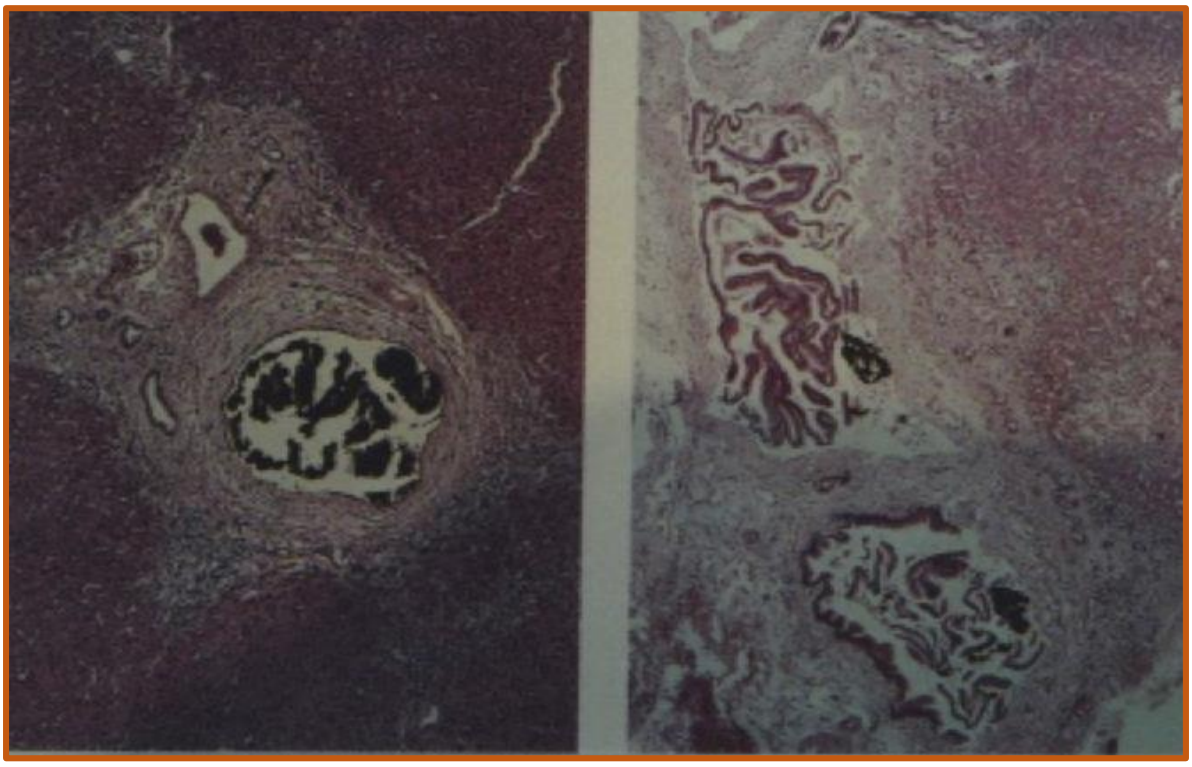


Figure 2. *Histopathological section of a liver specimen revealing erythrocyte accumulation within the dilated sinusoids.*

Discussion

Postoperative hemorrhage, sepsis and organ failure are seen more commonly in surgical patients with mechanical jaundice [9,10]. According to the study of Pitt et al, risk factors for biliary surgery included age, presence of malignancy, anemia, sepsis, leukocytosis, and elevated serum bilirubin levels higher than 10 mg/dL [11]. Consequences such as anemia, sepsis or elevated bilirubin levels higher than 10 mg/dL were not detected in our study group.

Blamey et al reported the serum albumine level as an important factor to estimate biliary tract risk analysis [12]. In the present study, no difference was found among the study groups regarding albumine when compared with the control group. Absence of these risks factors might be an outcome of the short duration of our study.

In their study of 377 obstructive jaundice cases associated with malignancy, Dixon et al revealed that parameters including Hct levels lower than 30% and serum bilirubin levels higher than 20 mg/dL increased the risks of mortality and morbidity in such cases, and they also claimed that reducing serum bilirubin levels in the preoperative period could have been favorable for surgical outcomes [13]. Adverse effects of mechanical jaundice on renal, cardiovascular and immunologic functions have also been proven by other experimental studies [14]. Reduction of serum bilirubin levels results with decreased mortality and morbidity rates, and this concept attracted researchers' attention towards the hemodynamic and immunological affects that are caused by mechanical jaundice [14,15]. In the last decade, preoperative interventions for mechanical jaundice have resulted with better surgical outcomes [11]. This might be a result of proper patient selection, better preoperative preparation and improvements in treament.

It's known that hepatocyte functions fail, insufficiency in reticuloendothelial cell activity develops, and adverse metabolic changes occur in both organ function and wound healing in cases of mechanical jaundice [9,14,15]. Failure in hepatic functions has been detected in the present study as well. In the subgroup of subjects having undergone bile duct ligation, the remarkable histopathological alternations of the liver sections included dilation of the bile ducts and vessels, endothelial proliferation in the vessels lumens, periductal mesenchymal cell proliferation, lymphocyte, plasma cell and leukocyte infiltration, endothelial proliferation, vacuolization of hepatocytes, degenerative changes, and dilated sinusoids with erythrocyte accumulation all of which reveal the adverse effects of extrahepatic cholestasis on the metabolism and histology of the liver.

On the other hand, the prolonged use of octreotide has been reported to decrease bile flow and cause extrahepatic cholestasis in 20% of cases [14,16].

Therefore, we kept the observation period of our study as short as seven days to avoid this complication.

It is a known fact that free oxygen radicals are responsible for many negative events in mechanical jaundice [5,17]. The removal or neutralization of free oxygen radicals may play a role in improved outcomes. Therefore, we have included allopurinol in our study which also poses neutralizing effects on free oxygen radicals. However, four subjects in Group IV (CBDL+A) were found to have increased serum amylase levels and the histopathologic evaluations of the pancreatic samples of these four subjects revealed findings of pancreatitis.

In a study in which the antioxidant defense system in the liver was observed in experimental animals having undergone bile duct ligation, decreased vitamin E and selenium levels were found along with significant decrease in glutathione peroxidase activities and increased lipid peroxidation emphasizing the importance of oxidant damage in jaundice [4]. In mechaninal jaundice, increased levels of bilirubin and bile salts were blamed to distrupt cellular metabolism and membrane transport systems also causing a decrease in the cellular respiratory rate [6,18]. Additionally, it was reported that bile salts inhibit ATPase activity, thereby impairing lysosomal acivities [6]. In our study, it has been considered that although octreotide has beneficial effects on this process, allopurinol may have increased the oxidative damage in mechanical jaundice.

In mechanical jaundice, in addition to the negative effects of intestinal bacterial overgrowth, because of the excess load of ammonia that the liver is obliged to deaminate, the development of liver failure and increased levels of bile salts leads to the translocation of bacteria as well as endotoxemia [2,16]. In our study, we found that octreotide yielded at least promising results on liver functions.

Conclusions

We found no significant difference in biochemical, hematological and histopathological examinations except for serum direct bilirubin, ALT and AST levels between Group II (CBDL) and Group III (CBDL+O), which revealed that the short term application of octretoide posed some beneficial, however, not complete corrective effects on the hepatic changes caused by mechanical jaundice. On the other hand, in the treatment of fistula as a complication of biliary tract surgery (hepaticojejunostomy, choledochoduodenostomy, choledochojejunostomy, etc.) it can be safely used without additional hepatic side effects.

Although the general use of allopurinol for prophylactic or therapeutic purposes is likely to neutralize free oxygen radicals, it has been observed that

allopurinol does not have a curative effect on the systemic consequences of mechanical jaundice. Additionally, since allopurinol increases the risk of pancreatitis, it has been considered that allopurinol should not be used for the treatment of surgical jaundice and that it should be used carefully for the aim of reducing the side effects of chemotherapy administered for biliary tract malignancies.

In conclusion, significantly decreased serum direct bilirubin, ALT and AST levels were detected with the application of octreotide in experimentally created mechanical jaundice. We believe that further well designed experimental and clinical studies are necessary to support our findings.

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Original Article

Road Accidents Management and Emergency Medicine Care.

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Abstract

Background: Traffic accident is when only material damage is caused to the vehicle, track or environment, and there are no casualties. Traffic disaster is such an event in which, besides the material damage, there are human casualties. Traffic disaster is such an event in which, besides the material damage, there are human casualties.

Aim: Provision of emergency medical care in all phases of the management of injured persons in traffic accidents with basic and abnormal trauma support in order to reduce: morbidity, validity and mortality and increasing the quality of EMS.

Materials and methods: Samples of the survey were only injured in traffic accidents and the main causes were; age, sex, place of residence, seasons, weekdays and months, sleepwalking, drug use, alcohol consumption, and medical assessment, poor quality of roads, speed overtaking, car testing, illness, mobile phone use, eating in the car radio CD player.

Result: The research material was obtained from the UCCK Clinic Clinic in Pristina archive for January December 2015 and January October 2016. Research samples were only injured in traffic accidents. In Kosovo, the Emergency Clinic for January December was 55.294 / 9.32% and 66 injured / 0.11%. Over 3 400 people die in the world's streets every day and tens of millions of people are injured.

Conclusions: EMS should be equipped with medical staff, medicines, medical equippment, concrete materials, ambulances with the aim of providing basic and advanced care to the nearest hospital. Educate and train emergency medical professionals with basic and advanced trauma training courses, especially the hospital and prehospital level, and be incorporated as a first class subject at all levels of school.

Keywords: *traffic accidents, injuries, illnesses, EMS, medical care*

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Introduction

Traffic accident is when only material damage is caused to the vehicle, track or environment, and there are no casualties. Traffic disaster is such an event in which, besides the material damage, there are human casualties. Traffic disaster is such an event in which, besides the material damage, there are human casualties. Accidents in road traffic in Kosovo and in the world are taking many human lives, causing; Injuries, Invalidity, Death, Economic Problems,

Family and Multiple Tendencies. Despite the fact that traffic injuries account for only 2.2% of all road accidents and this represents about 33% of annual spending in the US (about $ 40 billion). It has been reported that 50% and 10% of damage due to road accidents is related to head, neck and spinal injuries. In Croatia, in the land of calamity, they die; 53% during hospital transportation, 20% during hospital treatment and 27% of injured persons.

Worldwide, about 54 million people are injured in road accidents. About 1.4 million deaths occur annually. Average income countries have the highest rate that brings 20 deaths per 100,000 inhabitants. While the death rate in Africa is higher (24.1 per 100,000 inhabitants), while the lowest rate is in Europe.

Epidemiology

In the US, the main cause of morbidity and mortality in road traffic is the young age of the population. Light and moderate injuries 224,000 injured. Severe injuries 14,100 injured. Reported 9,000 deaths. While in Kosovo, the Emergency Clinic for January-December was 55.294 / 9.32% and 66 victims / 0.11% dead. More than 3 400 people die on the world's roads each day and tens of millions of people are injured. Children, pedestrians, cyclists and older people are among the most vulnerable to traffic injuries.

Causes: Poor quality of roads, speed overtaking, sleeping patterns, sleepwalking, drug use, alcohol, illness, mobile phone use, eating in the car, radio CD player, distracting attention in case of an accident that is encountered in the street, of the day, the impact of the environment, fatigue, health deficiencies and erroneous estimates or late warning of danger.

Purpose

Provide medical care at all stages of the management of injured persons in traffic accidents with basic and abnormal support of trauma in order to reduce: morbidity, validity and mortality. problem solving, various complaints, advice and possible

solutions to managing injured multiple injuries, enhancing the quality of EMS.

Methodology

The research material was taken from the UCCK - Emergency Clinic in Prishtina archive for January - December 2016 and January - December 2016. Research samples were only injured in traffic accidents and the main causes were; age, sex, place of residence, seasons, weekdays and months, sleepwalking, drug use, alcohol consumption, and medical assessment, poor quality of roads, speed overtaking, car testing, illness, mobile phone use, eating in the car radio CD player.

Results

The research material was obtained from the UCCK - Clinic Clinic in Pristina archive for January - December 2015 and January - October 2016. Research samples were only injured in traffic accidents.

Year	Number of cases	%
January-December 2015	47.543/ 4820	10.13
January-December 2016	55.234/ 5150	9.32

Table 1: *Number of cases by years*

Age	*Number of cases*	*%*
15- 25	*450*	*8.78*
25-35	*2576*	*5040.*
35-45	*1080*	*20.90*
45-55	*955*	*18.20*
Over 65 yrs.	*89*	*1.72*
Total	*5150*	*100*

Table 2: *Number of cases by age*

The number of cases with traffic accident injuries was greater in 2015 were 5150 cases or 9.32%.. The number of cases by age in traffic accident was 25-35 years with 1080 cases or 50.40%. The number of cases per gender is dominated by men with 4980 or 96.69% of cases in contrast to women 170 cases or 3.31%.

The largest number of cases by season is in the summer 2400 cases or 46.74%. The highest number of cases per day, Evening 2417 cases or 46.95%, courses in morning 1090 cases or 21.16%, midnihgt 1293 cases or 25.10% and MIDDAY 350 cases or 6.79 %.

Sex	*Number of cases*	*%*
Male	*4980*	*96.69*
Female	*170*	*3.31*
Total	*5150*	*100*

Table 3: *Number of cases by sex*

Seasons	Number of cases	%
Spring	1680	12.26
Summer	2400	46.74
Autamn	740	29.79
Winter	320	11.21
Total	5150	100

Table 4: Number of cases by season of year

Day - Night	Number of cases	%
Morning	1090	21.16
Midday	350	6.79
Evenning	2417	46.95
Midnight	1293	25.10
Total	5150	100

Table 5: Number of cases per day - night

Causes of traffic accidents	Number of cases	%
Ilness	**1470**	**28.54**
Alcohol	**655**	**12.74**
Drugs	**275**	**5.33**
Without health problems	**2750**	**53.39**
Total	**5150**	**100**

Table 6: Number of cases according to the causes of accidents

Causes of traffic accidents	Number of cases	%
Using mobile phone	781	15.16
Eating in the car	344	6.67
Radio CD player	322	6.25
Others	3703	71.92
Total	5150	100

Table 7: Number of cases according to the causes of traffic accidents

Emergency medical care	Number of cases	%
With low emergency medical care	**2322**	**45.08**
With optimal emergency medical care	**2676**	**51.96**
With high emergency medical care	**152**	**2. 96**
Total	**5150**	**100**

Table 8: Number of cases according to the causes of traffic accidents

The number of cases according to major causes were 1470 cases of 28.54%, courses with alcohol were 655 cases or 17.74$, with drugs were 275 cases or 5.33% and without health problems were 2750 cases or 53.39%.

Number of cases according to the causes of traffic accidents with Using mobile phone were 781 cases or 15.16%, with Eating in the car were 344 cases or 6.67%, with Radio CD player were 322 cases or 6.25% and others were 3703 cases or 71. 92 %. Number of cases and type of transport with With low emergency medical care were 2322 cases or 45.08%,

With optimal emergency medical care were 2679 cases or 51.96%, and With high emergency medical care 152 cases or 2.96 5. with number of cases and type of transport yes were 2781 cases or 54.00% and no 2369 cases or46.00%. Number of cases and type of transport With autoambulance 1992 cases or 38.68%, and Private cars 3158 cases or 61.32%.

Equipment and tools	*Nr.cases*	*%*
YES	2781	**54.00**
NO	2369	**46.0**
Total	5150	100

Table 9: *Number of cases and type of transport*

Types of transport	*Number of cases*	*%*
Private cars	*3158*	*61.32*
With autoambulance	*1992*	*38.68*
Total	*5150*	*100*

Table 10: *Number of cases and type of transport*

Discussion and conclusions

EMS should be equipped with medical staff, medicines, medical consumables, concrete materials, ambulances in order to maintain health, treatment at the scene, transport stabilization and medical care to the nearest hospital. For people with light body bodily light injuries, they should be largely treated out of the box and leave no long term consequences either in functional or aesthetic terms.Sore and moderate bodily injuries should be provided with medical care only by EMS 112 and, after stabilization, should be shipped as soon as possible to medical care at the nearest hospital for monitoring, diagnosis and definitive treatment. Epilepsy patients with severe heart, brain, and malignant illnesses should not drive the car or issue a driver's license without being assessed in medical terms. The road police if they attack a car in the driving force and the stimulus will have to stop the car and invite EMS. Driving licenses must not be issued without a medical certificate and strictly verified by an Authorizing Committee. Road traffi c crashes are predictable and therefore preventable. In order to combat the problem, though, there needs to be close coordination and collaboration, using a holistic and integrated approach, across many sectors and many disciplines. All drivers of cars under the influence of alcohol must pay all their pocket expenses as a cause of the accident. EMS and Police Services that provide support to the accident site, to be regulated with a sub-legal act for those who cause an accident, from their pocket to cover the costs of which services are not covered at all. Educate and train emergency

medical professionals with basic and advanced trauma training courses, especially hospital and hospital level. To be incorporated as a subject First aid at the lower secondary school level and at Universities as compulsory subjects. Campaigns for educating campaign participants, schools and communities should be organized.But unfortunately in Kosovo , there is no fully operational system for emergency preparedness, response and evaluation.

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Original Article

Buccal One-Stage Mucosal Graft Urethroplasty for Urethral Stricture. Results of 10 Years of Experience.

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Abstract

Aim: To represent our data regarding use of buccal mucosa for treatment of recurrent urethral stricture. Evaluating effectiveness of buccal graft for reconstruction of urethral segment both penile and bulbar urethra.

Materials and methods: We repaired 95 urethral strictures with buccal mucosa grafts from 2004 to 2015. Mean patient age was 39 years. The etiology of stricture was unknown in 54% of cases in other cases ischemia, trauma, instrumentation wa ere the reason. 96% had undergone previous urethrotomy or dilation. The buccal mucosa graft was harvested from lower lip mostly. Mean graft length was 3.8 cm. The graft was placed on the ventral and dorsal bulbar urethral surface in 61 and 34 cases, respec tively. In pendulous urethra we routinely use the dorsal graft the Asopa inlay graft or Barbagli onlay graft. Clinical outcome was considered a success or failure at the time that any postoperative procedure was needed, including dilation. Mean follow up was 36 months (range 16 to 62).

Results: We had a success rate of 77% with dorsal inlay or onlay flap for pendulous urethra inferior than ventral graft used for bulbar urethra which was 81% success rate.

Conclusions: In our experience the placement of buccal mucosa grafts into the ventral or dorsal surface of the bulbar urethra showed an acceptable success rates 81% and 77% respectively Longer times of follow up is need to see if the results deteriorated more.

Key words: urethral stricture, urethroplasty, buccal mucosa, buccal graft,

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Full Text

Introduction

Buccal mucosa graft (BMG) was first described for urethral reconstruction by Humby in 1941. (1). Most urologists commonly perform graft urethroplasty for strictures >2 cm. Buccal mucosa represents the first choice of ventral graft in the bulbar urethroplasty for strictures longer than 2 cm. The dorsal graft placement can be performed by the Barbagli tecnic or the Asopa ones. The first consists in dissecting the urethra from the corpora cavernosa and its rotation of 180°; the exposed dorsal urethral surface is opened and augmented with the graft splayed on the corpora (***Figures 1,2).***

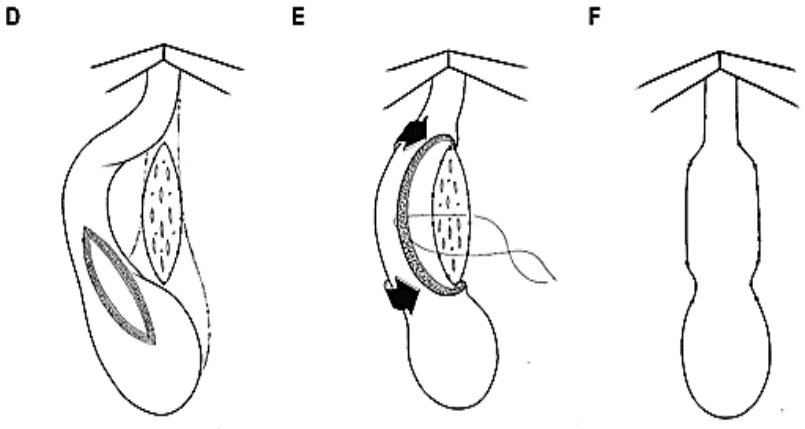


Figure 1

In the Asopa procedure the urethra is approached by a ventral-sagittal opening; subsequently, the dorsal urethra is medially incised to create an elliptical area over the corpora where the graft is placed. This approach is easy to perform because the scarred urethra with marked spongiofibrosis is not mobilized and thereby the blood supply is guaranteed by the saved circumflex and perforating arteries (Figures 2, 3), [3].

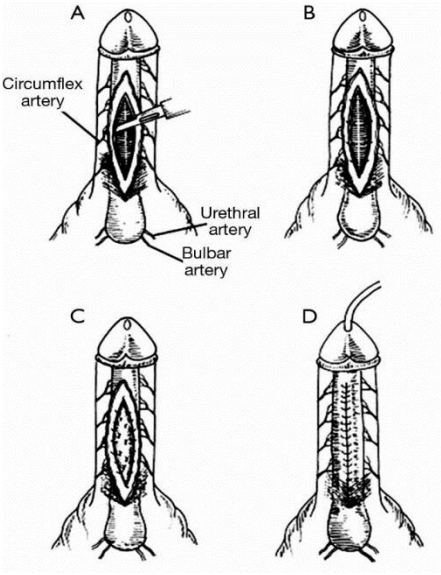


Figure 2

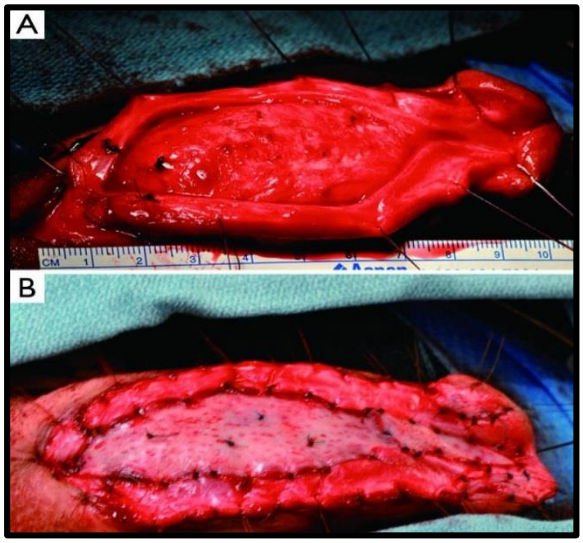


Figure 3

In 1996, Morey and McAninch fully described the ventral onlay buccal mucosa grafting urethroplasty[4], which we prefer for dorsal strictures.

Prior to the use of oral mucosa, penile skin was the preferred tissue-transfer material for urethroplasty. But oral mucosa is far superior from skin because it has some specific qualities (***Figure 4).***

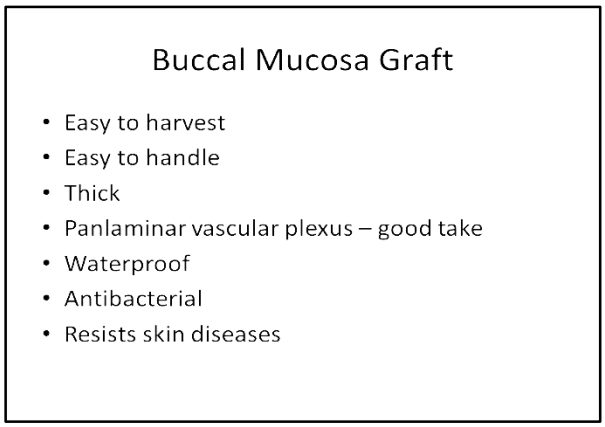


Figure 4

Patients and methods

We repaired 95 urethral strictures with buccal mucosa grafts from 2004 to 2015 as a one-stage procedure. Initial patient work-up of the stricture includes a

urinary symptom review, uroflowmetry, and post-void residual measurement. Urinalysis to rule out infection was done routinely. Once strongly suspected, the most useful information comes from a retrograde urethrogram (RUG). This study, when performed correctly, i.e. penis on stretch and with oblique views, effectively identifies the location, number, and length of the stricture. Theother alternative procedure we did, was flexible cystoscopy.

Mean patient age was 39 years. The etiology of stricture was unknown in 54% of cases in other cases ischemia, trauma, instrumentation was the reason. 96% had undergone previous urethrotomy or dilation ***(Table 1).***

Causes of strictures	**Number of patients**
Unknown	52 patient
Traumatic	16 patient
Ischiemic	7 patient
Catheterisation	14 patients
Infection	6 patients

Table 1

The lithotomy position with a mild head down tilt was used. All the patients had general anesthesia with endotracheal intubation following which prophylactic antibiotic was given.

The skin, subcutaneous tissue, and fats were dissected off the corpus spongiosus muscle on either side of the incision. A perineal ring retractor was then positioned to maximize exposure. A midline incision similar to that of the skin was made on the corpus spongiosus muscle which was then dissected away from the underlying urethra and the retractor repositioned deeply. The buccal mucosa graft was harvested from lower lip mostly (***Figure 5).*** Mean graft length was 3.8 cm.

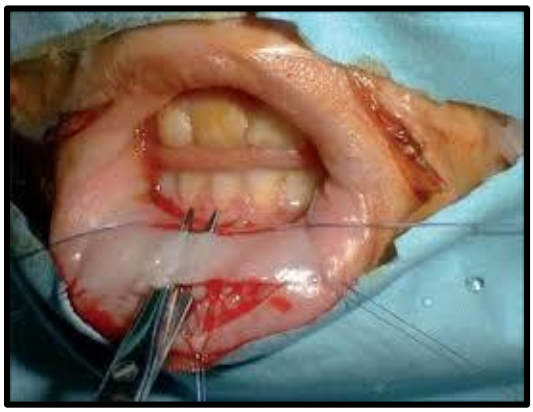


Figure 5

The graft was placed on the ventral and dorsal bulbar urethral surface in 61and 34 cases, respectively. We used the ventral placement of buccal graft in bulbar urethra which represented the vast majority of cases. While in penile urethra and meatalstenoses we used dorsal graft. We preferred the Barbagli dorsal approach in 25 cases. In 19 cases we used the Asopa inlay graft (***Table 2).***

Types of buccal graft procedures	**Number of patients**
Ventral onlay	61 patients
Asopa procedure	19 patient
Dorsal Barbaglionlay	25 patient

Table 2

We preferred to use the inlay graft when we saw that extensive fibrosis and fistula was present. We had two cases of fistula in penile urethra: one because of failed previous repair by end to end anastomosis, the other because of rupture of penile urethra due to motor accident and subsequent trauma with fistula formation of penile urethra. In two meatal stenosis after previously failed dilatations, we used the inlay graft also.

In 61 cases ventral onlay graft was used in bulbar urethra. We did make much of

preparation laterally trying to open midline the strictured urethra after placement of guide-wire with cystoscopy and injection of blu-metilene to identify the urethra. Much of care was given placement of first stich deep in prostatic urethra to introduce well the buccal graft inside prostatic urethra.

Postoperatively, intravenous fluid, antibiotics as quinolones, and wet gauze pressure packing of the oral wound were continued. The antibiotic was continued orally for 14 days. Hexetidine mouth wash was resumed 24 h postoperative and was done following each meal. A silicone catheter was left in urethra for 21 days. A cystogram was done on 21-th postoperative day and if there was no extravasation the catheter was removed.

Clinical outcome was considered a success or failure at the time that any postoperative procedure was needed, including dilation. Mean follow-up was 36 months (range 16 to 62).

Uroflowmetry was done routinely after 3 months and cystoscopy in 6 months. In cases of failure aurethrotomy was done and in 4 cases a second redo urethroplaty was performed.

Results

95 patients with mean age of 39 years underwent buccal mucosal graft urethroplasty. The etiology of the urethral stricture was unknown in 52 (54.7%), trauma in 16 (16.9%), ischemic in 7(7.4%), catheterization in 14 (14.7%), infection in 6 (6.3%). The strictures were located in penile urethra in 34 patients (35.8%), bulbar urethra in 61 (64.2%). The mean length of strictures was 3.8 cm. The previous treatments done for the patients included the following: urethrotomy in 78 (82.10%), dilatation in 8 (8.42 %), and urethroplasty in 9 (9.48%). 36 patients (37.9%) had at least 2 unsuccessful urethrotomies performed.

With mean follow-up time of 36 range (16 to 62) months, overall success rate was near 80% . We had a success rate of 77% with dorsal inlay or onlay flap for pendulous urethra inferior than ventral graft used for bulbar urethra which is 81%.

Overall postoperative complications were wound infection in 6 (6.31%), ring stenosis resulting in urethrotomy in 12 (12.63%) meatal stenosis in 4 (4.21%), and mild chordee in 3 (3.1%). There were no erectile dysfunction or urinary incontinence. Three patients (3.1%) experienced paresthesia in their lower extremities after the operation, which resolved during the hospitalization period. Minor buccal discomfort occurred in 18 patients (18.9%) after surgery but all of them became symptom-free during their follow up. We did not meet any major bleeding during the procedure and we did not need any blood transfusion during the procedure and in postoperative period.

Discussion

In our experience in 54% of cases there was no obvious cause of stricture and it may be higher in special locations as Barbagli reported 65.3% of bulbar strictures with unknown etiology (5). Other causes such as catheterisation, postinflamatory and trauma are less frequent. We did not include in our series lichen sclerosus and hypospadia which represent another challenge to be face with. Dilation and urethrotomy continue to be the most commonly used techniques, but their failure rates are high with recurrence in 47.6% of patients and many patients progress to surgical repair. Moreover, repeated dilation or urethrotomy exacerbates scar formation, thus adding to stricture length and predisposing to a more difficult definitive open repair and a lower success rate (6, 7). We face this problem in our experience. More than 40% of cases had two or more than two internal urethrotomies, which we think represent a real challenge for grafting and long-term results due to extensive spongiofibrosis. A recent survey showed that 57.8% of urologists do not perform urethroplasty, whereas 31–33% would continue to manage the stricture by minimally invasive means, despite predictable failure, and most of them believed that the literature supports the use of urethroplasty only after repeated endoscopic failure (8).

Open urethroplasty using buccal graft is the gold standard treatment for urethral strictures. Buccal mucosa is hairless with a thick elastin-rich epithelium and a thin and highly vascular lamina propria; also its use avoids cosmetic disadvantages and consequences caused by the use of genital skin (5). The surgical technique for penile urethral reconstruction is basically selected according to the etiology of the urethral stricture disease and to stricture length. BMG urethroplasty is the most widespread method for the repair of long strictures in the bulbar urethra, but the location of the graft on the urethra surface (dorsal versus ventral) has become a contentious issue. In Barbagli's experience, the placement of the grafts on the ventral, dorsal, or lateral surface of the bulbar urethra provided the same success rates (83% to 85%) and stricture recurrence was uniformly distributed in all patients (9). In our experience the success rate drop to 77% due to extensive fibrosis and inflamation but in most cases a later internal uretrothomy was needed. Only in 4 cases we redo the buccal graft again.

Conclusions

In our experience the placement of buccal mucosa grafts into the ventral or dorsal surface of the bulbar urethra showed an exceptable success rates 81% and 77% respectively. Treatment of failure can be done by internal

urethrotomy in majority of cases. In 4 cases we needed to redo the graft procedure. For bulbar stricture the ventral graft is a good alternative, while for penile urethra dorsal Barbagli or inlay Asopa remains the preferred procedure in our experience. Longer times of follow up is need to see if the results deteriorated more.

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Original Article

Burn Hand, Outcome Analysis and Therapeutic Aspects of Burn Treated in Albania.

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https://doi.org/10.32391/ajtes.v3i1.18

Abstract

Background: Even that the entire hand represents 4 percent of the TBSA, The American Burn Association, the Advanced Trauma Life Support, and the Advanced Burn Life Support curricula all recognize the severity of hand burns by classifying these as injuries requiring treatment at a burn qualified centre. Hand burns occur commonly both as part of larger burn injuries as well as isolated injuries. Due to damage to the skin and other parts of the hand, burns can lead to open wounds, disability, severe emotional and psychological complications, and economic burden.

Aim: To give an overview of epidemiologic features and outcome of burn hand patients who are admitted in our Service. This current study was performed in University Hospital Centre "Mother Teresa" Tirana which is the only tertiary hospital in Albania.

Material and methods: In this retrospective study were included all patients who had combustion of the hands solely or hands accompanied with burns to other areas of the body, treated and followed up during the years 2011 2016.

Results: Of the 333 included burn patients, 64% were males.The median age of women is 21.8 years, of men is 27.5 years and the median age total patients' population is 25.9 years. About half of patients belong to the age group 20 60 years (49.5%) and only 10.2% belong to the age above 60 years. In most of the cases (73.6%), the burn of hands is associated with burn of the other anatomical region, mostly forearm.

Conclusion: The goal of wound management is to have the skin healed by post burn in two weeks' time. In many cases, this will occur nonoperatively with good wound care. The surgical treatment is used for less 30% than of patients. Surgical excision of the burn with split thickness skin grafting should be undertaken as soon as it becomes obvious that wound healing will not be complete by post burn day 14. The undesirable results of the burn of hands are presented in the 33% of the patients. The contractures were the main unfavorable outcome of the burned hand.

Keywords: *hand burn, epidemiology, treatment outcome*

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Full Text

Introduction

Burns are the fourth most frequent traumatic cause in the world, following accidents, crashes or violence (1). Burns are a major cause of global damage. The World Health Organization estimates an incidence of 1% and more than 300,000 people die each year from combustion-related fires (2).

In high-income countries, there is a reduction in the incidence of burns, severity of burns, hospitalization and mortality rates. But the prevalence of combustion is higher in developing countries than in developed countries, and this is related to the survival rate of burning patients in developed countries closely related to providing first aid and appropriate treatment after initial assessment (3.4).

The adults are most likely to burn at home, outdoors or at work. Burning in adult males occurs more often outdoors and at work, while women in usually live at home. At home the most common cause is cooking, since it is the most common activity. Greater older people often experience burns in the bathroom and then in the kitchen, while children are more often burned in the home environment (84%) and in 80% of cases of burns children are rich. Due to damage to the skin and other organs, burning can lead to open wounds, disabilities, deaths and major economic consequences, deep psychological and emotional complications (3).

Therefore, burning patients require not only acute treatment but also subsequent rehabilitation, reconstruction and long-term anti-scar therapy. Although 90% of combustion is preventable, burns still remain a major public health problem (5). To improve the effects of preventive measures it is necessary to recognize epidemiologic features and the frequency unwanted outcomein post burning phase.

Material and methods

In thisretrospective study were included all patients who had combustion of the hands solely or hands accompanied with burns to other areas of the body, treated and followed up at the Burns and Plastic Service of the University Hospital Centre “Mother Teresa” during the years 2011-2016.

For each patients were collected demographic data (age in years, sex), anatomical region, association of burned hand with other burned areas, the treatment used (surgical or conservative) unwanted post-burning outcomes (contractures, ulcerations, etc.). This study was accepted by the ethical committee

of Tirana University of Medical Sciences, Tirana, Albania. All continuous variables were presented as means ± SD, and the frequencies of categorical variables were presented as percentages. Chi-square test was used to compare the proportions of categorical variables and student *t*-test to compare the mean of continuous variables. A P value <0.05 was considered significant.

Results

The study included 333 patients with burning of hands. 214 (64%) of the subjects selected are males and 36% are females. The median age of women is 21.8 years, of men is 27.5 years and the median age total patients' population is 25.9 years.

	Age, years						
Gender	N	Mean	SD	Min	Max	Median	IQR
Female	119	27.8	23.2	1	91	21.8	4.7 – 43.9
Male	214	31.2	21.4	0	91	27.6	13.0 – 50.5
Total	333	29.9	22.1	0	91	25.9	11.5 – 49.1

Table 1*. Summary statistics of age by gender*

In total, almost half of patients belong to the age group 20 - 60 years (49.5%) and only 10.2% belong to the age above 60 years (table 2). There is a statistically significant difference in the distribution of patients by age group and gender, with males predominating in age group 20-60 years (55.1%) (p<0.01).

Gender	Agegroup, years			Total
	< 20 age	20-60 age	> 60 age	
Female	57	48	14	119
	47.9%	40.3%	11.8%	100.0%
Male	77	118	20	214
	36.0%	55.1%	9.3%	100.0%

Total	134	165	34	333
	40.2%	49.5%	10.2%	100.0%

Table 2. *Distribution of patients by age group and gender*

Based on the anatomical region, it is noted that the hand solely is affected in almost 26.4% of cases, the hand and forearm in 34% of cases, hand and face and in 24.3% of cases. In 15.3% of cases the patients had burns of the body, the gluteal region and the lower extremities (table 3).

Anatomical region	N	%
Hand and forearm	113	34.0
Hand and face	81	24.3
Hand only	88	26.4
Hand and different regions	51	15.3
Total	333	100.0

Table 3. *Distribution of cases according to anatomical region*

Of the 333 patients with burned hands only 98 (29%) of them underwent surgical treatment of the wounds (95% CI 24.4 – 34.1).

In total, after treating 333 patients with hand burn, 102 patients or one in three patients showed undesirable results such as contractures of various levels, ulcerations, syndactyly or keloid.

In most cases, undesirable outcomes are dorsal web-space contracture (28%, and ulceration/ wounds (27.1%) ($p<0.01$). Syndactyly and Keloid are rarely found.

Unwanted outcome	N	%
Dorsalweb-space contracture	28	28.1
Volar contracture	16	6.6
Fingers' contracture	22	22.9
Ulceration/wounds	27	27.1
Syndactyly	7	7.4

Keloid	2	2.1

Table 4. *Distribution of unwanted effects*

Discussion

Investigating combustion epidemiology and unwanted outcomes is important for assessing the effects of preventive and treatment measures on burning. The findings of our study represent the epidemiological situation in Albania, considering that the Plastic and Burns Department at the University Hospital Centre is the only tertiary service specialized in the treatment of combustion. Burns occur at all ages, including pediatric and advanced age, defining burning an unintended injury with a very broad age range. Burning is a disability that is often encountered in working age. This study's data show that the average age is approximately 30 years and that the age group most affected is 20-60 years old. The age of over 60 is less affected by the fact that in this age group the individual is less active and less exposed to the risk factors for combustion. Men have a higher percentage of burns in all age groups and this is explained by the fact that they are more exposed to different etiologic factors of burning such as fire, electricity etc. while women are more exposed to cooking facilities with a low likelihood of burning (3.6-9). Thus, adult males are more likely to have burns of hands according to the experience at our clinic. Among women, burning is most common in the age group <20 years. This finding is supported by the fact that the average age of women who have had burns is lower. According to the World Health Organization, this is explained by the fact that young girls are often involved in housework and caring for younger children by placing them in the kitchen facilities and increasing the risk of burns due to carelessness (3). In most cases, hand burning is accompanied by burns in forearm, and only one in four people have solely hand burns. Cases when burns of the hand are associatedwith burns to other anatomic regions are rarer. Often, left hand is most affected than right one, and rarely both hands. Surgical treatment was applied in 29% of patients and undesired outcome were evidenced in nearly one-third of the cases involved in the study, which is consistent with studies reported in literature (10-11). The most common unwanted post-burn outcomes were contractures and ulcerations/ wounds. In 50% of cases were

reported most commonly dorsal and finger contractures and less are keloids or syndactyly. The findings of the study are similar to *Salisbury's et al.*study (12) on post burning deformities in upper extremities with hand and finger contractures being more frequent, as well as the study conducted in Kosovo in which the contractures also rank high as the most common unwanted outcome of burned hand (13).

Conclusion

Burns are injuries commonly encountered in adults. According to gender, males are more likely to have burns while among women burn occur more frequently under the age of 20. Combustion of the hands is usually associated with burning injuries to other anatomic areas of the body, especially the forearm. Most hand burns do not require surgical treatment, but almost one in three patients who have suffered from hand burns experience unwanted results in the post-burning stage. According to our study, the most common unwanted outcome is hand or finger contractions in almost half of the cases.

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Original Article

Solitary Cecal Diverticulitis During Surgery for Acute Appendicitis.

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Abstract

Background: Cecal diverticulitis is an unusual condition that presents clinically similar to appendicitis. The diagnosis is not always easy and in the majority of cases it is usually made during laparotomy.

The aim of the present study is to retrospectively report our experience with solitary cecal diverticulitis, to determine its incidence in patients presenting as an acute abdomen, as well as identify the symptoms and clinical features that may aid in making a pre-operative diagnosis. And to compare this with a review of the literature, focusing on the surgical treatment and also on the indication of appendectomy in the presence of cecal diverticulitis not requiring surgery.

Material and methods: Data was collected in patients hospitalized for acute appendicitis or acute abdomen, in the surgical emergency unit of University Hospital Centre "Mother Teresa" Tirana, in a period of 3 years (2015-2017). Sex, age, duration of symptoms, preoperative diagnosis, management, intraoperative findings, histologic examination, length of hospital stay and complications of all patients affected by solitary cecal diverticulitis were reviewed.

Results: In the study period, 15 patients presented with a solitary cecal diverticulitis. All patients presented with abdominal pain, additional symptoms were nausea, vomiting and fever. The mean white blood cell count was from 8500 19.200/mm3, while the remaining laboratory results were normal. There were no specific findings on abdominal X ray or ultrasonography. Intraoperative findings ranged from localized /circumscript peritonitis to generalised peritonitis due to acute diverticulitis and a normal appendix. Surgery ranged from diverticulum resection accompanied to appendectomy, to ileocecal resection, and right hemicolectomy.

Conclusions: Cecal diverticulitis should be included in the differential diagnosis of the cases with pain in the right lower quadrant. Preoperative diagnosis of cecal diverticulitis cannot always be made, since the signs and symptoms are similar to acute appendicitis, but is important in order to decide how to manage this condition. Diverticulectomy and incidental appendectomy are the preferred method of treatment in uncomplicated cases. Right hemicolectomy is a recommended treatment option in complicated patients or those suspicious for tumor during surgery.

Keywords: Solitary, Cecum, Diverticulum, Appendectomy

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Introduction

The cecal diverticula described for the first time by Potier in 1912[1] remain a rare entity, especially if solitary, with an incidence between 1:50 and 1:300 of that of appendicitis[2]. In Europe and in The United States, right side colon diverticulitis remains a rare and uncommon pathological finding.

The incidence of solitary cecal diverticulum (SCD) in North America is about 1–2 %, while in Corea, China and Japan the incidence is ten times higher, accounting for 43–50 % of all cases of colonic diverticulosis [3]. Cecal diverticula form 3.6 % of all colonic diverticula, and 13 % of these develop inflammation at some time [3][4][5]. The mean age of patients is around 40 years, with male predominance of 60% [3][4][5].

Cecal diverticulae are classified as congenital or acquired. The congenital cecal diverticulae are true diverticulae; these include all the layers of the cecal wall and develop at 6 weeks gestation from a transient out-pouching of the cecum[3].The false or acquired diverticula are similar to sigmoid diverticula, and contain no muscular layer[3].

Cecal diverticula can also be classified as solitary or multiple, and can be found in the appendix, cecum, and ascending colon [8]. The area which is 2.5 cm from the ileocecal junction is the area from which 80% of CD stem [6]. About 50 % are on the anterior cecal wall and may cause peritonitis [7]. When the cecal diverticula are posterior, this may cause inflammatory masses that simulate carcinoma [7]. Acute appendicitis is the clinical diagnosis in 85 % of the cases of cecal diverticulitis [3]. Despite advances in radiological examinations, a correct preoperative clinical diagnosis occurs in only 4– 16 % of cases [9].

Aim of study

The aim of our study is to identify the symptoms and clinical features that may aid surgeons to make a preoperative diagnosis.

Material and methods

This is a retrospective analysis performed to identify patients with solitary cecal diverticulitis who presented with "*acute surgical abdomen*" at "Mother Teresa" University Hospital Center of Tirana, from September 2014 to September 2017.

They underwent surgery for a preliminary diagnosis of acute appendicitis and were diagnosed intraoperatively with SCD. Demographic characteristics, causes of hospital admissions and their past medical histories were recorded. Preoperative laboratory and radiological evaluations were also reviewed. Operative findings, surgical methods, early postoperative follow-

up and pathologic examination results were evaluated.

Results

During the study period, 1808 surgeries were performed for acute appendicitis. The study group consisted of 15 patients, with an incidence of 0.8% or 1:120 appendectomies.

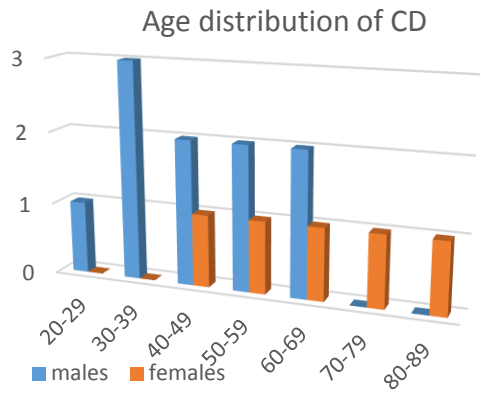


Chart 4.1: *Age distribution of patients diagnosed with SCD in our study.*

Their mean age was 52 years (range: 24-88). Ten patients were male and five were female (male / female 2:1). [Chart 4.1].The SCD patients presented to the Emergency Department with localized RIF pain of 3–7 days duration.

Acute appendicitis was the clinical diagnosis in 10 (66.7%) of them and acute abdomen for determination in 5 (33.3%) of them.The reported abdominal pain was similar to that seen in acute appendicitis, but with the pain felt higher than Mc Burney's point and often milder in description.

Presenting symptoms	*Nr. of Pts.*	*Percentage %*
Right sided abdominal pain	9	60
Infraumbilical pain	6	40
Diarrhea	4	26.6
Anorexia	5	33.3
Constipation	4	26.6
Nausea	4	26.6
Fever	6	40
Vomiting	4	26.6
Sweats	5	33.3

Table 4.1: *Presenting symptoms of patients with comfirmed cecal diverticulitis.*

Pain was experienced for a longer duration (four to seven days) and with a lack of toxicity. Those who reported having diarrhea had symptoms for a week prior to their admission due to the inflammation from the cecum affecting the nearby terminal ileum [Table 4.1]. Blood tests showed an elevated white blood cell count in eleven patients (73%). In four of them were normal. [Table 4.2]

Diagnosis of SCD was confirmed in 5 of the 15 patients on imaging studies alone. An ultrasound exam was useful in three cases (n = 3/15, 20%), while a computed tomography (CT) scan was done in only four cases, and resulted in strong suspicious for the pathology in only two cases (n = 2/15, 13.3%). In the other 2 patients great suspicions were for cecal tumor mass.

Nine patients were operated by McBurney incision, in two of them the incision was converted to median

inferior, in 5 of them the median incision was used from the beginning and in one patient a pararectal incision was used. [Table 4.2]

In two of 15 cases (13.3%) the cecal mass was located medially above the ileocecal junction. In one case medially and too near the ileocecal junction [Picture 4.1].

In six cases (40 %) the cecal mass was anterior, and in two cases (13.3%) the cecal mass was located laterally.

In two cases it was located posteriorly as a posterior abscess.

Two of 15 patients (13.3 %) had a perforation of their diverticulum.

Nr	Sex	Age	Sympt length	WBC	Diagnose	Incision	Operative findings	Surgery	Length of stay	Path-ology
1	M	24	3 days	12300	IO	McBurney	2-3 cm Anterior inflamed cecal mass	Div.ect + IncApp	3	Norm app.
2	M	54	4 days	15200	IO	McBurney	2 cm anteriorly perforated diverticulum	Div.ect + IncApp	4	Norm app.
3	F	63	6 days	10500	IO	McBurney converted to Median Inferior	3*3 necrotized cecal diverticulum near cecal valve	Right h.colectomy + IC anast	5	Div.
4	M	32	6 days	17700	CT+POP	Median Inferior	Generalized peritonitis, diverticular perforation	Ileocecal resection + IC anast	6	Div.
5	M	65	5 days	14300	IO	Median Inferior	Generalized peritonitis, diverticular perforation	Right h.colectomy + IC anast	6	Div.
6	M	38	4 days	11600	IO	McBurney	2 cm lateral diverticular cecal mass	Div.ect + IncApp	3	Norm app.
7	F	70	7 days	8600	CT+POP	Median Inferior	Perforated posterior ganrenous cecal diverticulum	Right h.colectomy + IC anast	8	Div.
8	F	46	4 days	13800	IO	McBurney	Pericecal mass, anterior inflammed diverticulum	Div.ect + IncApp	5	Norm app.
9	M	48	3 days	9700	IO	McBurney	Anterolateral abscess, perforated diverticulum	Div.ect + IncApp	4	Norm app.
10	F	88	7 days	11600	CT (post app) POP	Median Inferior	Generalized peritonitis ex perforated cecal diverticulum	Right h.colectomy + IC anast	7	Div.
11	M	30	6 days	10700	IO	McBurney converted to Median Inferior	Retrocecal abscess, perforated cecal diverticulum	Right h.colectomy + IC anast	5	Div.
12	M	47	3 days	9700	IO	Pararectal	Anteromedial cecal	Div.ect + IncApp	4	Norm app.

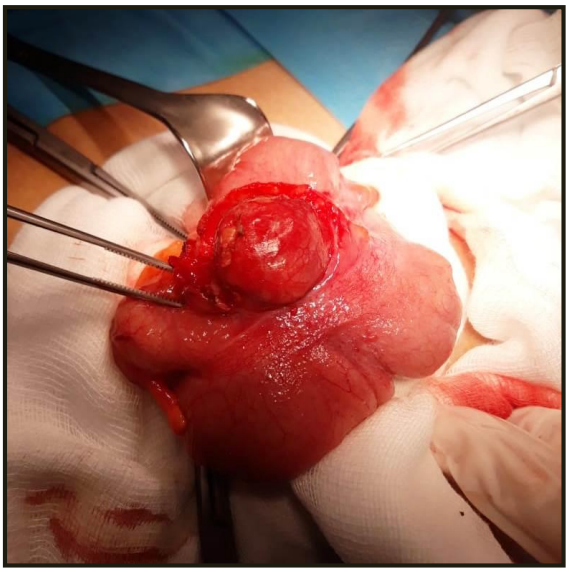
							diverticular mass			
13	F	56	4 days	10400	IO	McBurney	2cm medially to caecum inflamed diverticulum	Div.ect + IncApp	3	Norm app.
14	M	67	5 days	15700	CT (post app) POP	Median Inferior	Generalized peritonitis ex perforated cecal diverticulum	Right h.colectomy + IC anast	6	Div.
15	M	57	3 days	9200	IO	McBurney	Inflamed diverticulum anteriorly to cecum	Div.ect + IncApp	3	Norm app.

Table 4.2: Database of patients with confirmed SCD. *(Post app=Post appendectomy; POP=Postoperative; Div.ect=Diverticulectomy; IncApp=Incidental appendectomy; H.colectomy=Hemicolectomy; IC anast= Ileocolic anastomosis; Div=Diverticulitis; Norm app= Normal appendix).*

From 15 patients operated we found: An inflamed diverticulum in 4 cases, an inflamed cecal mass in two patients, and while in the other four patients was found an abscess retrocecally, or in a pericecal location.

In five patients a pelvic/generalised peritonitis due to free perforation was found. In two cases the diverticulum was found medially and too near the ileocecal junction, in six cases (40 %) the cecal mass was anteriorly, and in two cases (13.3 %) the cecal mass was located laterally, in two cases it was located posteriorly as a posterior abscess.

Regarding the surgical technique performed, in eight of fifteen patients a diverticulectomy and appendectomy was done (n=8, 53.3%), in six of them a right hemicolectomy was performed (n=6, 40%), and in only one of them (n=1, 6.7%), ileocecal resection was the chosen procedure. [Table 4.2; Chart 4.2].



Picture 4.1: *Intraoperative picture of a solitary cecal diverticulum too near the ileocecal valve.*

Post-operatively, all patients were continued on intravenous antibiotics until their symptoms resolved (mean time of three days). The intravenous antibiotics regimen consisted of

Cefazolin 1 g, every six hours, Metronidazole 500 mg, every eight hours, and in some of them an adjusted dose of Gentamycin (80 mg twice daily). Patients with a Penicillin allergy (n = 1) received a regimen of Ciprofloxacin.
All patients, regardless of treatment modality, were also given a course of oral antibiotics on discharge from hospital for 5 days.

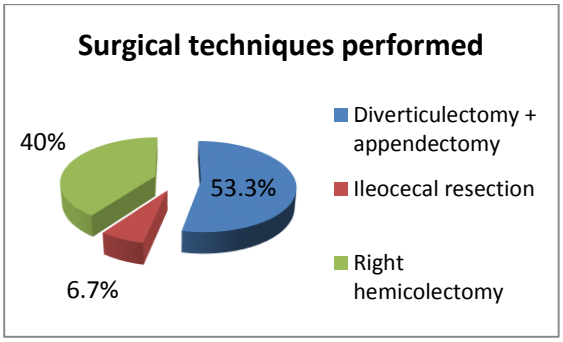


***Chart 4.2**: Surgical techniques performed in patients confirmed with SCD intraoperatively.*

The hospital stay varied from 3 to 8 days. Five patients had postoperative complications: one had urinary retention, three others had a wound infection and one had a postoperative haemorrhage.
The histopathologic examinations of all seven resected ileocecal specimens were reported as solitary cecal diverticulitis.
All patients, regardless of treatment modality, were also given a course of oral antibiotics on discharge from hospital for 5 days.

Discussion

It is presumed that a single cecal diverticulum is in fact a congenital one that appears in the 6th week of embryonic development[3]. Like other congenital diverticula, the cecal diverticula remain asymptomatic until the onset of complications: perforation, inflammation, or malignancy[6][10]. Clinically, patients with SCD present with a long history of right lower quadrant abdominal pain, with the absence of systemic toxic signs and of nausea/vomiting [11]. Unlike in appendicitis, the pain remains in the right lower quadrant instead of migrating from the epigastrium [12].
Differential diagnosis is initially done with acute appendicitis, then with right kidney colic, pelvic inflammatory disease, ureteral calculi, cecal perforation due to foreign body intake and Crohn's disease. There are certain signs that may point the surgeons attention to the diagnosis of cecal diverticulum, the most important being the duration of pain, which does not have periods of lull, and absence of toxic signs, nausea and vomiting[13].
Preoperative diagnosis is often extremely difficult, certain investigations being necessary for a right diagnosis. Barium enema was considered in the past to be sufficient for the diagnosis of cecal diverticulosis, but according to literature, its interpretation may often be erroneous or inconclusive.
Abdominal ultrasound may reveal free fluid in the right iliac fossa and a

thickened lumen of a formation that belongs to the cecal wall, but it is hard to distinguish from the appendix. Colonoscopy remains the "gold standard" for the diagnosis of cecal diverticula. Colonoscopy will not be performed in acute cases of diverticulosis or when the diverticula are perforated[14].

Currently, CT scan, ultrasound (US), and magnetic resonance (MR) imaging have all been described as effective modalities to preoperatively differentiate right-sided diverticulitis from other intra-abdominal pathology. Findings on CT scan consistent with a diagnosis of right colon diverticulitis are similar to those appreciated with left-sided disease. Findings include colonic wall thickening, presence of extraluminal mass, haziness and stranding of adjacent pericolic fat, and thickening of nearby fascial planes[15][17]. Though CT scan has a documented diagnostic accuracy rate of 90% to 95%, right-sided diverticulitis may still be radiographically mistaken for appendicitis with abscess, Crohn's disease, omental infarction, or colon cancer[15][16].

There are four grades of diverticulitis according to the management guidelines (ACS recommendations). Grade I: inflamed diverticulum; Grade II: inflamed mass. Grade III: localized abscess/fistula. Grade IV: perforation/ruptured abscess with generalized peritonitis;[21].

Table 5.1 lists all treatment possibilities and associated advantages and disadvantages depending on the disease status.

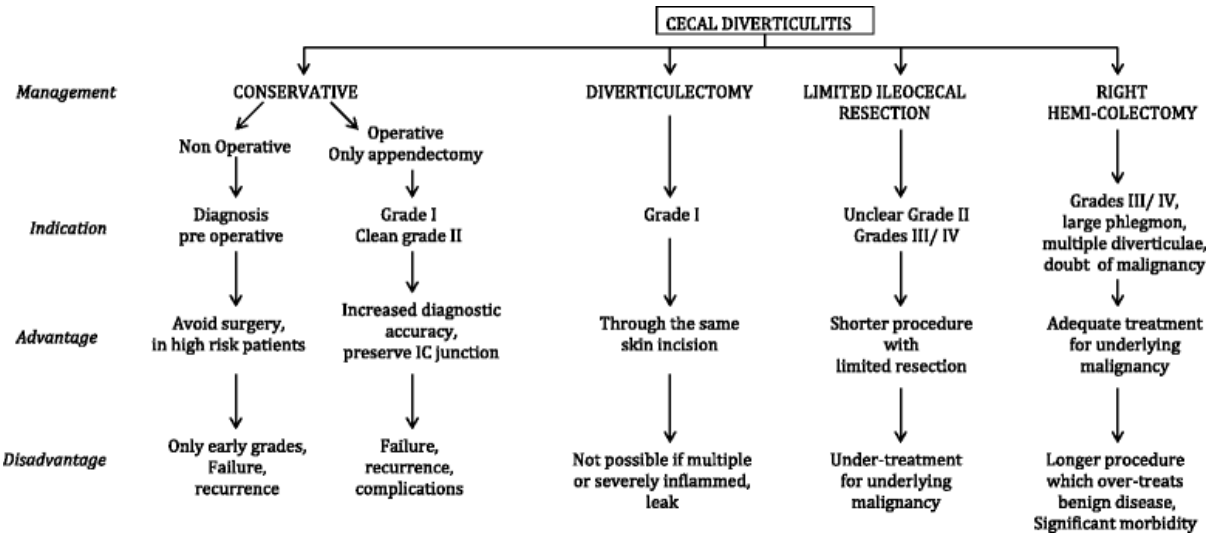


Table 5.1: *Treatments and associated advantages and disadvantages for different grades of solitary cecum diverticulum (ACS recommendations).*

Conservative treatment with intravenous antibiotics can be considered if a definitive diagnosis is established pre-operatively[18].

If a SCD is clearly identified intraoperatively, a simple diverticulectomy or invagination of the diverticulum combined with appendicectomy have been advocated for uncomplicated diverticulitis [6][18].

Limited ileocecal resections or right hemicolectomy should be considered in patients with marked inflammatory changes or if a complication such as perforation or torsion has occurred.[10][18][19].

A right hemicolectomy is also mandatory if a diverticulum is macroscopically indistinguishable from a tumour especially if the SCD is retroperitoneally located on the posterior wall of the caecum[20].

Conclusions

Preoperative diagnosis of SCD is challenging since the signs and symptoms are similar to acute appendicitis.

Patients with imaging diagnosed or clinical suspicion of uncomplicated cecal diverticulitis can be managed conservatively using intravenous antibiotic regimens.

CT scan should be reserved for exclusion of bowel perforation or malignancy, appendicitis, or if ultrasound scans are non-diagnostic.

Diverticulectomy and incidental appendectomy are the preferred method of treatment in uncomplicated cases.

Right hemicolectomy is a recommended treatment option in complicated patients or those suspicious for malignancy during surgery.

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Abbreviations

CD: cecal diverticulitis, SCD: solitary cecal diverticulitis, RIF: right iliac fossa, Io intraoperative

Review Article

Timing of Cholecystectomy in Mild Acute Biliary Pancreatitis.

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Abstract

Background: Acute biliary pancreatitis (ABP) is one of the most common gastrointestinal events that requires acute admission to the hospital with considerable risks of mortality & morbidity. Laparoscopic cholecystectomy has become the gold standard for the treatment of ABP. Our aim was to determine the safety of cholecystectomy during the first admission by performing a review of the current literature. Waiting for 6 - 8 weeks to perform cholecystectomy may result with an increased incidence of recurrent ABP attacks, which may increase morbidity and the length of the hospital stay. On the contrary, cholecystectomy during the index admission for mild ABP appears to be a preferable and safe approach with better surgical outcomes providing a definitive treatment.

Keywords: *Pancreatitis, cholecystectomy, general surgery*

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Full Text

Gallstone disease and its complications

Gallstone disease is considered as an important health problem worlwide, affects quality of life and causes severe morbidity and even mortality. Gobally, the incidence of gall stone disease is approximately 10-15% [1]. The prevelance of this entity is dependent on variable risk factors, which could be identified as modifiable and non-modifiable (**Table 1**) [1]. The incidence increases over the years, especially due to non-modifiable risk factors and there is a concordant increase in complication rates such as acute biliary pancreatitis (ABP) [2]. ABP is a common gastrointestinal inflammatory condition and most patients develop a mild course; however, some patients may have severe inflammatory response and mortality is usually associated with multiorgan dysfunction in this group [3].

Non-modifiable	Modifiable
Family history	Obesity / metabolic syndrome / diabetes mellitus / dyslipidemia
Genetic factors	Drugs – ceftriaxone, thiazide diuretics, octreotide, female sex hormones
Ethnicity	Decreased physical activity
Female gender	Rapid weight loss
Age	Total parenteral nutrition
	Dietary factors
	Underlying disease – cirrhosis

Table 1. *Risk factors for gallstone disease [1].*

Acute biliary pancreatitis

The definition of acute pancreatitis is that it is an inflammatory condition of the pancreas with a wide spectrum of pathophysiological aspects that shows different types of severeness; such as edema or necrosis that is associated with poor or no fibrosis [4]. Concomitant stones in the biliary ducts are present in 6-12% of people with gallstones, and based on the

differences in site of formation and pathogenesis, common bile duct (CBD) stones can be classified as primary and secondary biliary stones [5,6]. If a stone forms in the CBD, it's called a primary stone, whereas migrated stones from the gallbladder that locate in the CBD are called secondary stones [7]. Migration of gallstones especially smaller than 3 mm through the cystic duct to the CBD is thought to be the pathophysiology behind ABP. In 1901, Opie observed impacted stones at the site of the sphincter of Oddi in two mortal cases. Temporary obstruction of the ampulla of Vater by stones causes bile reflux towards the pancreas via the common channel and regurgitation continues through the pancreatic duct. Normally, inactive digestive zimogens and lyzsozyme hydrolase stay apart in pancreatic cells. If ductal obstruction occurs, they colonize together in vacuoles in the cells and uncontrolled activation of trypsin leads to autodigestion of the pancreas and local inflammation [8,9]. Biliary stones are considered to be responsible for ABP in 30-70% of cases. In addition to the aformentioned risk factors, male gender is associated with increased possibility of complicated forms leading to morbidity and mortality [10].

Severity assessment in acute biliary pancreatitis

Scoring systems based on clinical, laboratory and radiological findings to predict the prognosis of pancreatitis have been identified and used in medical practice for decades. The most frequently used are the Balthazar and Ranson's scoring systems as well as the Atlanta Classification.

In 1992, the Atlanta Classification was created for a standardized clinical approach and revised in 2012 [11,12]. According to the Revised Atlanta Classification, the clinical presentation must meet the criteria as follows: acute onset of severe, persistent, epigastric pain often radiating to the back. The pain relieves by leaning forward and is aggravated by food in most cases. According to the laboratory findings, the serum lipase level is at least three times increased. Radiologic work-up is unnecessary to be carried out immediately if the first two criteria are present [11]. The Revised Atlanta classification of acute pancreatitis identified three grades of severity, which were the "mild form" (no organ dysfunction, or local/systemic complications), the "moderate form" (organ failure that ameliorates within 48 hours and/or local or systemic complications), and the "severe form" (persistent organ failure lasting for >48 hours, single or multiple) [11]. There also had been changes in radiological severity in the Revised Atlanta Classification [12] (**Table 2**).

Another approach to foresee the prognosis of ABP is the Ranson's score which was first described in 1974 by Ranson *et al*, and then modified in 1979 based on the etiology for biliary disease [13,14] (**Table 3**).

Balthazar *et al* published two studies in 1985 and 1990 about the prognostic value of computerized tomography (CT) in acute pancreatits [15,16]. Patients without peripancreatic inflammation were found to be associated with the uncomplicated (mild) form, whereas patients with one or several peripancreatic collections were associated with the severe form, and were more likely to develop serious complications [16] (**Table 4**).

	Original Atlanta Classification	**Revised Atlanta Classification**
Acute pancreatitis	Interstitial pancreatitis	Interstitial edematous pancreatitis
	Steril necrosis	Necrotizing pancreatitis (pancreatic and/or peripancreatic necrosis)
	Infected necrosis	Sterile necrosis Infected necrosis
Fluid collections during acute pancreatitis	Pancreatic pseudocyst Pancreatic abscess	<4 weeks after onset of acute pancreatitis - Acute peripancreatic fluid collection Sterile necrosis Infected necrosis - Acute necrotic collection Sterile necrosis Infected necrosis <4 weeks after onset of acute pancreatitis - Pancreatic pseudocyst Sterile necrosis Infected necrosis - Walled-off pancreatic necrosis Sterile necrosis Infected necrosis

Table 2. *Comparison of the Original and Revised Atlanta Classification systems [12].*

Parameter	Gallstone-induced pancreatitis
On admission	
Age	**>70**
WBC	**>18000**
Glucose (mg/dL)	**>220**
LDH (IU/L)	**>400**
AST (IU/L)	**>250**
Within 48 h	
Hct decrease (%)	**5**
BUN increase (mg/dL)	**>2**
Calcium (mg/dL)	**<8**
PaO_2 (mmHg)	**52**
Base deficit (mEq/L)	**>5**
Fluid (L)	**>4**

Table 3. *Ranson's criteria [17].*

Inflammatory process – Balthazar's morphological index for acute pancreatitis		
Grade	**Tomographic finding**	**Scoring**
A	Normal pancreas.	0
B	Focal or diffuse pancreatic enlargement.	1
C	Pancreatic alternations associated with peripancreatic inflammation.	2
D	Single fluid collection.	3
E	Two or more fluid collections and/or presence of gas within the pancreas or within peripancreatic inflamation.	4
Pancreatic necrosis		
Tomographic finding		**Scoring**
Absence of necrosis.		0
< 30% necrosis.		2

30-50% necrosis.	4
>50% necrosis.	6

Table 4. *Balthazar's scoring system [18].*

Cholecystectomy for acute biliary pancreatitis

The definitive treatment of mild ABP is cholecystectomy after resolution of the symptoms and clinical improvement. Several approaches are applied based on the optimal timing for cholecystectomy. Early cholesystectomy during the the first admission, after the resolution of clinical and laboratory parameters, is suggested by current guidelines [19,20]. In their prospective study, published in 1981, Stone *et al* compared early and delayed open cholecystectomy after biliary pancreatitis, and given the surgical outcomes, complication rates, and hospital stay, they concluded that early and delayed surgery were equally safe [21].

Although there is no consensus on the timing for delayed cholecystectomy, performing surgery up to 8 weeks after the pancreatitis attack can be defined as interval surgery. Cholecystectomy during the first admission is recommended by the International Association of Pancreatology, while the American Gastroenterological Association suggests delayed cholecystectomy after 2–4 weeks following discharge [22,23]. The British Society of Gastroenterology recommends cholecystectomy at first admission or up to 2 weeks after admission [24].

Recurrence and readmission

In his study of 80 patients with pancreatitis, published in 1979, Ranson operated on 59 patients and suggested that although early surgical treatment for the associated biliary condition could be carried out safely in many patients with "mild" acute pancreatitis, early definitive surgery was insecure in "severe" pancreatitis and should, if possible, be delayed until pancreatitis subsided and that most patients should be operated before hospital discharge [14]. In a meta-analysis by Baal et al, increased rates of readmissions after ABP attacks were reported to be associated with the interval time periods between the first admissions and the delayed surgical interventions of the patients [25]. The risk of developing a recurrent biliary attack was reported as 9-60% following discharge before delayed surgery [26]. Ito et al suggested that a two-weeks-interval between the first attack and surgical intervention might be too long

because 31% of recurrences occured within two weeks after the first admission [27]. According to three prospective randomized controlled studies and 10 retrospective studies evaluating the surgical outcomes, complications, hospital stay, and readmission rates analyzed in a review, when compared between early and delayed cholecystectomy operations, the rates of conversion to open surgery were similar, and early cholecystectomy was associated with decreased incidence of recurrent ABP attacks, morbidity and hospital stay [20].

Complications

A meta-analysis showed no variation in complication rates between early and delayed surgery [28]. In another meta-analysis it was found that delayed laparoscopic cholecystectomy resulted in higher rates of complications and readmission than early laparoscopic cholecystectomy while the rates of conversion to open cholecystectomy between early laparoscopic cholecystectomy and delayed laparoscopic cholecystectomy were comparable [20].

One of the indicators for difficult surgery is operative time. When the studies were analyzed in our review, it was found that the timing of cholecystectomy did not affect the duration of surgery. Early surgery decreases the risk of recurrent biliary complications. In our opinion, cholecystectomy in patients with mild to moderatley severe biliary pancreatitis can be performed safely during the first admission.

Conversion to open surgery

Although most guidelines suggest early cholecystectomy because of the high rates of reccurent ABP attacks that are clearly associated with more complicated disease and other gallstone related events, the answer is still unclear for the question: "Why do most surgeons delay surgery?". It can be thought that delayed surgery can be associated with relatively easier surgery due to regressed inflamation and possibly lower convertion rates [29]. Early cholecystectomy, on the other hand, is believed to be harder to perform due to increased inflamation. The conversion rates to open surgery between early and delayed cholecystectomy were approximately 7.5% and 7%, respectively, according to several studies [30,31]. Even though there is an assumption that early cholecystectomy is harder to perform, no difference was shown in concern of operative time or surgical complications between studies accoeding to the available data [20].

Length of hospital stay

Delayed surgery was associated with a significantly longer length of hospital stay and those patients require readmission and a longer duration of conservative treatment. In their study of 72 patients, Jee *et al* reported that the patients who underwent delayed surgery had longer hospital stay than the patients who underwent early surgery during the first admission since 24% of these cases readmitted due to recurrent gall-stone related events most of which could have been preventable with early cholecystectomy [26]. In summary, delayed surgery results with longer hospital stay, increases hospitalization costs and leads to excessive consumption of medical resources.

Conclusions

The timing of cholecystectomy in ABP should be decided according to the severity of the disease and the clinical course of the individual patient. Definitive treatment of mild ABP can be accomplished effectively and safely via cholecystectomy following clinical improvement and normalized levels of laboratory parameters during the first admission. Delayed cholecystectomy following a 6 to 8 weeks' time period may result with recurrent gallstone pancreatitis, which may increase morbidity rates and the duration of hospital stay.

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Original Article

Our Experience in the Treatment of Severe Thoracic Trauma.

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Abstract

Background: Severe thoracic trauma is the main cause of deaths in US about 10-20%. Causes of severe thoracic Trauma are: Penetrating trauma, Gunshot wounds, Stab wounds; Gunshot wounds on the chest is the most lethal – 50%. Only 7-10% undergoes hospitalization prior to death. Death occurs due to heart & great vessel injuries.
Aim of study: Analyses the patients with Severe Thoracic Trauma, Initial Evaluation and Management in the period of time 2004-2017 treated in thoracic surgery service.
Material and methods: Patents treated in our hospital during July 2004 - July 2017 are 95. Male to female ratio was 3:1. Age of presentation 9-71 years old, mean age 49 years old. Blunt chest wall trauma 36 (38%) and penetrating chest wall trauma 59 (62%) patients. Ribs and sternal fractures, two or more costal fractures in 15 (15.7%) patients (flail chest 7 patients); unilateral pneumothorax 34 (35.7%) patients, bilaterally pneumothorax 10 (10.5%) patients; massive hemothorax 12 (12.6%) patients, pneumomediastinum et subcutaneous emphysema 6 (6.31%) patients Hamman's syndrome, lung contusion and parenchymal pulmonary hematoma in 15 (15.7%) patients; bronchial rupture 2 (2.1%) patients, tracheal rupture 1 (1%) patient.
Results: Conservative treatment in 22 (23%) patients, unilateral pleural tub drainage 42 (44%) patients, bilateral chest drainage 18 (18.9%) patients; thoracotomy in 29 (30.5%) patients, wedge resection, lung hemostasis and aerostasis from lung lacerations, bronchial lobar rupture left lower lob 1 (1%) patient, bilateral thoracotomy 3 (3%) patients, clamshell incision in 1 (1%) patient; thoraco-abdominal approach 2 (2%) patients. flail chest wall stabilization 7 (7.3%) patients by vicryl suture, steel wire suture 3(3%) patients, titanium plate 3(3%) patient. By VATS are treated 2(2.1%) patients. Mean hospital stay was 11 days (average 3 36 days). Morbidity rate in 6 (6.3%) patients, mortality was on 5 (5%) patients.
Conclusion: Most common injury locations was lung and chest wall and less common abdominal and cranial trauma. Surgical and intensive treatment are very important and with low mortality rate.
Key words: penetrating thoracic injury, blunt trauma of chest wall, surgery treatment.

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Full Text

Introduction

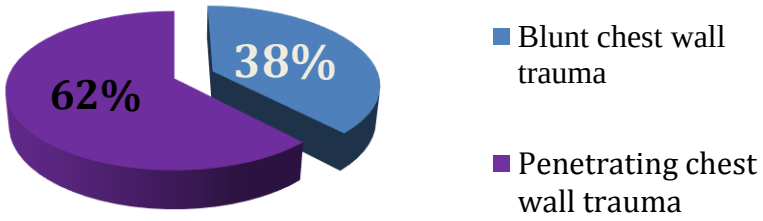
Trauma is a major public health problem worldwide as it is associated with high morbidity and mortality both in developed and developing countries.
Thoracic trauma accounts 10-15% of all traumas (1). Thoracic trauma directly accounts for approximately 25% of trauma related mortality and is a contributing factor in another 25% (2)
The etiological pattern of chest trauma varies worldwide with many environmental and socio-political factors. Road traffic accidents (RTAs) remain the cause of most chest trauma in non-war zones.
In this retrospective study, we present our 14 – year experience in the management and clinical outcome of severe thoracic trauma.

Materials and Methods

In our study we included all patients who were hospitalized due to chest injuries between July 2004 to July 2017 (a total of 95 of consequent cases).
The hospitalization criteria were intra-thoracic injury, clinically significant rib cage injury (even one rib fracture), or clinical suspicion of significant thoracic injury like subcutaneous emphysema. We excluded from our study all patients who arrived dead or died immediately in the emergency room, patients who did not complete their treatment in our hospital, isolated laryngeal or cervical injuries, esophageal and tracheal injuries due to foreign body swallowing or aspirating, and non-traumatic injuries to the chest (burns, electrical shocks, etc.)
The injured patients were first triaged by a specialist in emergency medicine in the emergency department. Patients were then referred to the thoracic surgeon if needed. Patients with poor condition or those with flail chest were admitted to the ICU and mechanical ventilation was used for respiratory deficiency or severe neurotrauma. All patients had analgesics, and mucolytic treatment, provided with respiratory physiotherapy.

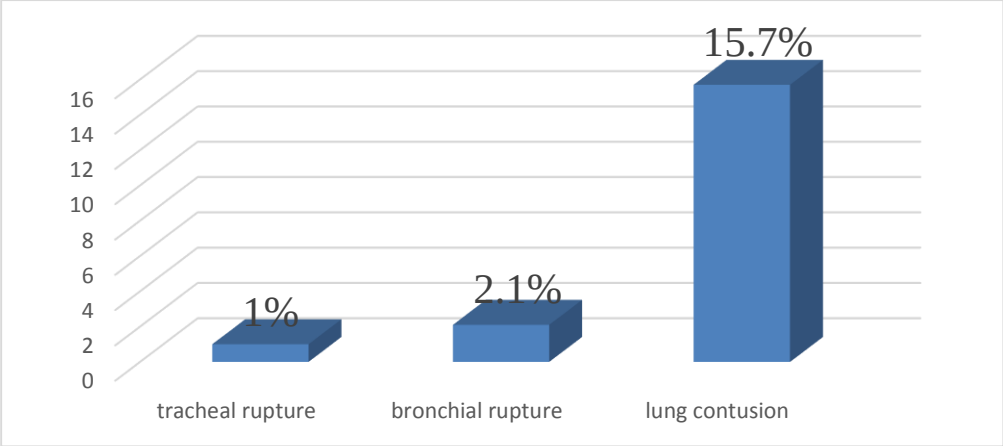
Results

95 cases were hospitalized and treated. Male to female ratio was 3:1. Mean age at the presentation was 49 ± 18 years (range 9 - 71 years).

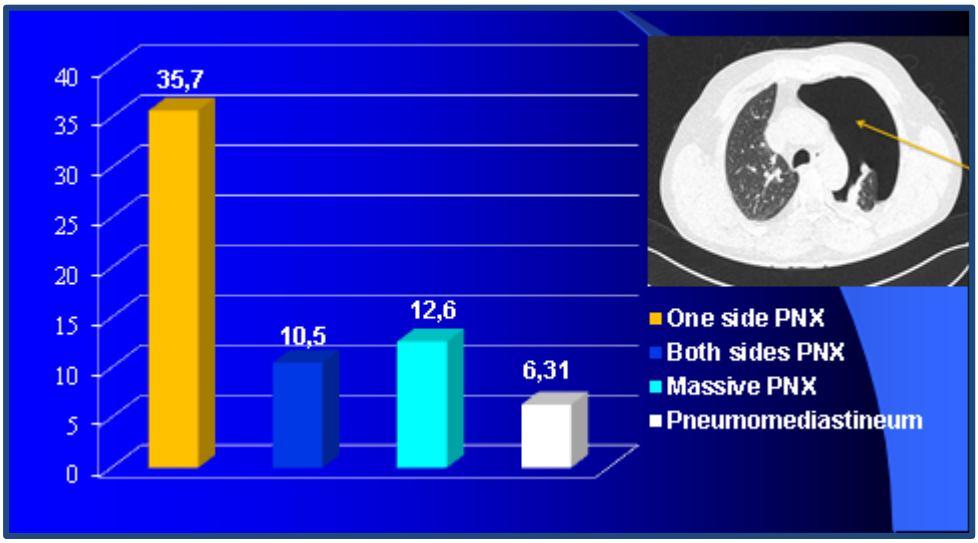


Graph 1

Ribs and sternal fractures: two or more costal fractures in 15 pts (15.7%), flail chest: 7 patients. Further results are presented in details in the consecutive graphs and tables ***(Graph 1,2,3)***



Graph 2



Graph 3

Treatment approach consisted in conservative in 23 % (n= 21) of cases and surgical treatment in 77 % (n=74) of all cases(***Figure 5).*** Unilateral pleural tub drainage ***(Figure 1)*** applied in 42 (44%) pts, bilateral chest drainage in 18 (18.9%) patients ***(Figure 6)*** and bronchial lobar suture left lower lob was applied 1 (1%) patients***(Table1).***

Mean day hospital was 11±12.4 days (average 3-36 days).Morbidity rate in: 6 (6.3%) patients and mortality was on 5 (5%)patients.

	Patient nr. %
Thoracotomy unilateral thoracotomy bilateral thoracotomy	29 (30.5%) 26 (27%) 3 (3%)
Clamshell incision	1 (1%)
Flail chest wall stabilization by vicryl suture steel wire suture 3(3%) patients,titanium plate 3(3%)	7 (7.3%) 1 (1%) 3 (3%) 3 (3%)
Thoraco-abdominal approach	2 (2.1%)
VATS	2 (2.1%)

Table 1



Figure 1



Figure 2

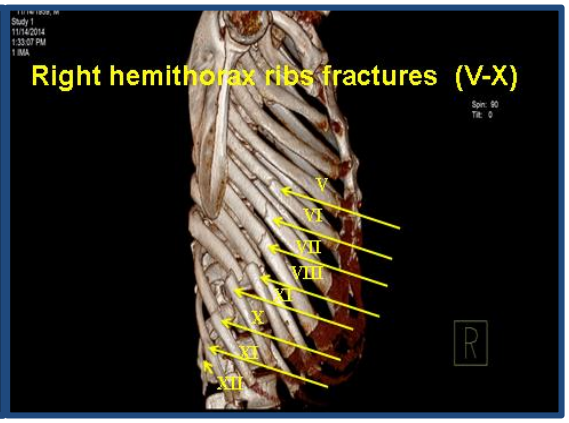


Figure 3

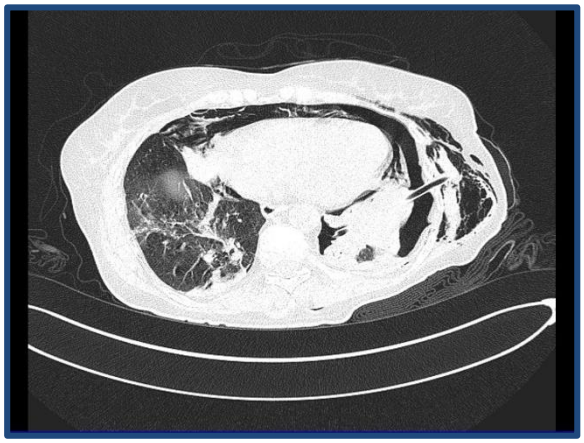


Figure 4: *Both sides Pneumomediastinitid and left sided PNX ; Post pleural drainage*



Figure 5: *Clamschell approach*



Figure 6: *Thoracic double drainage*

Discussion

Trauma has the tendency to affect young males in the productive period of life (3), (4), (5).
Many series derived from the Middle East region had even younger patients (6), (7), (8), (9) comparing to studies done in the developed countries (10), (11), (12).
Blunt trauma was more frequent than penetrating trauma in our series which is compatible with other series (12).
Rib fractures occurred in 34% of patients and was the most common type of injury due to blunt trauma in our series which was comparable with other series (13), (14).
Flail chest was diagnosed in (n = 7) all of them were adults.

Conclusions

Chest trauma is a major health problem since it has high morbidity and mortality rate. Most common injury locations was lung and chest wall and less common abdominal and cranial trauma .
Surgical and intensive treatment are very important and with low mortality rate**.**

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maximus

Flurbiprofen 100 mg / 15 Film Tableta

- Fuqi maksimale kunder **DHIMBJES** dhe **INFLAMACIONIT**



EFIKASITET SIGURI CILËSI

CFO PHARMA

Original Article

Treatment of Traumatic - Hemorrhagic Shock. Our experience at University Clinical Center of Kosovo.

Nehat Baftiu[1]

https://doi.org/10.32391/ajtes.v3i1.32

Abstract

Shock represents a condition of inadequate tissue perfusion due to circulatory insufficiency. Hemorrhage is the most common cause of shock in injured patients. Traumatic hemorrhagic shock presents a life-threatening condition due to the development of multifunctional organ dysfunction syndrome, which can be diagnosed due to symptomatology and changes in vital parameters. This study aims to analyse the epidemiological characteristics of traumatic - hemorrhagic shock and to demonstrate the efficacy of therapy in hemodynamic stabilization in patients with shock during the first 12 hours of intensive treatment at University Clinical Center of Kosovo.

Keywords: *shock, hemorrhagic shock, trauma*

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Full Text

Introduction

Hemorrhagic shock is a condition of reduced tissue perfusion, resulting in the inadequate delivery of oxygen and nutrients that are necessary for cellular function. Whenever cellular oxygen demand outweighs supply, both the cell and the organism are in a state of shock.
On a multicellular level, the definition of shock becomes more difficult because not all tissues and organs will experience the same amount of oxygen imbalance for a given clinical disturbance. Clinicians struggle daily to adequately define and monitor oxygen utilization on the cellular level and to correlate this physiology to useful clinical parameters and diagnostic tests.
The 4 classes of shock, as proposed by Alfred Blalock, are as follows:
Hypovolemic
Vasogenic (septic)
Cardiogenic
Neurogenic

In controlled hemorrhagic shock (CHS), where the source of bleeding has been occluded, fluid replacement is aimed toward normalization of hemodynamic parameters. In uncontrolled hemorrhagic shock (UCHS), in which the bleeding has temporarily stopped because of hypotension, vasoconstriction, and clot formation, fluid treatment is aimed at restoration of radial pulse or restoration of sensorium or obtaining a blood pressure of 80 mm Hg by aliquots of 250 mL of lactated Ringer's solution (hypotensive resuscitation).

Hypovolemic shock, the most common type, results from a loss of circulating blood volume from clinical etiologies, such as penetrating and blunt trauma, gastrointestinal bleeding, and obstetrical bleeding. Humans are able to compensate for a significant hemorrhage through various neural and hormonal mechanisms. Modern advances in trauma care allow patients to survive when these adaptive compensatory mechanisms become overwhelmed.
Hemorrhagic shock is tolerated differently, depending on the preexisting physiologic state and, to some extent, the age of the patient. Very young and very old people are more prone to early decompensation after loss of circulating volume.

The primary treatment of hemorrhagic shock is to control the source of bleeding as soon as possible and to replace fluid.

This study aims to analyse the epidemiological characteristics of traumatic - hemorrhagic shock patients treated at University Clinical Center of Kosovo during the July 2016 - December 2018 timeframe.

Methodology

The study has been conducted to demonstrate the efficacy of therapy in hemodynamic stabilization in patients with shock in the first 12 hours of intensive treatment. We categorized the patients according to hemorrhagic shock classes. The classification was done according to the criteria set by the American College of Surgeons. Parameters used in the evaluation of patients are: respiratory rate, respiratory load, systolic blood pressure (TAS), capillary replenishment and Glasgow Coma Scale (GCS).

Results and Discussion

Traumatic hemorrhagic shock presents a life-threatening condition due to the development of multifunctional organ dysfunction syndrome, which can be diagnosed due to symptomatology and changes in vital parameters. During the review period, most patients with traumatic hemorrhagic shock were males (p <0.000001).

		(n=155)	
Demographic data	Nr	(%)	p
Sex			
Females	28	(18.06)	0.000001
Males	127	(81.94)	

	Mean	(StdDev)	
Age	28.90	(12.83)	
Mean Age acc. sex			
Females	29.79	(13.94)	0.68
Males	28.70	(12.62)	

Table 1: *Demographic data of traumatic hemorrhagic shock patients*

Patients with traumatic hemorrhagic shock comprised different ages (in the range of 2 to 69 years), with a significant difference in the distribution of cases by age groups. The largest number of cases were between 26 and 35 years old. (45.81%). From 1-15 were 10.97%, and from 16 to 55 years old 83.87% of the cases. Most of the injured were with politrauma (67.10%). More than 1/5 (23.23%) of injuries have been caused by firearms. Anatomical regions of injury

over 1/3 of cases, were: abdominal region (50.97%), lower anterior (37.42%) and thoracic cervix (35.48%). With head injuries were 30.97% of cases. Average of patients had 2 traumatized regions. Nearly 2/3 of the cases were with body injuries (67.74%), bone (62.58%), and over half of the cases (58.71%) had bleeding in the internal cavities. Nearly 1/3 of the cases had long bones injury (32.26%), while the spleen, the small intestine, and the liver were most traumatized organs. Most report cases had hemorrhagic shocks of class III and IV (86.45%), (table 2) with an average physiological traumatic rate of TS = 9.

	(n=155)		
Hemorrhage Class	Nr.	%	p
Class – II	21	(13.55)	
Class – III	75	(48.39)	0.00008
Class – IV	59	(38.06)	

Table 2: Class of hemorrhage in traumatized patients

In conclusion, the patients have manifested the typical symptomatology of hypovolemic shock. All patients with traumatic hemorrhagic shocks manifested tachycardia (average cardiac frequency 130 beats per minute). Hypotension was manifested 86.09% of cases (average value of systolic arterial pressure - SAP: 59 mmHg). All patients manifested tachypnea (average respiratory rate 35 / min.) And significantly reduced diuretic rate (10.72 ± 8.4 ml / h) (Table 3).

With the rise of the bleeding category, we found heart rate increase, significant TAS decrease, average respiratory rate rise, and diuretic reduction averaging 12 mL / h between each class.

	Class – II of hemorrhage		Class – III of hemorrhage		Class – IV of hemorrhage		Total	
	(n=21)		(n=75)		(n=59)		(n=155)	
	Mean	(StdDev)	Mean	(StdDev)	Mean	(StdDev)	Mean	(StdDev)
Heart Rate – HR(/min.)§	111.29	(5.75)	125.75	(4.14)	142.10	(2.64)	130.01	(11.31)
SAP (mmHg) [7]	101.81	(6.02)	69.56	(7.11)	29.64[a]	(21.77)	58.74	(29.01)
Respiratory Rate – RR(/min.) [7] [7]	23.71	(2.69)	33.49	(3.16)	39-54	(3.81)	34-47	(6.11)
Diuresis (ml/h) [6]	25-.48	(4.07)	13.64	(1.95)	1.76[b]	(2.24)	10.72	(8.40)

***Table 3**: Traumatic - hemorrhagic patient's vital signs*

All patients with circulatory insufficiency have initiated Ringer lactation initiation therapy. We have fixed the amount of the solution for the substitution according to the volume, respectively the calculated percentage of the lost blood (Table 4).

	Class II of hemorrhage		Class III e hemorrhage		Class IV of hemorrhage		Total	
	(n=21)		(n=75)		(n=59)		(n=155)	
	Nr.	(%)	Nr.	(%)	Nr.	(%)	Nr.	(%)
Crystaloid Sol. [a]	21	(100)	75	(100)	55	(100)	151	(100)
Coloid Sol. [b]	0	(0)	75	(100)	55	(100)	130	(86.09)
PRBCs	1	(4.76)	44	(58.67)	37	(67.27)	82	(54.3)
FFP	0	(0)	27	(36)	29	(52.73)	56	(37.09)

[a] = Ringer lactate has been administered as crystaloid solution.
[b] = Gelatine polymers have been administered as coloid – *Gelatina* (Haemaccel®).
PRBCs: Packed Red Blood Cells.
FFP: Fresh Frozen Plasma.

***Table 4:** Fluid resuscitation therapy according to class of hemorrhage*

Patients with Class II hemorrhagic shock have only been treated with crystalline solution (LR). On average, every liter of lost blood was replaced with 3.1 L crystalline tincture. Patients with Class III, IV hemorrhagic shock have been treated by combining crystalloids colloids and blood substitution therapy. From colloidal solvents only gelatin polymers have been used. Among all the traumatized complete blood transfusion has been administered in 54% of cases. Blood transfusions have been administered to all cases with high volume blood loss (Table 5).

	Class – II (n=21)	Class – III (n=75)	Class – IV (n=55)	Total (n=151)
Mean blood volume loss	25987.5	139902	137060	302949.5
Compensation for every L/blood loss				
Crystaloid Sol.	3.10	0.84	1.27	1.23
Coloid Sol.	0.00	0.54	0.40	0.43
PRBCs	0.01	0.44	0.52	0.44
FFP	0.00	0.13	0.16	0.13
PRBCs/FFP Ratio	0.00	3.44	3.21	3.32
Compensation Total Ratio	3.11	3.03	3.15	3.09

***Table 5**: Mean blood volume loss /Compensation for every L/blood loss*

On average, for every 3.32 units of complete blood transfused we have administered a plasma unit. In patients with grade III and IV hemorrhages we administered for every liter of lost blood ,1 L crystalline (0.84 - 1.27 L), while one liter of other fluids were offset with colloids, full blood and plasma. In the undergone therapy, 45% of cases reacted quickly and 28% intermittently. All cases with minimal response and no response at all ended with death

(Table 6).

	Class - II (n=21)		Class – III (n=75)		Class – IV (n=55)		Total (n=151)	
Effect	Nr.	(%)	Nr.	(%)	Nr.	(%)	Nr.	(%)
Rapid	21	100.00	36	48.00	11	20.00	68	45.03
Intermediary	0	0.00	31	41.33	12	21.82	43	28.48
Minimal/or no reaction	0	0.00	8	10.67	32	58.18	40	26.49

Table 6: *Effect of fluid resuscitation therapy on traumatic-hemorrhagic patients according to hemorrhage class*

In most surviving patients hemodynamic stabilization was achieved 8 hours after administration of therapy, with full hemodynamic stabilization 12 hours after therapy. In the largest number of cases (77.27%), death occurred within the first 4 hours of hospitalization. As risk factors that significantly increased mortality risk were TS ≤ 5 (OR = 333), TAS receiving 55 mmHg (OR = 80.35), admission <10 ml / h (OR = 38.26%).

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Perspective

The Emergency Medical System in Albania.

The Mission of the National Emergency Medical Center (NEMC)

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Abstract

Territorial Emergency Service is part of NEMS. It belongs to the only telephone number 127 (112) and it is free of charge. It represents the guarantee of medical emergency service provided by law 147/2014 (For Emergency Medical Service) and with the Council of Ministers Decision (CMD) No.933 date 29.12.2014 on Approval of the Organizational Structure of the National Center of Medical Emergency, CMD. Nr. 250, date 30.3.2016 and aims to guarantee the response to emergencies and medical emergencies, from the moment of receiving the call until their resolution, throughout the territory of the Republic of Albania. This paper aims to give an introduction and to analyse the emergency medical system's mission in Albania.

Keywords *National Emergency Medical Center, NEMC, mission*

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Full Text

Territorial Emergency Service is part of NEMS. It belongs to the only telephone number 127 (112) and it is free of charge.

-It represents the guarantee of medical emergency service provided by law 147/2014 (***For Emergency Medical Service)*** and with the Council of Ministers Decision (CMD) No.933 date 29.12.2014 on Approval of the Organizational Structure of the National Center of Medical Emergency, CMD. Nr. 250, date 30.3.2016 and aims to guarantee the response to emergencies and medical emergencies, from the moment of receiving the call until their resolution, throughout the territory of the Republic of Albania.

-Decreases the timing of therapy from the moment of symptoms to their resolution, in order to reduce the avoidable deaths, reducing disability, as traumatic and non-traumatic.

-Prevents the immediate clinical evolution of the disease and significantly reduces their return to normality.

-*Coordinates immediate centralization of acute and critical patients* from territory to appropriate hospitals without wasting time, reducing the percentage of mortality and disability.

- *It is built in the entire territory* according to national standard parameters in accordance with international standards. Makes the coordination between the cities and villages based on the needs that may arise, such as floods, earthquakes, and mass erosion of various natures.

- *It is a structure built by*: the operating rooms equipped with the appropriate technology for obtaining and evaluating the demand for assistance, sending the vehicle with the proper crew and stations in a dispersed territory in order to shorten as far as possible the time of arrival to the patients with the personel concerned.

- *It is a structure with its public organogram*, incorporated under the law, specialized and formed to be able to respond to any type of medical emergencies. Its structure includes doctors, nurses, support staff, technical and administrative staff, suitable for 24-hour service as per operating room as well as for territorial stations.

- *It is a structure equipped with complex tools* and equipment such as technological, informatics and others, which must be homogeneous across the territory because they guarantee the responsibility for direct management of all of the above resources while guaranteeing the right quality at critical service moments.

- *It's composed of ground vehicles*, flight and water vehicles (sea, lake, rivers), such as ambulances, helicopters, boats or speedboats to respond to medical emergencies.

- *Provides assistance in case of festive sports events* or at times of seasonal and tourist overcrowding, by coordinating them or by overseeing other organizations that may be there to provide assistance.

-*It makes protocols with other health and non-health facilities*, such as police, firefighters, civil defense and others, which may be involved with emergencies in general.

- *Conducts continuous activity of its own personnel* according to clinical medical records in accordance with international and contemporary literature.

- *Promotes and provides throughout the national territory uniform standards of*

education, training, practice, first aid, cardio-pulmonary resuscitation, immediate defibrillation.
-*These programs address the population starting from school age,* thus guaranteeing its active participation in the defibrillation program.
-*It is an integral part of Emergency Medicine at the University of Medicine* as well as Emergency and Anesthesia-Resuscitation specialty trainings. It also organizes and participates in Masters, scientific researches in the field of Emergency-Territorial, Emergency Medicine and Hospital Emergencies.
- *Operates under the most modern systems* which control and verify the quality, in order to orient towards continuous improvement of clinical management, thus reducing the risk of medical errors especially in acute patients.
- *Promotes and participates actively* with other national and international associations in the design and implementation of pathology networks (cardiac arrest, acute coronary syndrome, severe trauma, acute respiratory failure, stroke, other epidemiological surveillance)

Analysis of the Emergency Medical System in Albania.

The birth of a new service or reorganization begins with an analysis of its current state. So before we begin to show how this service works today, we will begin to explain how it was before the start of the work of the Coordination Unit at the National Emergency Medical Center. A service like that of the "Emergency Medicine" is irreplaceable and must be infallible. The key indicators highlighted the problems of this service, which we are explaining according to the reality presented in 2014. At disposal we had the material prepared by the working group run by USAID and the working group of the NEMC, which provided the data and a more detailed analysis of the final conclusions.

Below is the material, the current state of service, international standards and the recommendations of the working group.

USAID:

Pre-Hospital Care
Pre-hospital care is a vital element of trauma systems, what happens at this level often has a direct impact both in initial treatment and in subsequent outcomes. The trauma care system's pre-primary elements should provide easy access and immediate response from qualified professionals responsible for assessing, stabilizing, selecting and transporting to the nearest foster care institution.

Description of communication standards:

The communication systems provide essential coordination between the components of ***NEMC*** and the trauma care system. An efficient communication plan provides national coverage and coordination of ***NEMC*** communications. Areas with problems in signal's interference and uncovered areas should be minimized.
The communication component of the

trauma care system should focus on access to the system, dispatch of NEMC dispatch assistance to persons who are not at the scene, the overall communication links of the NEMC and the activities of the program for improving the quality. Immediate identification of an accident or an event that has caused damage to people, requires the planning and implementation of appropriate methods such as accident and damage surveillance technology (eg presence of vehicle transmitters) and public awareness programs on access to the NEMC system.
Easy access to the system, through a single coordinated system such as 9-1-1 system, or a reinforced telephone system 9-1-1 that enables automatic caller location, should be available in all locations. The distribution of pre-hospital staff should be organized in every region, in order to facilitate coordination of emergency response throughout the system. Dispatchers must have completed a medical emergency dispatch course by being prepared for the most appropriate response to the emergency medicine service (EMS). The Dispatch Center should provide call filtering and structured questions to ensure the optimum use of personnel, equipment, and spotting. The needs of the injured person must match the existing resources of the EMS. In addition, all callers should be provided with pre-arrival instructions, according to some protocols. Special protocols should be developed for responding to one or more patients as well as for accidents with multiple victims. The NEMC distribution system should be run by a physician and incorporate regular collegial medical reviews as well as ongoing quality improvement. If conditions permit, the system must incorporate the best available technology, including computer aided dispatch. The trauma care system plan should incorporate the possibility of communication between pre-hospital care providers, medical practitioners or medical directors and staff of the trauma care provider institution.
The necessary interconnections include communication between ambulances, ambulance-hospital and hospital-hospital, as well as ease of communication with the police and other agencies at the scene. Currently, we have available technology and equipment to provide effective online communications in most areas.

Summary of ascertained findings during the assessment for the period in question.

Currently, the pre-hospital system is the most necessary system, so that the trauma system for Albania can be successful. There are many ways of announcing ambulances in the event of injury. There are areas where a national telephone number is used, 112, to ask for help or to notify the police. However, this number is not always used and there are other local or regional numbers that everyone needs to know for access to emergency services.
For example, 112 is not operational in Durres, as people call to mock and communicate false alarms, abusing the system; this made the system shut down and another number implemented. After a week this second number was resealed. Most respondents stated that system 112 is a realistic option and needs to be improved so that wherever you are, can call this number and after registering your

localization, the call is directed to a communication center of the region, from where the closest ambulance can be sent. In the opinion of all respondents, GPS and communication systems need to be improved. Given that there are no formal communications or distribution centers, the training for staff dealing with the reception of these calls is very limited or almost nonexistent.

NEMC

Tirana had three phones available to its citizens. These phones were not always in service and were not enough for a city like Tirana; three phones for about a million people. Thus, the possibility of controlling the need for medical help was impossible. In the rest of the country 168 phone numbers were not active. The answer to the citizens was under the responsibility of a person, and the most common response was to go to the hospital. The number of ambulances visiting homes was only one or two for each city, while it was not present in any village and was partially covered by cities with one-hour intervention and partial coverage of this service. The city of Tirana had only three ambulances in the field for 24 hours. There was a lack of equipments for performing cardiopulmonary resuscitation. Trainings were sporadic and very limited for the medical emergency sector. Lack of indicators that control the quality of medical performance was a deficiency that did not allow data collection and analysis.
The coordination center served only one room with telephones, but not a center coordinating all the assets in a single national system.
The documentation was almost non-existent and there was no territorial clinical cartel, but simply a recipe where the surname was written and a diagnostic hypothesis.
The ambulance control system was missing and there was no coordination between them. Lack of uniform did not identify a unified service.

Recommendations: USAID

It is recommended to use the existing adult infrastructure and to develop a sophisticated communication network as well as the use of 112 in the whole country. In case of misuse of this number or false alarms, strict penalties must be applied. GPS and other communication technologies can be used to send ambulances that are closer to the location of the accident. The time factor is very important in the trauma process and patients need to be traced and transported rapidly to the trauma center by professionals. A national call center, equipped with a dispatcher, should be established to have links with regional centers to disperse the police and ambulances to the scene of the accident at a rapid pace. Technology and cellular systems can help support the communications network for distribution of ambulances. It is recommended that staff at dispatch centers of communication, should operate on standard protocols by distributing and making callers the right questions. There are some standardized training programs that can be used. Standards sets with

protocol cards of dispatch centers are available. Below we are listed some electronic addresses with examples of protocols and training information for the staff of the dispatch center.
http://www.911dispatch.com/info/emd/emd-prs.html
http://www.local4260.com/home/911sys.html
http://www.prioritydispatch.net/

The Teletrauma Network can also be used as an opportunity to carry out the training of the staff of the call center. The curriculum can be loaded and embedded in a center and then distributed to other regional dispatch centers.

Recommendations: NEMC

Extending the unique number 127 throughout the country after the creation of the Coordination Unit is the only way to operate this service. Completion of all medical teams on the ground with a medical emergency phone number solves the problem of instant communication. Setting up a radio communication system takes place at a second moment.
Filling the ambulance fleet with the GPS system would create the possibility of locating and controlling them by providing real-time service coverage.
Starting the training of medical and support personnel is the only way to guarantee life and quality of life for the welfare of this service.
Establishing quality control indicators is a necessity for improving medical emergency service.

This is the introductory material prepared for the Medical Emergency Service. The current status of this system follows in the next issue.

Original Article

Gastrointestinal Complications Following Cardiac Surgery.

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Abstract

Aim: Gastrointestinal complications (GIC) following open heart surgery usually are rare but with high morbidity and mortality. The aim of this study was to see the outcome of these patients after complication, compared with a similar study found in literature. Identifying risk factors preoperatively and postoperatively in our patient's series, for GIC.

Materials and methods: Between January 2012 and December 2017 from 1990 operated cardiac patient 34 of them developed GIC, presenting gastro duodenal bleeding due to active ulcer, liver failure, pancreatitis, cholecystitis, or intestinal ischemia. We performed a retrospective analysis.

Results: From all consecutive patient only 1.7 % developed GIC. Mortality rate was 55.8%, especially 100 % mortality in intestinal ischemia patient. Regarding risk factors, those were the same found in other similar study (age, atherosclerosis disease, by pass time, postoperative ARF, Low cardiac output syndrome.)

Conclusion: GIC after cardiac surgery are rare but when it happens the mortality is very high not even of late diagnosis. In ages patients, diabetes, long by pass time, long hypoperfusion state. It is recommended to be alert for GIC for detection in early phase, and for reducing as much as possible morbidity and mortality.

Keywords: *cardiac surgery, gastroduodenal ulcer, non-occlusive intestinal ischemia. cholecystitis*.

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Full Text

Introduction

Gastro-intestinal complications (GIC) such as: gastroduodenal ulcer, hepatopancreatitis, colecistits, paralitic ileus, non-occlusive intestinal ischemia are one of the serious extra-cardiac events following open heart surgery. These complications are increasing as population ages, frequently reported in high risk patients. The incidence varies from 0.2-14% to 5.5% [1-4]. The morbidity and mortality is very high in cases when complication occur; it ranges from 13.9% to 100% [5-7]. Cardiac surgery is a risk factor for intra-abdominal complication. [8].The main reason is the visceral hypoperfusion during intra and postoperative period, also systemic inflammatory syndrome (SIRS) triggered by extracorporeal circulation [9]. It, s difficult to diagnose the complication because most of the patient are sometimes fully sedated in ICU, or under postoperative analgesia. Sometimes diagnosis is confirmed very late. GICs may compromise the life of the patient and increase the hospital costs and prolonged ICU stay. *The purpose of this study was to investigate predictors of development of GICs in order to protect against these complications.*

Methods

We retrospectively analyzed 1990 consecutive patients, during January 2012 and December 2017 timeframe, who underwent open heart surgery with cardio- pulmonary by pass (CPB). Off pump and pediatric congenital surgery were excluded from this study. Operation procedure consisted in isolated valve surgery, coronary by–pass grafting (CABG), combined CABG valve, combined CABG with carotid endatherectomy, type A aortic dissection. Emergency operations were also included in the study. Whole information regarding patient illnesses, history and other comorbities like: diabetes (DM), peripheral and vascular (PVD), chronic renal damage (CRD), chronic hepatitis (CH), chronic pulmonary obstructive disease (COPD), life style (smoking, alcool) were collected to determine risk factors. Preoperatively, all patients were premedicated with Midazolam 7,5 mg. In operative room anesthesia was inducted with Fentanyl 5 µg/kg and Propofol 3 mg/kg and pancuronium 0.1 mg/kg (depending in a left ventricular function). Anesthesia was maintained with fentanyl total dose 30 µg/kg, propofol 10mg/kg and sevoflurane 1-2%. Tranexamic acid 1 gr was used as antifibrinolytic drug, after cannulation of three lumen 7,5 FR central venous catheter. For prophylaxis cefuroxime 1,5 g was used as antibiotic. Pantoprazole 40 mg was used as proton pump inhibitor (PPI) from the first to fourth postoperative and day H2-receptor antagonists in successive days. All the interventions were performed through median sternotomy and CPB with fiber membrane oxygenation. Pulsatile blood flow 2.5 L/min was used and normothermia was maintained during operation. Tepid cardioplegia was used (first dose in 4°C St Thomas Solution, and after 20 min blood potassium cardioplegia in normal temperature). Weaning from CPB in case of low cardiac output, inotropic drugs were used and in case of excessive inotropic support and hemodynamic instability intra- aortic ballon pump (IABP) was inserted.

Statistical analysis was performed using SPSS (Statistical Package for Social Sciences), Results are given as mean SD. To evaluate independent risk factors for GICs, significant multivariate risk factors were examined using stepwise logistic regression analysis. P-values of less than 0.05 were considered statistically significant.

Results

The total number of patient who underwent open heart surgery with CPB was 1990. All of them were divided in 1225 (61.5%) only CABG patients, 732 (37%) valve patients, 34 (1.7%) aortic dissection patients, and 85 (4,2%) combined operation patients. Seriously abdominal complications were seen only in 34 (1,7%). Mortality was 55,8% in patients with gastrointestinal complications. Whole characteristics of comorbidities and surgical procedures were collected and seated in *table 1 and 2.*

Variables	Control (1990 cases)	GICs (34 cases)	p
Clinical characteristics			
Age (y)	54.3±9.4	70.0±8.9	0.01
Age 63	660		0.02
Sex (male/female)	1512/388	30/4	
Cardiac data			
Coronary surgery	1176 (59.1%)	21 (61.7%)	0.051
Valve surgery	695 (34.9%)	10 (29.4%)	0.42
Aortic dissection	34 (1.7%)	3 (9%)	0.34
Combined patient	85 (4.2%)	1	
Emergent operation	89 (4.4%)	3	0.075
LV EF (%)	43.5±16.2	43.4±10.3	0.01
LV EF ≤40	108	11	0.01
Coronary risk factors			
Hypertension	375 (26,1%)	7(20,6%)	0.32
Diabetis mellitus	366 (18.3%)	15 (44%)	0.002
Cerebrovascular disease	45	8	0.005
Peripheral arterial disease	135 (6.7%)	9 (26%)	0.002
COPD	122 (6%)	2 (5,8%)	0.50
Smoking	580 (29.14%)	9 (26,4)	0.28
CRF	104 (5.2%)	10 (29.4%)	0.002

Table 1: *Patients clinical characteristics and comorbidities.*

	Control (1990 cases)	GICs (34 cases)	P
Emergency surgery	103 (5.2%)	7 (20%)	0.006
ECC time (min)	92.8 ± 48.3	125 ± 52	0.001
Aortic cross clamp time (min)	63.4 ± 37.8	79.48 ± 56.5	0.07
Time of surgery (min)	215 ± 72	255.5 ± 76.8	0.007
Major complication			
Reexploration for bleeding	88 (4.4%)	2 (5,8%)	0,15
Blood transfusion (pack)	640 (32.1%)	(94.1%)	<0.0001
Low card syndrom	260 (13%)	18 (52.9%)	0.001
IABP use	27	2	0.4
Hemofiltration	48 (2.4%)	4 (11.7%)	0.016
Postoperative stay (day)	25.1±16.7	44.9±17.9	0.005
Lactates	1.15 ± 0.1	5.34 ± 3.4	<0.002

Table 2. *Operative and postoperative data.*

Regarding the patients who developed GIC all the data are presented in table 3. Patients with gastric duodenal ulcer were diagnosed after anemia and melena were the first signs. After fibro-gastroscopy was done, no active bleeding was noted, except in one patient with massive bleeding that ended in exitus after a few days. Other complications are discussed below.

Symptoms	Time of diagnosis	Deaths
Gastric duodenal ulcer 4	10 ± 6.5 day	1
Cholecystitis 3	10 ± 4.5day	No
Intestinal ischemia 13	8±4.3 days	All dead
Liver failure 8	3±1 days	4
Appendicitis 2	8±2 days	All alive 1
Acute pancreatitis 2	7±3 days	1
Perforation 1	15 days	0
Sigma perforation 1	14 days	0

Table 3. *Diagnosis, and outcomes in 34 patients who developed abdominal complication.*

Discussion

Gastro-intestinal complications such as: gastro-duodenal ulcer, hepato-pancreatitis, intestinal ischemia, are relatively rare after cardiac surgery with an incidence ranging from 0.2% to 5.5%[3], but mortality is very high when they occur [(range 13% - 87%) [5]. The incidence in our study was 1.7% and mortality in gastrointestinal group was 55.8%.

Witch are the major factors influencing in GICs?

All the factors who can lead to splanchnic hypoperfusion and later in ischemia are the factors for GICs. The splanchnic circulation plays an important defensive role in hypovolemia and during low output syndrome. When vasoconstriction occur due to hypovolemia or low cardiac output, splanchnic vessels may contribute in 15% of blood volume increase. The same events occur during CPB [10-12]. Splanchnic ischemia plays a key role in the initiation and perpetuation of the systemic inflammatory response syndrome (SIRS) that often follows cardiac surgery under CPB. Two controversy opinions exist regarding the principal role of CPB in initiation of SIRS and adverse of GI event. Emmiler et al [13] in a retrospective study of 2,625 patients, compared patients operated with the heart- lung machine with patients who were operated off pump. The intestinal ischemia incidence was 0.4% for the first group versus 0.2% for the latter. Similarly, mortality rate for the first group reached 0.2%, while the off pump group presented no deaths. But, Chroome et al. [14] did not find any differences of total GIC between the off- pump and on-pump group. The same results are reported by Poirier [15].

The most common GI Complication following open heart surgery is hemorrhage from upper GI tract. [16,17]. The two most common aetiologies are gastro-duodenal ulcer and erosive gastritis[18]. In our recent study the incidence of bleeding was 11.7% compared with 31% in other studies. Interestingly, in numerous published papers, we noted that GIC especially, hemorrhagic episodes did not decline through the years despite constant improvement in medical management. In our case is different.

The most devastating complication was severe intestinal ischemia which later progresses in necrosis. It is attributed to hypoperfusion during extracorporeal circulation or perioperative hemorrhage, as well as to thromboembolic episodes occasionally influenced by heparin-induced thrombocytopenia. It is possible that presence of coronary artery disease is associated with vasculopathy in mesenteric bed, thus potentially predisposing a patient to more ischemia in peri-operative period. The pathophysiological mechanism of intestinal ischemia is not yet understood. Acute mesenteric ischemia after cardiac procedure is due to non-occlusive mesenteric ischemia (NOMI), rather than embolic one. [19]. In our series, the incidence was 0.05 in total population but 38% in gastrointestinal group. The mortality was 100% because of delayed diagnosis. Schoots [20] reported an overall mortality rate of about 95% for non-surgically

treated patients. The diagnosis was made with contrast CT and confirmed after laparotomy.

Hepatic failure is associated with high mortality about 74% but is very rare (0.1 – 1.1%) [21]. Characteristics of hepatic failure are 10 to 20 times elevated hepatic enzyme and high bilirubinemia due to liver ischemia. [22]. There is connection between low cardiac output syndrome, high elevated lactatemia and multi organ failure.

Acute pancreatitis during perioperative period is rare and it ranges from subclinic to hemorrhagic form. The pathogenesis is unclear. Out of two patients, one of them ended in exitus.

Acute cholecystitis is another abdominal complication following cardiac surgery. Usually the cholecystis are acalculous and pathophysiology is still unclear. Visceral hypoperfusion, endotoxemia, and overproduction of inflammatory mediators have been suggested as mechanisms for AC [23]. In our patients, 3 of them were diagnosed in an average of 10 to 15 days. All the cases had a good prognosis after cholecystectomy.

Regarding risk factors, we found that diabetes, CRF, smoking, peripheral vascular disease, mostly are seen in GIC patients. Perioperative and postoperative data we found that, long by-pass time, usage of IABP, blood transfusion, high lactates level, acute renal failure with hemofiltration, low cardiac output syndrome, are risk factors for GIC.

Conclusion

This is the first study made in Albania for GIC after open heart surgery. We found that our data were the same with the other studies found in literature. When GIC occurs, particularly ischemic intestinal ischemia, the mortality is very high. In a cases of: low cardiac output syndrome, acute renal failure, high quantity of blood transfusion, in cerebrovascular and diabetic patients we should be alert for GIC. Early diagnosis, more chance to survive.

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Case Report

Surgical approach on recurrent retroperitoneal liposarcoma with involvement of surrounding organs – A Case Report.

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Abstract

Background: Retroperitoneal sarcomas are neoplasms that occupy only 0.3 – 3% of all solid tumors. Liposarcomas are the most frequent soft tissue sarcomas in adults. Symptoms would only be detected if the liposarcoma infiltrates on the surrounding organs.

Case presentation: 58 year old woman presented with complaints of progressive abdominal distension, loss of appetite, malaise, constipation and weight loss of about 7 kg. Abdominal CT scanning showed the presence of a retroperitoneal tumor that occupied almost the entire right part of abdominal cavity. 16 months earlier, the patient was operated in another surgical facility due to liposarcoma, derived from retroperitoneum (Histopathological finding: Poorly differentiated (G3) liposarcoma pleomorphic cell type). The patient was operated under the diagnosis of retroperitoneal liposarcoma.

Conclusions: Treatment of choice is radical surgical procedure including elimination of all the structures and organs involved by the tumour process RO resection as a basic principle of surgical treatment.

Keywords: *giant retroperitoneal liposarcoma, dedifferentiated liposarcoma*

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Full Text

Introduction

Virchow first described liposarcoma in the 1860s. Liposarcoma (LPS) is a malignant tumor of mesenchymal origin. (1) Retroperitoneal liposarcoma is a rare tumor, with an incidence of 2.5 per million, accounting for 10-15% of soft tissue tumors. (2) The dimension and weight of liposarcoma are variable; those over 20 kg are called "giant liposarcoma". (3) Liposarcomas are one the most common of over 50 histologic subtypes of soft tissue sarcomas that are mostly resistant to chemotherapy. (4)

These tumors are classified into subtypes according to their pathological features including the amount of intracellular lipid, the quantity of mucoid lipid, and the differentiation of cells. There are three separate biologic groups of LPS encompassing five histologic subtypes. A fifth subtype (the so-called "mixed or combined liposarcoma"), which was still a separate entity in the 2002 WHO classification, has been removed from the most recent 2013 WHO classification, based on the consensus view that those rare cases probably represent examples of (variants of) dedifferentiated liposarcoma.

The recently updated World Health Organization (WHO) classification of soft tissue and bone tumors recognizes four major liposarcoma subtypes: (1) atypical lipomatous tumor/well-differentiated liposarcoma [which includes the adipocytic (or lipoma-like), sclerosing, inflammatory and spindle cell variants], (2) dedifferentiated liposarcoma, (3) myxoid liposarcoma, and (4) pleomorphic liposarcoma. (5,6)

There are three biologic groups of liposarcoma: well- and dedifferentiated liposarcoma (WD/DDLS), myxoid/round cell liposarcoma (M/RCLS) and pleomorphic liposarcoma. (7) Although well differentiated and dedifferentiated subtypes share common morphological features, dedifferentiated liposarcoma has much higher malignant potential with poor prognosis.

The anatomical distribution of liposarcoma appears to be partly related to the histologic type. Well-differentiated liposarcoma tends to occur in deep soft tissues of both the limbs and the retroperitoneum, and dedifferentiated liposarcoma occurs predominantly in the retroperitoneum. Although any liposarcoma subtype occasionally arises in the subcutis, involvement of the dermis appears to be exceedingly rare.

Case presentation

58-year-old patient admitted for elective operative treatment due to intra-

abdominal tumor formation that was verified on CT on the abdomen and small pelvis with contrast.

In the last few months she experienced weight in the stomach, loss of appetite, malaise, constipation, swelling of the right leg, movement difficulties and weight loss of about 7 kg. On a physical examination, a palpably accessible TU formation is recorded in the right half of the abdomen, which in the mesogastric region passes towards the anterior abdominal wall.

16 months earlier, the patient was operated in another surgical facility due to liposarcoma derived from retroperitoneum (Histopathological finding: Poorly differentiated (G3) liposarcoma pleomorphic cell type).

Abdominal CT scanning showed the presence of a retroperitoneal tumor that occupies almost the entire right part of abdominal cavity. The CT scan with contrast of the abdomen shows a large TU conglomerate originating from the right retroperitoneal space and it is in collision with the lower vena cava, and compresses the duodenum, stomach and transverse colon and high sited right dome of the diaphragm. Aorta and mesenteric vessels with small intestines and part of the colon are visualized in the left half of the abdomen ***(Figures 1, 2 and 3).***

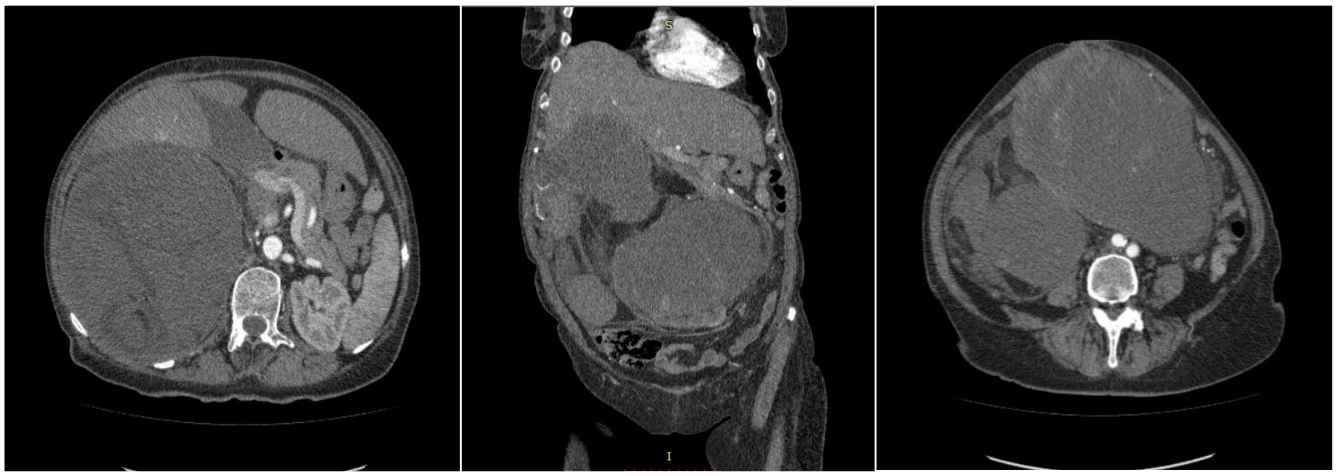


Figure 1,2,3: *Abdominal CT scanning showed the presence of a retroperitoneal tumor that occupies almost the entire right part of abdominal cavity. Large TU conglomerate originating from the right retroperitoneal space and it is in collision with the lower vena cava, and compresses the duodenum, stomach, transverse colon and high sited right dome of the diaphragm. Aorta and mesenteric vessels with small intestines and part of the colon are visualized in the left half of the abdomen.*

The right kidney cannot be located and defined at the ultrasonographic examination of the abdomen. From laboratory parameters: elevated values

of WBC 14.4, PLT 638 and C reactive protein - 196mg/L, the remaining laboratory parameters in order. Pre-operative J-J probe is placed in the left ureter, while in the right ureter the attempt to set the J-J probe was unsuccessful. The patient was operated under the diagnosis of retroperitoneal liposarcoma. A large conglomerate of tumor masses localized in the right half of the abdomen is recorded intraoperatively.

The tumor originates from the right hemiretroperitoneum and extends at a distance from the right diaphragmatic dome (which raises it in the right hemithorax and for which it is intimately attached) to the right iliac fossus where it lies on the right iliac vein. The upper half of the tumor is covered by the liver. The tumor collides with the right kidney, the right adrenal gland, the cava inferior vein, and compresses the duodenum, stomach and transverse colon. The aorta and mesenteric vessels with small intestines and part of the colon are swollen in the left half of the abdomen.

Block resection was made of the tumour together with the right kidney and the right adrenal gland, part of the right dome of diaphragm, cholecyst and partial resection of musculus ileopsoas from the right side. The specimen measured 36x22x14cm and weighted 7765 grams ***(Figures 4, 5, 6).***



Figure 4: A large conglomerate of tumor masses localized in the right half of the abdomen.

Figure 5: The tumor originates from the right hemiretroperitoneum and extends at a distance from the right diaphragmatic dome to the right iliac fossus where it lies on the right iliac vein. The upper half of the tumor is covered by the liver. The tumor collides with the right kidney, the right adrenal gland, the cava inferior vein, and compresses the duodenum, stomach and transverse colon. The aorta and mesenteric vessels with small intestines and part of the colon are swollen in the left half of the abdomen.

Figure 6: The specimen measured 36x22x14cm and weighted 7765 grams.

The intersection of the tumor is encapsulated, without a macroscopically visible penetration of the capsule. On serial sections, the tumor tissue in the part is solid-colored, in part is necrotic, in

part it is haemorrhagic, and in part with the appearance of fat tissue.

Microscopic analysis showed a malignant mesenchymal neoplasm built from liposarcoma sites with variable degrees of differentiation from low to high degrees, bleeding and necrosis zones, as well as elongated cell lines in a reversed and trackable arrangement between which are large bizarre, single multidirectional cells, with the presence of mythological activity, that is, areas with features of fibrosarcoma.

Histopathological finding: Liposarcoma high grade (Dedifferentiated type) - a dedifferentiated liposuction containing a liposarcomate component and poorly differentiated fibrosarcoma. pTNM = G3 L0 VO NG3

Discussion

Liposarcoma is the most common soft tissue sarcoma, accounting for 10-20% of all cases. It commonly occurs between 40-60 years of age and has a 1:1 ratio between genders (8).

Based on its histological features, liposarcoma was initially classified into four subtypes: the well differentiated, myxoid, round cell and pleomorphic types. Evans introduced dedifferentiated liposarcoma later in 1979, so now there are five subtypes. (9)

The feature of dedifferentiated liposarcoma is the histological coexistence of well to poorly differentiated liposarcoma and non-lipomatous differentiated areas. (10) A dedifferentiated liposarcoma of the retroperitoneum is an extremely rare tumor. Dedifferentiated liposarcoma has a worse prognosis than other subtypes because it has a higher risk of local recurrence and distant metastasis. Retroperitoneal liposarcoma is usually asymptomatic until the liposarcoma is large enough to compress the surrounding organs. (11) Only complete excision provides hope for a cure, but this is often difficult because the margins are not grossly apparent, so a contiguous organ may have to be resected. For unresectable disease, retrospective studies have identified myxoid (round cell) and pleomorphic sarcomas to be relatively responsive to chemotherapy. (4)

In retroperitoneal liposarcoma, histological subtype, incomplete resection, contiguous organ resection, and older age are strongly associated with tumor-related mortality. For liposarcoma, it is necessary to customize the treatment strategy on a case-by-case. (12)

High histological grade is one of the most important negative prognostic factors in patients with retroperitoneal liposarcoma.

Generally, round cell, pleomorphic and dedifferentiated subtypes are regarded as high-grade; whilst well-differentiated

and myxoid liposarcoma are low-grade. (13) Well-differentiated liposarcomas may recur locally, but the metastatic potential is low, while pleomorphic liposarcomas have high metastatic potential, which may reduce the survival rate. Although well differentiated and dedifferentiated subtypes share common morphological features and genetic events, their biologic behaviors are quite different.

Well-differentiated liposarcoma often recur locally but have minimal metastatic potential, with a 5-year survival probability of 90%. (14) A dedifferentiated tumor tends to present more often as a recurrence, requires multi-organ resection more frequently, and has a shorter disease-free interval compared to those of well differentiated subtypes. Multiple factors, such as site and depth of origin, margin involvement after resection, and histologic grade affect survival rates for patients with liposarcoma. Factors associated with a poor survival prognosis include the dedifferentiated subtype, grade 2-3, stage II-III, size >20 cm, and involved surgical margins. Distant metastasis is more common with dedifferentiated, grade II-III, and the deep seated (retroperitoneal) tumor location. Distant metastasis relates to the tumor size. If the size of the tumor is less than 2.5 cm, the rate of metastasis at 5 years is approximately 3%. On the other hand, the rate of metastasis at 5 years is between 55 and 60% in cases of tumors larger than 20 cm. (15) Local recurrence remains the preliminary cause of mortality in retroperitoneal liposarcoma (16). Aggressive surgical approach over 80% of patients with dedifferentiated histology will recur locally and 30% will metastasize to distant sites within 3 years of diagnosis. (14)

In order to detect recurrence, a CT scan every 3 months for the first 2 years, every 6 months for 2–5 years and annually thereafter is generally recommended. Each recurrence should be included in a program of iterative resection as this is the only guarantee of prolonged survival. (17) The survival rate was improved in the patients who received a complete resection of their recurrent tumor compared with the patients who did not. Therefore, the gold standard treatment remains to be removal of the recurrence (18). Although controversy exists, adjuvant or neoadjuvant radiotherapy or chemotherapy do not have any survival benefits in retroperitoneal liposarcoma. In order to achieve the R0 resection, contiguous organ resection, including nephrectomy, is always performed when the intraoperative histological results are dedifferentiated, myxoid/round cell, pleomorphic or mixed-type. (15) Milone et al reported a 5 year survival of 85.7% in R0 resection versus 33.3% in R1 resection. (16) Because dediferentiated liposarcomas have high malignant potential with risk of recurrence and

distant metastasis, careful surveillance is warranted.

The resectability of the tumor and histopathologic grades are associated with disease prognosis. (19)

Local recurrence following complete resection of primary retroperitoneal liposarcoma is common with 50% of well-differentiated and 80% of dedifferentiated tumors recurring within 5 years, and most patients who die of retroperitoneal soft tissue sarcoma die from the efects of local recurrence (20).In this case there was no verification of signs for recurrence or distant metastatic changes in connection with liposarcoma during control and standard examinations after one year of the surgical treatment.

Conclusions

Complete surgical resection is the gold standard treatment, which might be curative. In many cases, combined resection of involved organs and vasculatures is required to achieve complete resection. Hemo and radiotherapy do not show usefulness in dedifferentiated type of liposarcoma versus other subtypes in which there are signs for an effect of certain hemo therapeutic means. In the cases of dedifferentiated liposarcoma, close follow up and careful surveillance are warranted for the detection of recurrence.

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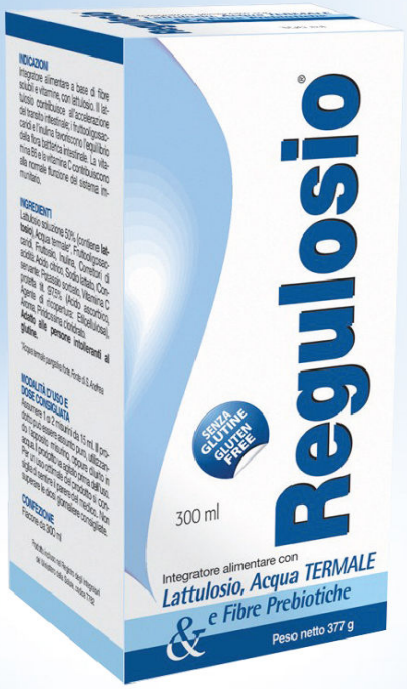
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Case Report

Posttraumatic Pleural Empyema (PTPE) and Multidetector CT (MDCT) Findings.

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https://doi.org/10.32391/ajtes.v3i1.19

Abstract

Background: PTPE is a significant complication and the main cause for 2–10% of victims. MDCT is increasingly used. Our study is an analysis focused on the anatomy of pleura, principles behind fluid formation/reabsorption and an imaging approach to assessing pleural effusion and PTPE under-CT evacuation.

Material and methods: The study is conducted on eight (8) patients with PTPE at University Hospital of Trauma, University Hospital Centre "Mother Theresa", University Hospital " Shefqet Ndroqi" in Tirana, during the period January 2015 – June 2018, by using a MDCT of 128 slice – 64 detector – dual source, SIEMENS, German machine.

Results and conclusions: The frequency of post-traumatic pleural injuries with presence of Hydrothorax is 75.6% in total; second after that of Chest wall injuries (94.2%). Among the variable forms are reported Hemothorax – 17.4 % and Pneumothorax – 7.3 %. Empyema is rare – 2 %. MDCT is the most sensitive, specific and accurate imaging modality in the assessment of PTPE and management of patients:

- demonstrates the significant disorder in patients with normal initial radiographs,
- indicates changing of management in up to 20% of cases with abnormal initial radiographs,
- assists several micro invasive procedures in order to prevents development of empyema,
- enables early prediction of respiratory compromise and limits the severe invasive interventions.

Keywords: Posttraumatic Pleural Injuries, Empyema, Multidetector CT

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Full Text

Introduction

Thoracic empyema, defined as collection of pus in the pleural space, has been recognized since the time of Hippocrates and historically has been associated with high mortality. The mortality rate from empyema thoracic remains high and it ranges between 6%–24%. A significant proportion of pleural space infection complicates community- or hospital-acquired pneumonia. However, a proportion of pleural space infection results from iatrogenic causes; it is also known that pleural infection may develop without pneumonia—so called primary empyema.

Physiology of pleural space

Simple PPE have characteristic biochemical and microbiological features namely: pH > 7.2, LDH < 1000 iu/l, Glucose > 2.2 mmol/l and no organisms in culture or gram stain. Pleural fluid amount is 0.1-0.2ml/Kg; <10ml in a 70 kg man. Normal rate of production 17ml/day

Maximal absorptive capacity into lymphatics 0.2-0.3ml/kg/hr

Content: Protein 1.5 gm/dl; rare macrophages, mesothelial cells and lymphocytes.

Main causes	**↑hydrostatic pressure ↓colloid osmotic pressure**	**Inflammation ↓ ↑vascular permeability**
Appearance	Clear	Cloudy
Specific gravity	< 1.012	> 1.012
Protein Content	< 2.5 g/dL	> 2.9 g/dL
Fluid Protein/ProteinSerum	> 0.5	< 0.5
SAGA=[Serum-Effusion]alb	> 1.2 g/dL	< 1.2 g/dL
Fluid LDH max. for serum	< 0.6 or < $^{2}/_{3}$	> 0.6 or > $^{2}/_{3}$
Cholesterol content	< 45 mg/dL	> 45 mg/dL

***Table 1** : biochemical and microbiological features*

"Empyema thoracis" causes and risk factors

Ventilated and immobilized patients, pulmonary contusion and onset of pneumonia, direct infection from penetration, secondary infection from abdominal injuries and iatrogenic infection during chest tube insertion. Thoracic empyema is most common in male then in female, in age 50 years.
Alcoholism, HIV, drug usage and pre-existing lung disease are giant risk for empyema.

Pathophysiology

In most series of patients with community acquired empyema, aerobic bacteria predominate. These include Streptococcus pneumoniae and Staphylococcus aureus. Aerobic organisms also include Gram negative bacteria such as Escherichia coli, Hemophilus influenza and Klebsiella pneumoniae. Organization of empyema is a matter of time.

Stage	Pathology	Evolution
1. Exudative/Acute	Protein-rich sterile fluid Normal glucose & pH Low cellular count	0 - 2 weeks
2. Fibrinopurulent	Bacterial invasion Polymorphs ,Activated coagulation & fibroblastic activity ,↓ glucose & pH	1 - 6 weeks
3.Organized phase	Thick pus Thick inelastic peel over pleura	5 weeks

Table 2: *pathophysiology*

Diagnosis

Most patient with aerobic bacterial pneumonia and PPT have an acute onset of chest pain (60%), cough (70 %), fever (80%) and sputum production. Symptoms are often more indolent in patients with anaerobic infection. Dyspnea, Tachypnea, Leukocytosis, increase of CRP.

Radiography

Pleural-based opacity in non-dependent regions if loculation occurs. "D-sign" - loculated pleural fluid bulging out from the chest wall. Elliptical shape with well-delimited borders and conforms to the chest wall. Loculated collection of pleural fluid with or without gas pockets ***(Figures 1,2).***



Figure 1, 2

MRI & Ultrasonography

Simple fluid, nonseptated, Complex collections, - internal echoes & septations, Shadow – gas pocket ***(Figures 3, 4).***

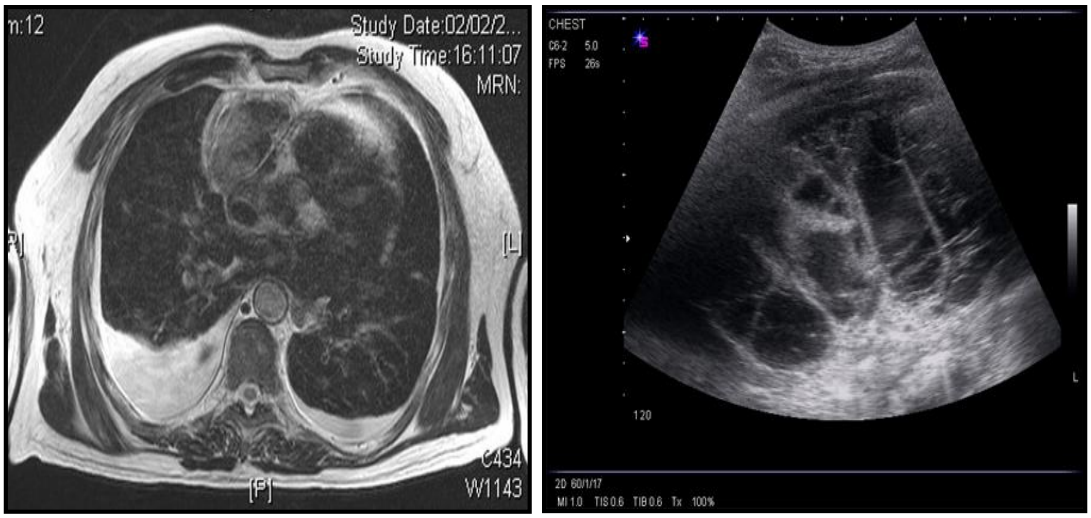


Figure 3, 4

Imaging – CT

Stage I

Air-space disease associates with pleural effusion. Lenticular fluid collection ***(Figure 5, 6).***



Figure 5, 6

Stage II

Fixed non mobile pleural *"mass"*.

Pleural fluid in atypical location.

Thickening and/or enhancement of parietal pleura.

Increased thickness and attenuation of costovertebral subpleural fat.

"Split pleural sign" – enhancing, thickened visceral and parietal pleura layers separated by an intervening layer of low attenuation fluid ***(Figures 7, 8).***

Loculated gas bubbles with complicating bronchopleural fistula ***(Figure 9.)***

Empyema necessitates with infected pleural fluid collection extend into chest wall. ***(Figure 10).***



Figures 7, 8*: Effusion; lobular borders, Pleural surfaces enhancement, Hemothorax, Atelectasis)*

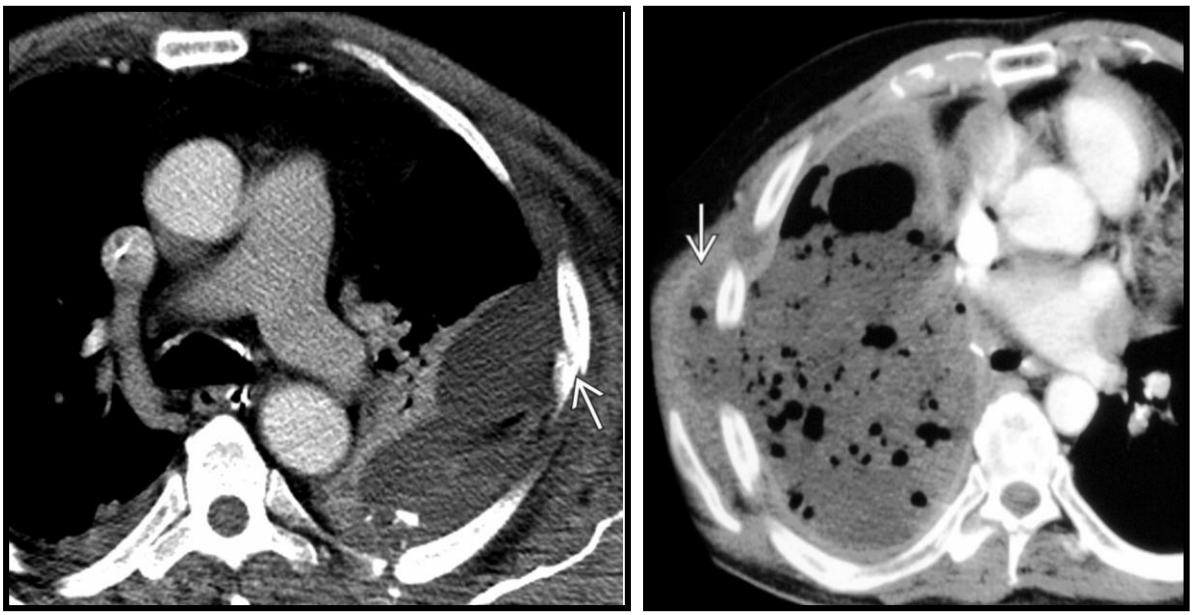


Figure 9*: Multiple rib fractures - pleural collection (40 HU) Gas within pleural space;*
Figure 10: *Consider empyema necessitates in patients with empyema & adjacent chest wall abnormality*

Stage III

Pleural rind or peel with calcific pleuritic.

Entrapment of the lung.

Chest wall invasion or violation.

Management

- Pus Elimination
- Lung re-expansion
- Chest wall and diaphragm mobility restoration
- Pulmonary function improvement
- Complications & chronicity Elimination ***(Figure 11).***

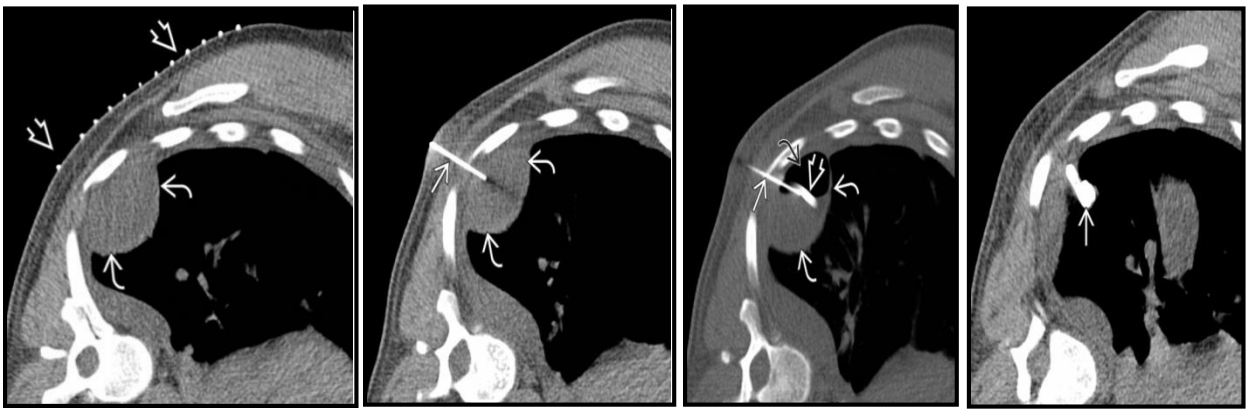


Figure 11

Antibiotic Therapy

Penicillin-Clindamycin-Ceftriazone-Vancomycin-Metronidazole-Ciprofloxacin

Fibrinolytics

Streptokinase & Urokinase activate plasmin through cleavage of plasminogen which initiate degradation of fibrin, reduce viscosity of fluid, dissolve loculations, dissolve peel.

Chronic open drainage *(Figure 12)*

Pulmonary decortications

After 6 months, pleura remains thickened and the patient's PFTs is significantly reduced to limit activities, decortication should be considered ***(Figure 13).***

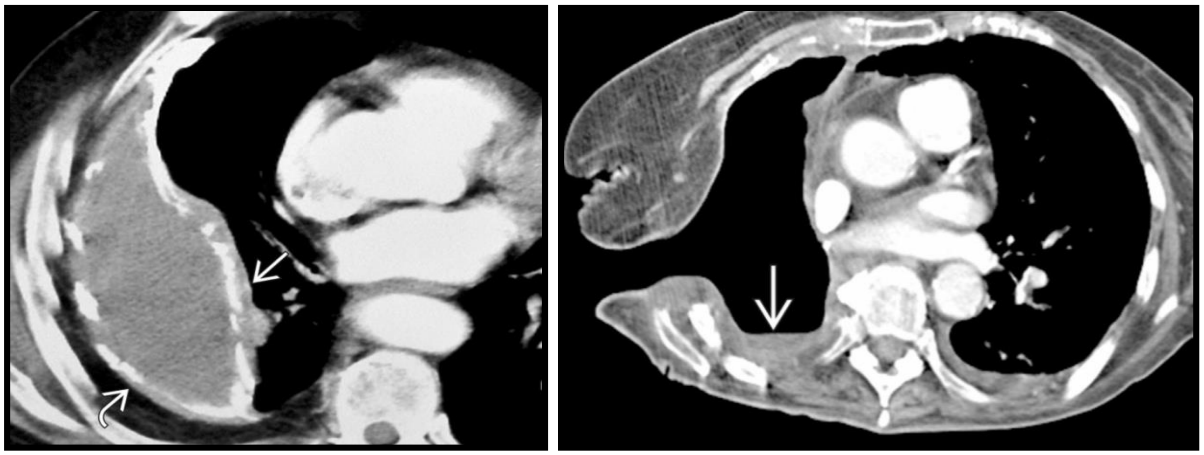


***Figure 12** (on the left), **13** (on the right)*

Conclusion

PTET remains a significant clinical problem that accounts for 2 up to 10% of trauma victims. Factors of ET are mostly preventable. Primary feature is a retained hematoma which needs to be evacuated (ICD/VATS) within 5 days of trauma**.**

ET management is prolonged with high risk of morbidity and mortality.

Best imaging tool: Chest radiography is best initial study, CT often needed to plan intervention

Pleural injuries MDCT protocol:

CT Scanning with intravenous contrast material at optimum arterial opacification (sometime not essential)

Routine coronal and sagittal reformations

Volumetric MIP/CTA reformations when indicated

5. doi10.1016/j chest. 2016.08.653.

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Case Report

Acute Traumatic Pericardial Tamponade.

Saimir Kuci[1], Esmerilda Bulku[1], Alfred Ibrahimi[1], Ervin Bejko[1], Stavri Llazo[1], Jonela Burimi[1], Ermal Likaj[1]

https://doi.org/10.32391/ajtes.v3i1.28

Abstract

Acute traumatic pericardial tamponade is a serious and rapidly fatal injury. As penetrating chest wounds are becoming more common, early diagnosis of tamponade is important so that lifesaving treatment can be applied. The classical features of tamponade may be insidious due to hypovolemia and the presence of associated injuries. Acute tamponade may also be precipitated by rapid administration of large volumes of fluids. Echocardiography is limited by availability and operator dependence. Pericardiocentesis, sometimes lifesaving, is dangerous and limited in value.

A higher degree of clinical suspicion in patients with chest injuries, together with close monitoring and revaluation, particularly during volume replacement, is essentially. We describe a case with cardiac tamponade which presented in the emergency department of University Hospital Centre "Mother Theresa", Tirana.

The majority of patients who arrive at hospital following a penetrating injury to the heart will have no vital signs. 1 Among those who make it alive, up to 16% will be relatively stable and there will not be any indication of their serious underlying injury. 2 Pericardial tamponade is a life threatening complication of penetrating cardiac trauma that will lead to rapid deterioration in a patient's condition and require emergency treatment. 3 It is important to identify and treat this group of patients before deterioration occurs. Classically the diagnosis is suspected from the presence of hypotension, distended neck veins, and muffled heart sounds, known as Beck's triad. 4 However, these signs are not present in many patients or are attenuated, making recognition more difficult.

Keywords: acute traumatic pericardial tamponade, chest wounds, treatment

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Full Text

Case report

22 year old adult male was admitted in the Emergency Service of "Mother Theresa" University Hospital Centre, after a knife injury in the anterior wall of the left hemithorax near the sternal border.

The patient was conscious with a heart rate of 115 per minute and an arterial pressure of 80/50 mmHg. Cardiac sounds were weak.

Chest X-ray was done while the patient was given 1000 ml of crystalloid solution intravenously.

No pneumothorax or hemothorax was noted in the X-ray but the cardiac silhouette was enlarged.

The general surgeon who consulted the patient asked for cardiac surgeon expertise.

The situation worsened, the patient complained of chest pain and he was cold and sweated on physical examination.

Heart rate increased to 150/min and arterial pressure declined to 50/30 mmHg. The patient lost consciousness and he was intubated.

Cardiac tamponade was suspected and echocardiography showed a large amount of pericardial fluid. The cardiac surgeon transferred the patient immediately in the cardiac surgery operating theatre where the heart-lung machine was available.

The patient underwent median sternotomy and the pericardial cavity was opened. 650 ml of blood was drained and 1 cm laceration in the anterior face of the right ventricle was repaired.

The postoperative period was free of complications and the patient was discharged on the 6th postoperative day.

Discussion

The incidence varies between hospitals, but UHC "Mother Theresa" deals with a large number of cases in comparison to other institutions. 5.6 Despite this, recognition of cardiac tamponade can still cause difficulty, as this case illustrates. In a review of emergency thoracotomies performed over a two and a half year period, four (80%) out of five pericardial tamponades were initially missed in patients with penetrating cardiac injuries. 6 This is partly because the patients are relatively stable in the early stages and diagnosis may be difficult due to the presence of alcohol or other injuries which mask subtle clinical features. The diagnosis requires experience and higher degree of clinical suspicion.

Significant hypotension must always be explained and frequent re – evaluation of the patient by experienced medical staff is essential. In this hospital patients with blunt and

penetrating chest trauma not requiring thoracotomy are usually managed by the Anaesthesiology & Emergency medical staff and admitted under their care. Patients with continuing haemorrhage or suspected cardiac trauma are referred directly to cardiothoracic surgeons.

General surgeons therefore have limited experience in chest trauma and opportunity of general surgical trainees to gain experience in these cases is still relatively small.

Despite this, a significant number of patients are treated by general surgeons because of concomitant or suspected intra-abdominal injury, particularly when the evaluation fails to reveal an obvious intrathoracic injury.

Chest wounds have been divided into two broad categories, central and peripheral, based on the likelihood of the injury to the heart and other major mediastinal structures.

The borders of the central zone are the suprasternal notch and the medial halves of the clavicle superiorly, the mid clavicular lines laterally, and the xiphoid and costal cartilages inferiorly.7

Wounds within these boundaries should raise the suspicion of serious cardiac injury. Our case had stab wounds within this "danger area".

Anyway, this statement is not always true, and any chest wound can result in central organ damage as its extent and trajectory cannot be determined by inspection, and local wound exploration is unreliable and may be dangerous.

Associated injuries may distract attention from the chest, particularly if the patient appears stable.

The pathophysiology of tamponade is related to the impairment of ventricular filling caused by the presence of blood in the pericardial space, leading to raised end diastolic filling pressure and impairment of venous return. This should be evident from distension of neck vein caused from raised central venous pressure. In patients who are hypovolemic or have peripheral vasodilation due to alcohol this sign is often attenuated or absent until adequate volume replacement has been given, as happened in our case.8 It may be argued that standard advanced trauma life support protocols, which advocate fast volume replacement in trauma patients may precipitate tamponade in those who would otherwise have been stable. There is growing evidence to support this point of view and some clinicians now advocate that victims of trauma who have low but stable blood pressure should have delayed and controlled volume replacement at the time of surgery. "This practice, however, should be reserved for those patients who are being cared by an appropriate and experienced surgical team".

In the face of these difficulties, pericardiocentesis has been advocated as a reliable method to diagnose and treat tamponade.11 While this may be

a truly lifesaving procedure, it is often associated with attendant risk, and the number of patients in whom it is indicated is very small.

If the blood in pericardial cavity is clotted it cannot be adequately aspirated, a false negative result may be obtained and the tamponade will not be relieved. There is also danger of ventricular puncture and damage to the coronary arteries. For these reasons most agree that this procedure is of little value in cardiac trauma.12

Subxiphoidpericardiotomy has been advocated, although it is a more invasive procedure and requires more surgical skill. 3 It is more sensitive than pericardiocentesis but in some cases precipitous decompensation may occur, requiring immediate emergency thoracotomy for the control of bleeding.

Recently echocardiography has been used as a non – invasive diagnostic tool. 14 However though helpful in confirming the diagnosis, it cannot be relied on completely because the interpretation is operator dependent and false negativities occur. 15 The role of emergency room thoracotomy remains controversial 16, but it is still widely accepted that it is of value in penetrating trauma for patients in extremis' and the best results are achieved in those suffering from cardiactamponade.18

Conclusions

Traumatic pericardial tamponade is relatively rarely encountered in Albania because of various diagnostic problems. Clinicians must have a high degree of clinical suspicion when dealing with victims of penetrating chest trauma, particularly if the injury lies in the "cardiac danger area".

Although associated injuries need to be dealt with appropriately, the possibility of occult cardiac injury must always be kept in mind since a significant minority of patients remain stable and the signs of tamponade may be modified or absent because of compensatory mechanisms.

Decompensation can occur rapidly during fluid replacement and unless the clinical condition of the patient dictates otherwise this should be carried out cautiously, with close monitoring. Echocardiography may be helpful in confirming the diagnosis by non-invasive means but is not completely reliable.

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Perspective

Modern Approaches for Treatment of Patients with Chronic Wounds in Ambulatory Setting in General Hospital Dr. Jože Potrč Ptuj.

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Abstract

Chronic wounds represent an enormous health, social and economic burden in modern society. With the increasing incidence of diabetes and obesity as well as the ageing of the population, we correspondingly expect a rise in the incidence of chronic wounds. The latter will reflect in an even heavier burden for individuals, their families and the society. At the General Hospital Dr. Jože Potrč Ptuj we devote a lot of time dealing with this issue, because we are aware of the impact that the chronic wounds have on the quality of life of affected patients. We have been taking care of patients with chronic wounds for several years in the ambulatory and hospital setting. In the article we present our organizational model in the treatment of patients with chronic wounds at General Hospital Dr. Jože Potrč Ptuj. We present the modern approaches in the treatment of chronic wounds at our hospital, our results in the treatment of chronic wounds supported with clinical cases. The key to successful management of patients with chronic wounds are good knowledge, team work and an individual approach to each patient.

Keywords: *chronic wounds, wound healing unit, modern approaches, individual approach*

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Full Text

Introduction

Chronic wounds present a challenge to wound care practitioners. Normal wound healing is a complex process that relies on the progression of a series of interdependent phases that repairs tissue damage and, ideally, returns structure and function to the tissue defect. Unlike acute wounds, chronic wounds have impaired healing responses, where they appear to have become stuck in the inflammatory phase of the healing response (1). The healing process can be lengthy, requiring frequent office visits and dressing changes (2).

Wounds are "silent epidemic", having an economic and social impact on our society (3). Evidence suggests that wound care generally, and especially the treatment of chronic wounds, will become a big burden for healthcare systems in Europe as the population ages and because the prevalence of chronic wounds is highly correlated with age (4) .
At the General Hospital Dr. Jože Potrč Ptuj we devote a lot of time dealing treatment of patients with chronic wounds in the ambulatory and hospital setting.

The aim of this article is to present the organizational model in the treatment of patients with chronic wounds at General Hospital Dr. Jože Potrč Ptuj. Modern approaches in the treatment of chronic wounds at hospital, results of the treatment of chronic wounds supported with clinical cases will be presented.

Discussion

Ambulatory setting for chronic wounds in General Hospital Dr. Jože Potrč Ptuj wound healing unit in hospital started with its activities in June 2015. It operates as a part of specialist surgical unit. Health care team includes; a surgeon, RN and nursing assistant. The health care team collaborates with community nurses, dietitians, GPs and University Clinical Centre Maribor. Wound healing unit operates twice a week for a full-time. Patients must be appointed to wound healing unit by selected GP. They usually come once or twice a week for examination. Other wound dressings are arranged by community nurses or nurses in primary care. Health care team treats patients with shin ulcers, pressure ulcer, diabetic feet and patients with malignant wounds. During the treatment several parameters are being monitored, such as size of wound (width, length and depth), bottom of the wound, edges of the wound, surrounding skin, secretion (amount and color), possible odor, presence of pain and inflammation. Treatment of each patient is documented with photographs of the wound at the beginning of treatment, wound changes and at the end of treatment. Treatment of the patient includes also dietary counseling and caring for the quality of the patient's life (5).

Modern approaches for chronic wound treatment in ambulatory setting
The challenge faced by clinicians is to 'convert' chronic wounds into healing

wounds by resolving the signals responsible for the delayed healing profile and stimulating/optimizing the healing response (6). Today there are many known methods of treating acute chronic wounds.

The TIME framework provides a systematic approach for the assessment and management of the majority of acute and chronic wounds. The debridement of devitalized tissue from the wound bed, the reduction in wound bioburden and effective management of wound exudate i.e., wound bed preparation are barriers to wound healing progression that are targeted by T.I.M.E (6). The clinical observations and interventions relating to wound bed preparation are grouped into four areas, all of which need to addressed at each wound assessment: Tissue: assessment and debridement of non-viable or foreign material (including host necrotic tissue, adherent dressing material, multiple organism-related biofilm or slough, exudate and debris) on the surface of the wound. Infection/inflammation: assessment of the etiology of each wound, need for topical antiseptic and/or systemic antibiotic use to control infection and management of inappropriate inflammation unrelated to infection. Moisture imbalance: assessment of the etiology and management of wound exudate. Edge of wound: assessment of non-advancing or undermined wound edges (and state of the surrounding skin). Although there are many new developments in the field of wound therapy and our understanding of wounds, the basic concepts of tissue, infection/inflammation, moisture and edge of wound remain important in guiding clinical practitioners in their approach to wound management (7).
The epithelialization process is impaired in all types of chronic wounds. Problematic are especially wounds that do not epithelize despite the preparation of wound bottom according to TIME (8). In such wounds, other advanced treatment methods need to be considered (5).

Negative pressure wound therapy (NPWT) is being used in hospital since 2009. NPWT is a non-invasive therapy system with controlled negative pressure. It uses a vacuum device to promote wound healing by removing fluid from open wounds through a sealed dressing or a foam dressing connected to a collection container using sub-atmospheric pressure (9). There are several NPWT mechanisms of action: macrodeformation, microdeformation, fluid removal and environmental control of the wound (10). NPWT promotes a moist environment, reduces edema, creates a positive wound environment by removing healing inhibitors, increases blood flow, stimulates angiogenesis and granulation tissue and causes mechanical stress in the bed of the wound promoting cell proliferation (9). The effects of NPWT can deliver different treatment goals: managing and protecting the wound, prepare the wound for surgical closure/to progress the wound by secondary intention, to improve outcomes after split-thickness skin graft, to improve patient comfort and reduce costs (11). Costs are reduced due to faster healing rates and reduced dressing changes; nurse time and hospital stays with NPWT therapy may offset higher acquisition costs (12). There are several

manufacturers of NPWT devices. The amount of the pressure is determined on the basis of a clinical judgement.A negative pressure of 100-125 mm Hg is recommended as the most effective to eliminate the secretion and a pressure of 40-80 mm Hg as the most suitable for wound contraction. The recommended pressure for the use of the foam is 125 mm Hg, and the gauze is 80 mm Hg (13).

Bioptron therapy uses a non-invasive optical device to project a beam of light on to the skin. This light has four characteristics, the combination of which is unique to Bioptron: polarisation, polychromy, incoherency, it has low energy density. The manufacturers claim that these characteristics enable Bioptron light to penetrate the skin and underlying tissues in order to stimulate various biological processes. They assert that Bioptron light improves microcirculation, stimulates regeneration and repair, promotes wound healing and relieves pain, with no adverse effects (14). Positive effect of using light therapy is reported in the healing of shin ulcers, burns, skin donor sites and operative wounds (15). They also find effective healing of the diabetic foot using polarized, polychromatic light (16). Use of polarized, polychromatic light reduces the size of pressure ulcers (17, 18). Other positive outcomes of using polarized, polychromatic light is also pain reduction (19, 20).

In the period from 1. 1. 2016 to 31. 12. 2017 wound healing unit in our hospital completed treatment in 105 patients with various types of chronic wounds. 66 chronic wounds (61%) were completely healed. We recorded improvement of a local conditions in 29 cases (27%) of chronic wound and unchanged local wound state in 12 cases (11%). In the two-year period, the average number of treatments needed for total healing of the chronic wound was 12 treatments (3-42), representing an average of 84 days. The average number of light therapies until the first improvement of the wound local status was 2 therapies.76 patients (72%) reported pain caused by chronic wounding prior treatment and only 26 patients (25%) reported pain in association with chronic wound at the last treatment with light therapy (21). Bioptron is being used in hospital as a supportive treatment since November 2015.

Soon after the discovery of lasers in the 1960s it was realized that laser therapy had the potential to improve wound healing and reduce pain, inflammation and swelling (22). Low level laser therapy (LLLT), also called soft laser, is known to supply direct biostimulative light energy to body cells. The absorbed laser energy stimulates molecules and atoms of cells but does not cause rapid or significant increase in tissue temperature (23).

The currently proposed theory regarding the biologic mechanism of LLLT resides in the absorption of light by photo acceptors or chromophores at the molecular, cellular, and tissue levels, that results incellular changes including synthesis of collagen and extracellular matrix, recruitment of cytokines and growth factors, migration, proliferation, and differentiation of cells. LLLT is dependent on the optical absorption

proper-ties of the skin, frequency of treatment, and treatment intervention time, and is also a function of the device characteristics such as wavelength (nm), power density (mW/cm2), fluence (J/cm 2), irradiation time (seconds), and treatment protocol (duration and interval) (24). For wound healing the most appropriate wavelength of laser radiation is in the red spectrum (25). In lasers radiating in the infrared part of the visible spectrum the light penetrates to a depth of 1-2 cm, with indirect effects up to a depth of 5 cm (26).

For wound radiation the most suitable parameters have not yet been determined (27). In our hospital K Laser is being used. Patients come on therapy twice a week. We use pattern scanning technique, wavelength of 660 nm, 800 nm, 905 nm, 970 nm (all for wavelengths work simultaneously), power od 4 W-8W (constant and pulsating wave) radiation dose of 825 J for wound area and 2880 J or 4800 J for surrounding area (total dose for the entire area), depending on the time radiation (6 or 8 minutes) (28). Effectienes of the treatment is influenced by location and condition of the wound (22). K laser is being used in our hospital since February 2018.

In 2013 an automated epidermal harvesting system (CelluTome Epidermal Harvesting System; KCI, an Acelity company, San Antonio, TX, USA) that applies negative pressure to harvest epidermal microdomes was commercially introduced. The CELLUTOME™ Epidermal Harvesting System is a minimally invasive tool for harvesting epidermal micrografts and is designed for use in the office or outpatient setting. This system combines suction and warmth and produces consistent thin sections of epidermal skin. The technology of the device involves splitting the dermal-epidermal junction to form microdomes (ie. blisters), which are harvested into epidermal micrografts. These micrografts consist of undamaged epithelium with keratinocytes (Kci).The system yields up to 128 epidermal micrografts. The system heats the skin to between 37°C and 41°C and applies 400– 500mmHg of negative pressure.

The microdome preparation takes from 15 to 60 minutes; the preparation is complete when round epidermal microdomes form. The microdomes are secured in place by using compression wrapping, a bolster dressing, or with NPWT. The epidermal grafts can be used on wounds that have a clean granulating base that is free of nonviable tissue(29). This system is also used in General Hospital Dr. Jože Potrč Ptuj, Slovenia, since 2016. Epidermal grafting or using autologous epidermis that has been minced to expand and cover wounds much larger than the donor site, are an alternative to traditional autografts using only a minimal amount of autologous tissue from the donor site (30, 31). Only the epidermal portion of the donor area is grafted. This means that the graft acquires the epidermal architecture and characteristics of the recipient site, not the donor site, what potentially leads to better color match and cosmetic outcome (31, 32).

Traditional types of autografts include full-thickness and split-thickness skin grafts. Some disadvantages of autografts include the need for a

surgical procedure with anesthesia, creation of a second wound on donor site, difficulty in obtaining uniform graft thickness, pain, and challenges with graft take and graft rejection (33, 34). Problems with the donor site may include excessive pain, pruritus, infection, dyschromia, delayed healing, and hypertrophic scarring, particularly in patients with poor healing properties due to various comorbidities (35, 36). Another drawback to traditional skin grafting techniques is the cosmetic outcome, including hypopigmentation, hyperpigmentation, and hypertrophic scarring (37).

Endovenous laser ablation (EVLA) is a commonly used and very effective minimally invasive therapy to manage leg varicosities (38). Clinically, scientifically, and commercially, it is a fascinating therapy. Clinically, because EVLA took over surgical stripping as a result of its very high success rate with minimal complications at all laser wavelengths, laser powers, and pullback velocities used (39). Scientifically, because the consented mechanism of action, i.e., achieving irreversible thermal injury of the vein wall, may be reached by several mechanisms of which the individual contribution is still under debate (40, 41). Commercially, because gaps in knowledge of the mechanism of action created space for a wide variety of treatment protocols, frequently introduced as new and more effective laser wavelengths (42).

There are two main modes of action in EVLA proposed so far, both related to the conversion of absorbed laser light energy into heat. The first is heating of blood, vein wall, and perivenous tissue by direct absorption of the laser power emitted from the fiber and scattered by the blood towards the other tissues, where the generated heat in the blood also diffuses to the vein wall (43-45). The second mode of action is heating of the vein wall by heat transfer from the hot black layer of carbonized blood sticking to the fiber tip. This transfer may be via direct contact between the hot tip and the vein wall (42, 46), via diffusion through the blood (43, 47), by boiling steam bubbles which are formed in the hot carbonized layer, grow, detach, and travel downstream from the tip to condense near or at the wall (48,49), or by Planck's black body radiation (45).

Ecchymoses and pain are frequently reported side effects of endovenous laser ablation. Nerve injury, skin burns, deep vein thrombosis and pulmonary embolism seldom occur. An exceptional complication is a material or device that by accident remains inside the body after the procedure. Ecchymosis, pain, induration, skin burns, dysesthesia, superficial thrombophlebitis, and hematoma were classified as minor complications. Deep vein thrombosis and nerve injury were classified as major complications. Endovenous laser ablation may be considered a safe treatment of lower extremity varicosities. The incidence of common side effects may decrease with better laser parameter (50).EVLA operations are carried out from 2016 and we perform 75 operations annually.

Conclusions

Chronic wounds are a complex problem as they affect all areas of human life and activity. The goal of treating patients with chronic wounds in our wound healing unit is not only the healing of a chronic wound, but the overall rehabilitation of the patient. To achieve the goal, good professional knowledge, teamwork and, above all, individual and integrated treatment of each individual patient is indispensable.

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Case Report

Fournier Gangrene in the 75 year old Patient: A Case Report

Nuhi Arslani[1], Basri Lenjanji[2]

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Abstract

Aim: The aim of this article is to describe an example of the sick patient with Fournier gangrene and demonstrate the process of his treatment and the solving of problems that had incurred.

Case report: The patient is a 70-year-old man who was hospitalized for Fournier gangrene in the perineal region. We performed radical necrectomy, drainage of perianal abscess, and transversostomy. Based on wound culture we prescribed antibiotics Amoksiklav and Ciprobay. Later there was a complication in the form of a decompensated adhesion ileus, which required a re-operative intervention.

Conclusion: Fournier gangrene is a rare disease that usually affects males. The disease starts with swelling, cellulitis,higher temperature and odor. Our example describes the successful treatment of the disease with emergency surgery and re-operative intervention.

Keywords: *necrotizing fasciitis, necrectomy, decompensated adhesion ileus, laparotomy*

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Full Text

Introduction

Necrotizing fasciitis was first described in 1764 by Baurienna. It was named after Fournier, which in 1883 reported the case of five men with this disease. Fournier gangrene is a necrotizing fasciitis, which affects the subcutaneous tissue of the perineum and genitals. The disease is usually caused by an infection of the colon, the rectum, the lower part of the genito-urinary tract, or cutaneous infection of genitalia, perineum and the anus. The infection is caused by aerobes or anaerobes. Microorganisms that are usually isolated are Escherichia coli, Enterococci, Staphylococci, Streptococci, Bacterioides fragilis and Pseudomonas aeruginosa. Reasons for infection that causes the disease are superficial damage, genito-urinary diseases or colorectal diseases, they can create points of entry such as genitourinary sepsis, sepsis of the prostate, perianal sepsis and ischiorectal abscesses. There are also conditions that play an important role in the development of the disease by causing the malfunction of the immune system. The most commonly described are diabetes, obesity, alcoholism, malignancy and immunosuppression. Signs of the disease are swelling, cellulitis, necrosis, crepitation, higher temperature and odor. Disease is treated surgically with radical necrectomy of all necrotic and infected tissue as well as administartion of broad spectrum antibiotics. The mortality rate is close to 50%.

Case report

The present case report is about 75-year-old man who was admitted to our hospital due to inflammation in the gluteal region. His medical history revealed that he had hemorrhoids for more than 30 years. In the last three years he has had problems with the discharge of liquid stool mixed with mucus. His symptoms had started one week prior to the admittance. The symptoms were induration in the right gluteal region, which had grown and expanded in the left gluteal region. He also complained severe pain, fever and uncontrolled leakage of stool. At admission the patient was slightly affected by the pain, he had a pulse 91/min, arterial pressure was 126/69, and body temperature was 36.6 ° C. A physical examination revealed visible necrotic area of the left and right gluteal region (figure 1). There was fluctuation by palpation.

A CT was made which revealed visible infrarenal aneurysm and aneurysm of the right common iliac artery. On the same day the patient was treated with wide debridement of devitalized tissue, perianal abscess drainage and transversostomy (figure 2 and 3). The patient returned to the operating room 11 days after his first radical necrectomy for further transanal drainage. Two days later there was a complication in the form of decompensated adhesion ileus. We performed a laparotomy. The stomach contained 2L of liquid, which we aspirated. Then we saw that the thin intestinal convolutions were affixed in three places in the region of the left inguinal canal, in proximity of sigma. After we performed adhesiolysis at all three sites we placed stitches, then we made substantial lavage of the entire abdomen and dried it.

After that we performed appendectomy and drained abdomen. We closed the incision with a running suture. At the end of the operation we concentrated on the perianal region. There we performed necrectomy and replaced bandages. Approximately one month after, the patient was discharged home (figure 4). Wound culture, which was taken on the day following the first operation showed E. coli, Morganella morgani, Streptococcus anginosus, Enterococcus faecalis and several anaerobes, including at least one resistant to clindamycin. Based on the wound culture we prescribed treatment with an amoxiclav and ciprofloxacin.

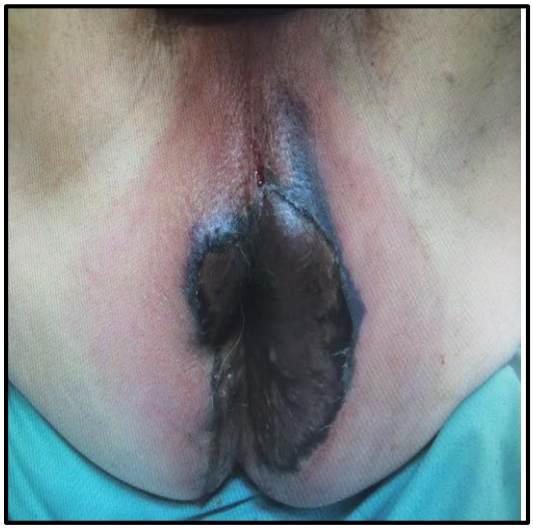


Figure 1: *Fournier gangrene (necrotizing fasciitis perinanal)*

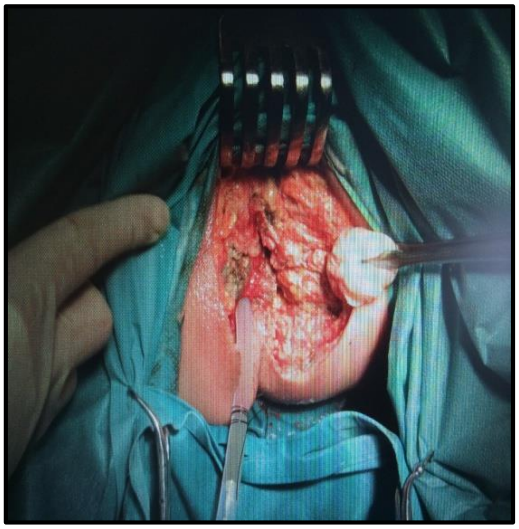


Figure 2 : *Immediately after the perineal radical excision*

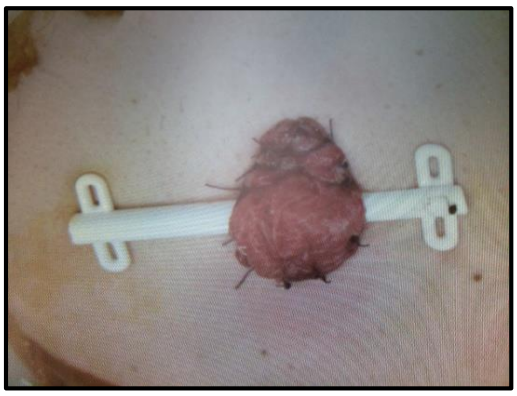


Figure 3: *Derivation of protective bipolary colostomy*



Figure 4: *Wound healing per secundam intetionem one month after* radical excision

Discussion

Fournier gangrene is a form of necrotizing fasciitis. In most cases, it affects men over 50 years of age. The causes of infection that produces the disease is among others the already existing colorectal diseases. Points of entry for infects may be cutaneous injury, urogenital sepsis or perianal sepsis. Infects are normally aerobic and anaerobic bacteria, which in tissue act synergistically. Microorganism that is most frequently isolated from caused by hemorrhoids. Clinical signs of Fournier gangrene are usually intense pain, fever and swelling. Treatment of Fournier gangrene involves the application of broad-spectrum antibiotics, supportive care in the case of multiple organ failure and emergency surgery in the form of wide excision with one or more debridement. The objective is to remove the debridement of necrotic tissue, until only healthy tissue remains. The patient is usually discharged from the hospital one month after surgery. Most common isolated microorganism in wound culture is E. Coli, which was also isolated in our case. The point of entry in our case was perianal sepsis.

Conclusion

Fournier gangrene is a rare disease with high mortality. Our example describes the successful treatment of the disease with emergency surgery in which we carried out radical necrectomy of soft tissue, and transversostomy. It also describes the resolution of the early post-operative complications.

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Case Report

Treatment of Acute Hemorrhage from Esophageal Varices in Cirrhotic Patients.

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Abstract

Cirrhosis describes the end stages of chronic inflammation and progressive scarring of the liver and may lead to hepatocellular dysfunction and portal venous hypertension. Liver cirrhosis in itself is a major cause of mortality worldwide, accounting from more than 1 million deaths in 2010. Esophageal varices are common in cirrhosis such that Christensen et al. documented their occurrence in 90% of patients with cirrhosis within 10 years of follow up, 40% experiencing variceal bleeding. Acute hemorrhage from esophageal varices will classically appear as hematemesis and/or melena in patients with a history of cirrhosis. It is most often diagnosed by performance of an EGD which will reveal actively bleeding varices. Because of the high rate of morbidity and mortality associated with esophageal variceal bleeding, one must have a high index of suspicion in any patient with chronic liver disease or cirrhosis. As such, empiric management for variceal hemorrhage should be initiated any time this diagnosis is considered.

Keywords: *acute hemorrhage, cirrhosis, esophageal varices*

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Full Text

Introduction

Cirrhosis describes the end stages of chronic inflammation and progressive scarring of the liver and may lead to hepatocellular dysfunction and portal venous hypertension. Liver cirrhosis in itself is a major cause of mortality worldwide, accounting from more than 1 million deaths in 2010. Worldwide, the highest mortality rate of cirrhosis is observed in Egypt at 72.7 deaths per 100,000. In contrast, the mortality rate in the U.S. is 11.3 per 100,000 and in Albania is 5.4 per 100,000 in 2010 (6).

Esophageal varices are common in cirrhosis such that Christensen et al. documented their occurrence in 90% of patients with cirrhosis within 10 years of follow up, 40% experiencing variceal bleeding (7). More generally, 26-48% of patients with varices experience variceal hemorrhage (8, 9). Similarly, in a study of 139 newly diagnosed cirrhotic patients in Albania, 34 (24%) developed esophageal variceal hemorrhage within a median time of 34 months from the time of diagnosis (2). In general, acute variceal hemorrhage accounts for approximately one-third of all deaths in patients with cirrhosis. Typically, hemorrhage occurs at an annual rate of 5-15% in patients with cirrhosis and existing esophageal varices (4). Unlike other upper GI bleeds which typically have a 90% rate of spontaneous hemostasis, only 50% of patients with variceal hemorrhage stop bleeding spontaneously. Patients with a Child-Pugh class C cirrhosis and large actively spurting varices are even less likely to achieve spontaneous hemostasis (4, 5).

Esophageal varices are enlarged veins in the esophagus that develop due to increased pressure in the portal venous system. Portal hypertension is defined as a hydrostatic pressure of greater than 5 mmHg in the portal system. It can occur for a variety of reason with cirrhosis being the most common. In cirrhotic patients, the outflow of the portal system is decreased due to the resistance of distorted hepatic sinusoids while inflow is increased due to splanchnic arteriolar vasodilation. Varices develop in order to decompress this portal system and return blood to systemic circulation and are seen as the pressure difference between the hepatic and portal vein (HVPG) increases above 12 mmHg. This pressure is measured through hepatic venous catheterization. Here, the difference between the wedged hepatic venous pressure, which approximates the portal pressure, and the free hepatic venous pressure is calculated. Therapies reducing the HVPG to below 12 mmHg significantly reduce the risk of variceal bleeding and mortality in cirrhosis. Patients with HVPG >20mmHg at the time of an acute hemorrhage are at increased risk for rebleeding and death. (1)

There are several factors that predict the risk of hemorrhage of esophageal varices. These factors include location, size, appearance, pressure and clinical features. First, a more distal location within the esophagus increases bleeding risk due to a more superficial position of the varix within the submucosa. Next, risk of bleeding increases greatly with size of the varix as small increases in the radius produce proportionally large increases in the wall tension. The size of varices can be approximated with direct visual estimation during endoscopic evaluation. Esophageal varices can be graded by diameter with 5mm as a cut-off between small or large varices. Third, the appearance on endoscopy of stigmata such as red wale marks, cherry red spots, or diffuse erythema confers an increased risk of rupture. (2)

Diagnosis of Acute Variceal Bleeding in the Esophagus

Acute hemorrhage from esophageal varices will classically appear as hematemesis and/or melena in patients with a history of cirrhosis. It is most often diagnosed by performance of an EGD which will reveal actively bleeding varices. However, without directly visualizing the esophagus it can be very difficult to rule out other common causes of upper GI bleeding. These causes include gastric ulcers, erosive esophagitis, severe gastritis, a mass lesion, and Mallory-Weiss syndrome. Because of the high rate of morbidity and mortality associated with esophageal variceal bleeding, one must have a high index of suspicion in any patient with chronic liver disease or cirrhosis. As such, empiric management for variceal hemorrhage should be initiated any time this diagnosis is considered.

Management

Pre-endoscopic management of suspected variceal hemorrhage

The management of suspected variceal hemorrhage begins with pharmacologic therapy and hemodynamic stabilization. Infusion of blood products should be initiated when patients Hgb drops below 7 g/dL as this has been shown to be beneficial when compared to more liberal transfusion thresholds. In a study of 921 patients done by Villaneuva et al studied packed red blood cell transfusions in patients with upper GI bleeding. Patients were randomized to a restrictive strategy (transfusion initiation at a threshold of Hgb<7g/dL with a target range of 7-9 g/dL) versus a liberal strategy (initiation of transfusion at Hgb 9 g/dL with a target range of 9-11 g/dL). In subgroup analysis of 277 cirrhotic patients, a restrictive transfusion strategy demonstrated a mortality benefit among Child's A and B

cirrhotics (HR 0.30 (0.11-0.85), p=0.02) but not among Child's C cirrhotics (HR 1.04 (0.45-2.37), p = 0.91). (10) As such, when caring for patients with suspected variceal bleeding, pRBC transfusion should only be performed for patients with Hgb<7 g/dL with a target between 7-9 g/dL.

In the setting of an undetermined etiology for GI bleeding, international consensus guidelines recommend pre-endoscopic proton pump inhibitor (PPI) therapy. We recommend administration of a PPI drip, such as omeprazole 80mcg bolus followed by 8mg / hour infusion. After endoscopic confirmation of a variceal bleeding source, PPI can be continued at standard prophylactic doses (e.g. omeprazole 20mg IV daily to twice daily). Reassessment for the need for continued PPI use should be performed after the patient is clinically stabilized (11, 12).

Medical therapies targeting a decrease in HVPG should be implemented according to an increased risk for rebleeding at higher levels. An Octreotide bolus of 50 mcg IV followed by continuous infusion of 50 mcg IV per hour is typically given. Terlipressin is also commonly used when available at an initial does of 2 mg IV every 4 hours then brought down to 1 mg IV every 4 hours once hemorrhage is controlled. Both agents are vasoactive, working to decrease portal blood flow. While Octreotide has not been shown to decrease mortality on its own, it does help to achieve hemostasis especially when combined with endoscopic therapy (5,13). Terlipressinis not universally available but has been demonstrated to decrease mortality and is not inferior to Octreotide in hemostasis achievement (14, 15, 16).

Because of the strong association between GI bleeding in cirrhosis and bacterial infections and mortality, antibiotic therapy with IV ceftriaxone or PO norfloxacin (if intolerant or allergic to ceftriaxone), should be implemented upon admission (17, 18).

Endoscopic diagnosis and management

Next, EGD is typically performed in an effort to identify the bleeding varix and to provide an opportunity forendoscopic intervention such as endoscopic variceal ligation (EVL) or sclerotherapy. EVL involves placing a small elastic bands around varices in the distal esophagus. If banding is unsuccessful or infeasible, sclerotherapy is employed by injecting a sclerosant solution into the bleeding varices. This solution can vary widely among endoscopists. It might consist of either 2 mL of 5% sodium morrhuate or ethanolamine per injection and up to 20 mL per session. Hemostasis can be achieved with either band ligation or sclerotherapy in 70 to 100% of patients (19). However, band ligation typically

yields better long term results as sclerotherapy can be associated with stricturing in the long term setting. In the University Hospital Centre "Mother Theresa" in Tirana, Albania sclerotherapy is the mainstay of management of acute variceal bleeding as EVL is not yet available.

If endoscopic therapy in combination with a pharmacologic agent does not produce effect hemostasis, a more definitive therapy is required. TIPS placement by an interventional radiologist involves passing a needle catheter into the hepatic vein via the jugular vein. A needle is then passed into the portal vein and a stent is deployed to decrease portal blood pressures. A balloon tamponade is used to stabilize the patient prior to the procedure. If a balloon tamponade is used for any extended period of time, a self-expandable esophageal covered metal stent should be considered instead due to its greater efficacy and decreased serious adverse events compared to a balloon tamponade (20).Patients with high HVPG (>20 mmHg) and acute variceal bleeding have a better survival with TIPS than with endoscopic therapy (21). This treatment is usually preferred to surgery since the survival rate for the same patient population would be much lower. Relative contraindications to a TIPS procedure include hepatocellular carcinoma, obstruction of all hepatic veins, portal venous thrombosis, hepatic encephalopathy, moderate pulmonary hypertension and severe coagulopathy or thrombocytopenia. Absolute contraindications include congestive heart failure, sever tricuspid regurgitation, severe pulmonary hypertension, multiple hepatic cysts, uncontrolled systemic infection or sepsis, and unrelieved biliary obstruction (21).

While TIPS is the preferred method for management of acute variceal bleeding which is not able to be managed endoscopically, availability of this modality is limited in Albania. In these cases temporary hemostasis may be achieved through a balloon tamponade with a device such as a Blakemore tube. The Blakemore tube has two balloons that are inflated in esophageal and gastric cardia and cephalad traction is applied in order to tamponade the gastroesophageal varices proximal to the source of bleeding. Balloons should deflated after 24 hours to prevent pressure necrosis. This is a temporizing modality until more definitive therapy, such as surgery, can be rendered.

While emergency portocaval shunt surgery is effective at producing hemostasis, it has up to a 50 percent mortality rate and a higher complication rate than the TIPS procedure (22-23).We recommend surgical management of variceal bleeding only be performed by an experienced surgeon. Specific

surgical procedures are outside the scope of this manuscript. However, a brief review of surgical procedure types includes open splenectomy and esophagogastric devascularization (OSED) which may result in lower rates of rebleeding but likely higher rates of pleural effusion, splenic vein thrombosis, pulmonary infection, and a longer post-operative hospital stay than the TIPS procedure (24). Another surgical option would be a splenorenal shunt plus pericardial devascularization (PCVD). However, in a study of 83, the rebleed rate was higher than that typical of either TIPS or OSED procedures (25). Surgical management at the University Hospital Centre "Mother Theresa" in Tirana, Albania especially in cases of portal hypertension due to thrombosis of the portal vein, includes spleno – renal shunt and splenectomy. Patients with severe hemorrhage, deep coma, aspiration pneumonia, renal failure, or sepsis are at a particularly high risk of complications from surgery. A decision for surgical management should be individualized based on the clinical scenario and the overall patient prognosis.

Case Example Conclusion

After several unsuccessful attempts at EVL, 5 mL of ethanolamine was injected resulting in improved visualization.EVL was then performed with placement of 6 bands and hemostasis was achieved. Following this procedure continued blood transfusions were required. A computerized tomography (CT) of the abdomen suggested bleeding gastric varices as the source for ongoing blood loss and radiology performed an embolization of his coronary vein. Given the overall clinical instability, repeat endoscopy was not performed. Additionally, attempts at TIPS revascularization were unsuccessful. A therapeutic paracentesis revealed hemoperitoneum. Unfortunately, due to his clinical status, he was deemed to be a poor candidate for an exploratory laparotomy. After a multi-disciplinary review, the patient's family transitioned his goals of care to palliation and he expired 2 days later.

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ULCEZOL

omeprazol 20 mg

Largon shqetësimet tuaja!





Unë jam i lumtur sepse...

JAM PA SHQETESIME



EFIKASITET SIGURI CILËSI

CFO PHARMA

Review Article

Surgical Treatment of Radial Head Fractures: Review of Literature.

Edvin Selmani[1], Agron Dogjani[2]

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Abstract

The aim of this systematic review was to search for and critically appraise articles directly comparing functional outcomes and complications for fixation (ORIF) versus arthroplasty for comminuted radial head fractures (Mason type 3) in adults.

Material and methods: A comprehensive study of Medline, Embase and Cochrane databases using specific search terms and limits was conducted. Strict eligibility criteria were applied to stringently screen resultant articles. Three comparative studies were identified and reviewed.

Results: Two studies found significantly better functional scores after replacement compared with ORIF in Mason type 3 fractures. The third study found no significant differences in functional score or range of motion, but did find that grip strength was better after ORIF. Complication rates were too heterogenous for conclusion.

Conclusion: Fixation with good reduction may be attempted in unstable Mason type 3 fractures, and arthroplasty may be considered if this is not possible. Further randomised comparative trials are required to clarify the decision making between fixation and replacement. Functional outcomes and complications were conflicting in the studies included here. Ideally, treatment decision should take into account elbow stability and degree of comminution.

Key words*: radial head fractures, fixation, arthroplasty, ORIF*

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Full Text

Introduction

In orthopedic practice radial head and neck fractures account for 1.7% to 5.4% of all fractures seen[1]. They are the most common fractures involving the elbow[2,3] representing 33% of all elbow fractures[4]. 85% of radial head fractures occur in patients aged between 20 and 60 years[1]. Treatment is influenced by fracture characteristics such as fragment number, displacement, joint stability, and associated injuries[5]. Options include early motion, fragment excision, radial head excision, fixation, or replacement[2]. Studies of the optimal treatment of comminuted, unstable radial head fractures has been hindered by their relative infrequency and limited comparative data[6].

Radial head fractures usually result from a fall onto the outstretched hand with the elbow extended and forearm pronated[5]. Axial, valgus and postero-lateral rotational patterns of loading are responsible for these fractures[3]. The radial head plays an important role in elbow stability. Several radial head fracture classification systems have been developed. The Mason classification[7] is widely referenced to categorise radial head fractures[6]. Mason type 1 is an undisplaced fracture; type 2 displaced marginal fractures; and type 3 comminuted fractures involving the entire radial head. Johnston[8] also added type 4, which categorises radial head fracture with an ulno-humeral dislocation. Broberg and Morrey[9] further modified Mason's classification by including fractures of the radial neck and stratifying them based on articular segment displacement and fragment size. The Hotchkiss[10] modification includes clinical examination and provides treatment guidelines for radial head fractures.

The goal of treatment of radial head fractures is preservation of elbow stability, motion and maintenance of radial length[11]. There is a consensus that Mason type 1 fractures without mechanical block should be managed non-surgically with early active motion[5,12]. Good results have been reported in 86-100% patients with type 1 fractures[13]. Mason type 2, minimally displaced, isolated fractures with no block to motion may also be managed non-surgically with early active motion[12]. Studies have shown 85-95% good results[14]. Isolated Mason type 2 fractures with significant displacement or mechanical block should be reduced and internally fixed if possible[15]. Options for fixation include Herbert screws, K-wires, plates, fibrin glue and bio-absorbable pins[16].

Fragment excision may be considered if secure fixation cannot be achieved in patients with block to motion[2].

Early studies advocated excision of Mason type 2 and 3 fractures[16,17,18]. However, the biomechanical understanding of the radial head as a stabiliser and axial weight-bearing structure led to an appreciation of its functional importance. Excision has become less popular due to concerns about delayed sequelae and improvements in instrumentation for internal fixation and arthroplasty[19]. Also, not all radial head fractures are amenable to simple excision because of concomitant injuries[16]. Complications associated with excision include wrist pain, elbow stiffness, loss of strength, cubitus valgus, synostosis, instability, proximal radial migration, and degenerative arthritis[20]. Broberg and Morrey[21] reported that late excision is equally effective as early excision and may be used as a salvage procedure. Excision can also be considered in patients with isolated, displaced comminuted radial head fractures that are not amenable to fixation[2]. Most comminuted radial head fractures, however, are not isolated[22], and therefore excision alone is often contraindicated.

Choosing to re-establish radio-capitellar mechanics[20] in Mason type 3 fractures by radial head arthroplasty or to preserve the radial head by internal fixation techniques remains controversial. Ring[6] has discussed elbow stability and associated injuries which may be important in determining whether to fix or replace comminuted fractures. As advent of techniques and implants for internal fixation of comminuted radial head fractures developed, it became more popular to attempt to save complex fractures[15]. Some authors have suggested fixation of all comminuted radial fractures, except those with greater than three fragments and where stable fixation may be difficult to achieve[2]. However, combined with increased availability and use of radial head prostheses for comminuted fractures[23,24], the role of fixation is being re-defined. A wide variety of radial head implants have been used since Speed published the first series of ferrule caps for the radial head in 1941[25]. These include acrylic, cobalt-chromium, titanium and silicone[26]. Many surgeons believe that it is important to preserve the native radial head, whereas others believe that reliable restoration of radio-capitellar contact with a prosthetic radial head may better address the goals of treatment for comminuted fractures[27].

Numerous reviews evaluating fixation versus replacement for Mason type 3 radial head fractures have been published[6,27]. However, none of these have been systematic in terms of search strategy. They all recommend the need for prospective randomised controlled and comparative studies. Therefore in this review, search criteria specifically included comparative studies evaluating fixation versus replacement in adults with Mason type 3 radial head fractures.

Methods

The Pubmed and Embase databases were searched on 18th June 2014 using keywords and strict eligibility criteria. The studies identified were further limited by selecting "English language articles" only. Duplicate studies were removed. The strategies for these searches are detailed in Tables 1 and 2. Only comparative studies evaluating fixation versus replacement for comminuted (Mason type 3) radial head fractures were included. The critical appraisal checklist (adapted from Critical Appraisal Skills Programme CASP, Oxford)[28,29] and the revised CONSORT checklist[30] for reporting randomised trials were used to guide assessment of the studies identified from the literature search. The full inclusion and exclusion criteria are detailed in Table 3.

Participants: Adults (over 18 years) with Mason type 3 radial head fractures.

Intervention: Surgical fixation with open reduction internal fixation.

Comparator: Radial head replacement.

Outcomes: Primary: functional outcome.

Secondary: complications.

Table 1 Medline and Embase database search strategy.

	Search terms	Medline	Embase
1	exp RADIUS FRACTURES/ AND exp ELBOW JOINT/	721	366
2	exp RADIUS/	7491	9941
3	(radius AND head).ti,ab	1572	1646
4	"radial head".ti,ab	1757	1884
5	head.ti,ab	223652	263240
6	2 AND 5	874	876
7	3 OR 4 OR 6	3040	3241
8	fracture*.ti,ab	173942	196596
9	7 AND 8	1326	1419
10	1 OR 9	1668	1648
11	exp FRACTURE FIXATION/	46682	63420
12	(fixation OR ORIF OR "open reduction internal fixation").ti,ab	102644	106378
13	11 OR 12	131425	142370
14	exp ARTHROPLASTY/	40292	48694
15	(arthroplasty OR replac*).ti,ab	334888	384221
16	14 OR 15	345928	397571
17	10 AND 13 AND 16	131	151
18	17 [Limit to: English Language]	105	124
19	exp FRACTURES, COMMINUTED/ [Limit to: English Language]	1436	1934
20	(comminut* OR multifragment* OR splinter* OR crushed OR multi-fragment* OR unreconstructable).ti,ab [Limit to: English Language]	7409	8419
21	19 OR 20 [Limit to: English Language]	8084	9184
22	18 AND 21 [Limit to: English Language]	38	47

Table 2 Cochrane database search strategy.

1	radial head fracture*:ti,ab,kw (word variations have been searched)	30
2	Fixation:ti,ab,kw or ORIF:ti,ab,kw or open reduction internal fixation: ti,ab,kw (word variations have been searched)	4152
3	Arthroplasty:ti,ab,kw or replac*: ti,ab,kw (word variations have been searched)	19668
4	#1 and #2 and #3	7

Table 3 Summary of eligibility criteria.

Inclusion criteria	Exclusion criteria
Studies with emphasis on comminuted radial head fractures	Duplicate studies
Fixation/ORIF vs replacement/arthroplasty (comparative studies only)	Case reports, editorials, comments, letters, guidelines, protocols, abstracts, non-systematic review papers, demographic studies, unpublished studies
Patient outcomes data clearly discussed	Anatomical/cadaveric studies
Adults	Studies investigating only fixation or only replacement
English language articles	
Human studies	

Results

A total of 92 studies were identified from the literature search (38 Medline, 47 Embase, 7 Cochrane). Of 23 relevant titles 10 were selected for full-text review after assessment of the abstracts. Three articles met inclusion criteria on full-text review (Figure 1). A summary of these three studies comparing fixation and replacement of Mason type 3 radial head fractures in adults is described in Table 4, and critique of the studies follows on Table 5.

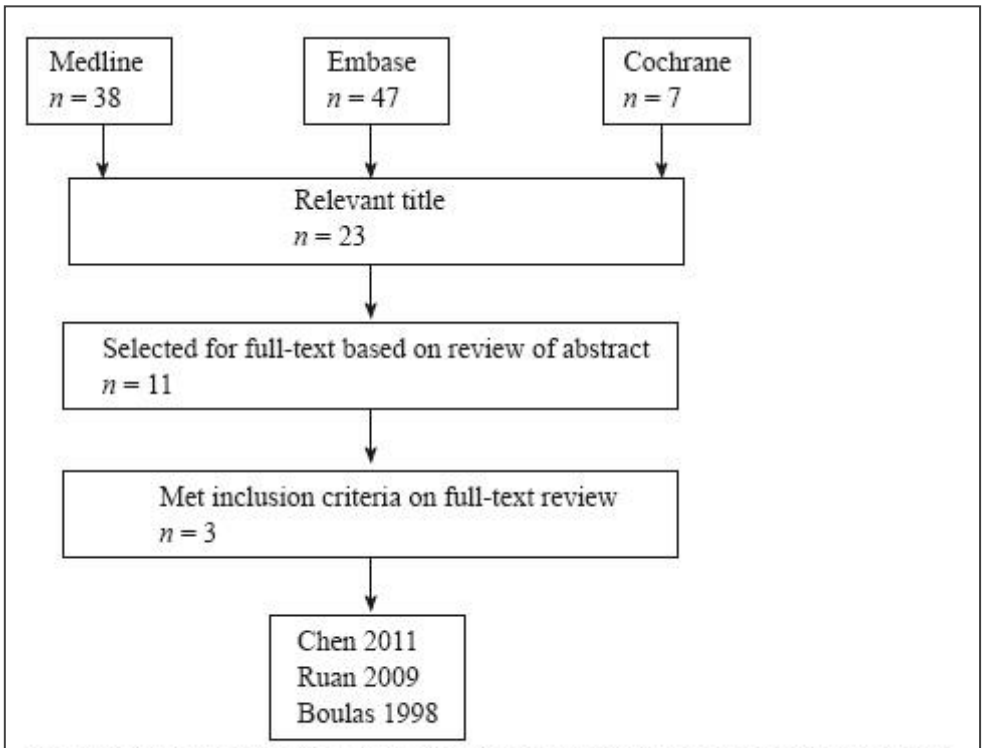


Figure 1 Flow diagram illustrating literature search and selection procedure.

Table 4 Summary of studies.

Reference	Chen *et al*, 2011	Ruan *et al*, 2009	Boulas and Morrey, 1998
	(Comparison between radial head replacement and open reduction and internal fixation in clinical treatment of unstable, multi-fragmented radial head fractures)	(Comparative study of internal fixation and prosthesis replacement for radial head fractures of Mason type III)	(Evaluation of the elbow following radial head fracture. Comparison of ORIF vs. replacement, excision and non-operative management)
Study design[a]	Interventional comparative randomised study Level 4 evidence (Stated as "Prospective randomised controlled study level 1 evidence" by authors)	Interventional comparative randomised study Level 4 evidence	Interventional comparative non-randomised study Level 4 evidence
Research question[b]	+	+/-	-
Sample size[c]	Total 45 patients - 23 ORIF - 22 replacement	Total 22 patients - 8 ORIF - 14 replacement	Total 36 patients - 7 ORIF - 8 replacement - 13 excision - 8 non-operative
Participants	Mean age: - Combined ORIF/replacement 37 years Sex: - Combined ORIF/replacement 76% male/24% female All patients had Mason type 3 radial head fractures	Mean age: - ORIF 40.1 years - Replacement 37.4 years Sex: - ORIF 5 male/3 female - Replacement 8 male/6 female All patients had Mason type 3 radial head fractures	Mean age: - ORIF 37.3 years - Replacement 48.9 years Sex: - ORIF 3 male/4 female - Replacement 5 male/3 female Most patients had Mason type 3 radial head fractures
Intervention	Open reduction and internal fixation - AO mini fragment lag screws, plate, Kirshner wires	Open reduction and internal fixation - cannulated screws, Kirschner wires	Open reduction and internal fixation - AO mini fragment lag screws, buttress plate, Herbert screws
Comparator	Radial head replacement - Monopolar titanium prosthesis	Radial head replacement - Cement stem and bipolar prosthesis	Radial head replacement - Silastic prosthesis
Observer blinding[e]	+ (randomised block design)	-	-
Follow-up	Combined ORIF/replacement - 26 months (range 21 – 37 months) (not split into ORIF/replacement)	ORIF group – 14 months (range 10 – 21 months) Replacement group – 15.9 months (range 10 – 27 months)	ORIF group - 36 months (range 14 – 64 months) Replacement group – 49 months (range 12 – 96 months)
Removal of prostheses	ORIF (19) reason not stated Replacement -	ORIF (2) removed for metalwork irritation Replacement -	-
Primary outcomes	Broberg and Morrey functional elbow criteria: ORIF – excellent (9), good (6), fair (5), poor (3) Replacement – Excellent (15), good (5), fair (1), poor (1) Good/Excellent result in 65.2% ORIF group compared to 91% replacement group Statistically significant difference ($P < 0.01$; *t*-test and chi-squared test)	Broberg and Morrey functional elbow criteria: ORIF – good (1), fair (4), poor (3) Replacement – Excellent (9), good (4), fair (1) Good/Excellent result in 12.5% ORIF group compared to 92.9% replacement group Statistically significant difference ($P = 0.0004$; Fisher's exact test)	Mayo performance index (max score = 100): ORIF - mean 97.9 (range 85 - 100) Replacement - mean 94.4 (range 85 - 100) No significant difference in scores Motion at last follow-up: ORIF group mean - ext 10°, flex 146°, pron 70°, sup 66° Replacement group mean- ext 11°, flex 145°, pron 58°, sup 79° No significant difference in range of motion ($P < 0.05$) Strength (corrected for hand dominance): - Grip strength significantly higher in ORIF group ($P < 0.05$), no difference in other strength parameters
Secondary outcomes	Complications[d]: ORIF – non-union (1), range of motion deficit > 30° (4), fixation failure and fragment displacement (3), deep wound infection (1), heterotopic ossification (2) Replacement – range of motion deficit > 30° (2), joint stiffness (1) Statistically significant difference in complication rates ($P < 0.01$)	Complications[d]: ORIF group – non-union and k-wire loosening (4) Replacement group – heterotopic ossification (3)	Complications[d]: ORIF group – removal of metalwork due to irritation (2) Replacement group[f] – heterotopic ossification (4), prosthesis dislocation (1), breakage of prosthesis (1)

[a]Based on modified Oxford Centre for Evidence-based medicine - Levels of Evidence (March 2009)34; [b](+) Well defined, in introduction; (+/-) well defined, after reading article; (-) not well defined; [c](+) complete; (+/-) incomplete; (-) none; [d]numbers in brackets indicate number of patients; [e](+) described and performed; (+/-) described, not performed; (-) not described; [f]Morrey *et al* 35 (see references)

Table 5 Critical appraisal of studies.

Study	Clear statement of aims?	Is methodology appropriate?	Design appropriate to address aims?	Appropriate recruitment strategy?	Appropriate data collection?	Appropriate consideration of researcher/participant role?	Ethical issues considered?	Sufficiently rigorous data analysis?	Clear statement of findings?	How valuable is research?
Chen *et al*	Yes	Yes but study stated as "Prospective randomised controlled study level" by authors – on closer reading study better classified as level 4 comparative trial	Yes but design not clearly explained Patient-assessed, elbow-specific outcome score used	Clear inclusion/exclusion criteria No reference made to number of fracture fragments, stability and additional injuries Randomisation method for allocation of groups not stated No mention of allocation concealment Baseline demographics and clinical characteristics of pts not adequately discussed Non-matched groups	Prospective randomised controlled study Surgical technique of both methods stated but decision for choice of treatment methods within ORIF group not explained Clear post-operative rehabilitation regime stated No sample size calculation performed No outcome measures stated in methods section, only in results section Setting and location of data collection not stated Follow-up period clearly stated Radiographic parameters clearly defined	Grade of surgeon not stated Reviewers blinded by randomised block design All clinical assessments performed by independent observers	Approved by authors' institutional ethics committee	Appropriate statistical methods No power calculation No confidence intervals calculated	Statement of findings vague	Study linked to current knowledge/trends No mention of further work Relevant literature review conducted
Ruan *et al*	Yes	Yes	Yes but design not clearly explained Patient-assessed, elbow-specific outcome score used	Inclusion/exclusion criteria not clearly stated No reference made to number of fracture fragments, stability and additional injuries Randomisation method for allocation of groups not stated No mention of allocation concealment Baseline demographics of pts not adequately discussed Non-matched groups (2 old fractures in replacement group)	Comparative study Replacement technique stated clearly, ORIF technique stated very briefly Rehab regime stated but no details No sample size calculation performed No outcome measures stated in methods section, only in results section Setting and location of data collection not stated Follow-up period clearly stated	Number and grade of surgeon(s) not stated No mention of observer blinding	Not stated Conflicts of interest and sources of funding not stated	Appropriate statistical methods No power calculation No confidence intervals calculated	Statement of findings vague	Study linked to current knowledge/trends Brief suggestion of further work Relevant literature review conducted
Boulas and Morrey	Yes	Yes	Yes but design not clearly explained Clinician- and patient-assessed, elbow-specific outcome score used	Vague inclusion criteria, exclusion criteria not stated No reference made to number of fracture fragments, stability and additional injuries No mention of randomisation Baseline demographics and clinical characteristics of pts not adequately discussed Non-matched groups Fractures heterogeneous (not limited to Mason type 3), exact number of Mason type 3 not stated	Retrospective comparative study Surgical method or details of implants not adequately explained Decision for choice of treatment methods not explained No sample size calculation performed Setting and location of data collection not stated Rehab regime not stated Mean follow-up period stated Radiographic findings clearly defined	Number and grade of surgeon(s) not stated No mention of observer blinding Radiographic findings not independently verified	Not stated Conflicts of interest and sources of funding not stated	Appropriate statistical methods Factorial analysis of variance allowing multiple comparison used No power calculation No confidence intervals calculated	Clear statement of findings	Study linked to current knowledge/trends Basic review of literature conducted

Discussion

The purpose of this systematic review was to determine whether fixation or replacement provides better functional outcomes for Mason type 3 radial head fractures. Chen et al[31] concluded that metallic radial head replacement gave better joint function that ORIF. Ruan et al[32] concluded that bipolar radial head replacement was better than ORIF. Boulas[33] concluded that, when possible, ORIF provided better functional results than silastic replacement.

A number of methodological deficiencies were found in these studies. These included: small sample sizes; limited follow-up period; no controlling for confounding factors; no power calculation to determine probability of type II error; no observer blinding.

The small sample sizes in the studies may indicate selection bias, reporting bias, or both. The varying follow-up might indicate a significant amount of "missing" events and complications occurring after the follow-up period. Surgical methods were different in all three papers and no clear explanations were given for the types of fixation chosen. Fixation can be obtained with various implants, the goal being stable articular surface fixation and restoration of the head-neck relationship[2]. Currently, fixation has become popular, since contemporary techniques have improved surgical outcomes[15,36]. Good surgical outcomes have been shown in selected Mason type 3 radial head fractures and fracture dislocations stabilized with internal fixation[37]. Complications of fixation include metalwork failure, irritation, non-union and poor forearm motion.

Most radial head implants in use today are metal, consisting of cobalt-chrome or titanium. These have been found to restore axial and valgus stability, whereas silicone implants cannot[26]. Comparative clinical evidence supporting a particular design concept for radial head arthroplasty, such as bipolar versus monopolar, cemented versus uncemented, and anatomic versus asymmetric head shape is not yet available[2]. However, good to excellent results can be anticipated when radial head replacement is used for the correct indications and when care is taken to understand concomitant injuries[25]. Recent clinical outcome studies of metallic radial head arthroplasty systems indicate it is a reasonable option to offer patients with comminuted radial head fractures[19]. Specific complications include synostosis

formation, heterotopic ossification, loosening and stiffness[26].

The study by Boulas[33] compared fixation to silastic replacement. Evidence has shown that silicone radial head implants have multiple complications[38,39]. These include implant fractures and silicone synovitis. These complications and biomechanical studies showing the inability of silicone implants to support the radius functionally have lead to their disuse[19]. However recently other authors have argued that the silastic implant can be used in a stable elbow with good functional and radiographic results[40]. Therefore Boulas' paper[33] has been included in this systematic review. The inclusion of this study could be seen to be a limitation of this systematic review.

Important factors in considering operative treatment for Mason type 3 radial head fractures include elbow stability, associated injuries and number of fragments. None of the studies identified in this systematic review gave this important baseline patient information. Recent studies have discussed the principles that guide decision-making in the management of comminuted radial head fractures[2,22,27]. Pike et al[2] recommended ORIF when feasible for all displaced (> 2 mm) radial head fractures consisting of less than four fragments. They recommended radial head arthroplasty if ORIF was not feasible and in the presence of elbow instability or if greater then three fragments were present. Clembosky and Borretto[27] attempted to repair all comminuted radial head fractures, as they concluded radial head arthroplasty could not restore valgus stability when the medial collateral ligament was deficient. However, they stated that if stable fixation could not be achieved, there was a definite risk of early failure and non-union. They therefore recommended arthroplasty in these complicated comminuted fractures as it produced consistent results and was more straightforward than fixation. Considering these reviews, it is evident that the lack of detail regarding baseline characteristics of patients in the studies by Chen[31], Ruan[32] and Boulas[33] is a major weakness. This is another limitation of this search strategy.

There are other factors that may have affected the findings of this systematic review. Firstly, only English language articles were included and this may have limited the breadth of literature review. Secondly, the search strategy was based on a computer search process. Computer searches may omit some

articles, and consequently, limit the scope of the literature search[41].

In conclusion, in our systematic review two studies found significantly better Broberg and Morrey functional scores after replacement compare with ORIF for Mason type 3 radial head fractures. The third study found no significant difference in functional score (Mayo performance index) or range of motion, but did find that grip strength was better after ORIF. Complication rates were too heterogenous for conclusion. Considering the small numbers of studies, limitations of the search strategy and methodological weaknesses within the studies included in this systematic review, it is not definitively possible to clarify whether fixation or replacement has better functional outcomes in patients with Mason type 3 radial head fractures. As discussed, the principles that guide decision making in the treatment of Mason type 3 radial head fractures include elbow stability and degree of comminution. Each individual case should take these factors into account and only then a decision on fixation or replacement should be made. To help clarify the decision making, randomised studies comparing the two treatment methods and taking stability into account are needed. This may be difficult as many unstable, comminuted fractures are difficult or impossible to fix[6]. Future studies should also compare the various types of radial head implants in randomised comparative studies. Also, better data is required regarding the long-term outcome of metal radial head replacements.

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Opinion Article

Explosion of Excess Stock Ammunition, the Impact on the Health of the Civil Community and the Army.

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Abstract

Albania, like all the former communist countries, has inherited in 50 years a large arsenal of weapons and ammunition stockpiles, as shells and projectiles of various calibers, which constituted a negative phenomenon and seriously jeopardized the lives of people and communities throughout the geography of their deployment. After the 1990s, the Albanian Armed Forces embarked on the path of transformation and integration of Albania into NATO. In this framework, the implementation of defense reforms aimed the reduction and modernization of the military. In this context, one of the transformation goals was the getting rid of the remaining excess ammunition that was being destroyed under the programs of the Ministry of Defense and partner countries and the role of the University Hospital of Trauma and the Military Hospital in Tirana, Albania. This paper aims to discuss the security threat that these stockpiles pose to our nation and the wiser region. It also explains how the excess munitions eliminating process was completed in Albania.

Keywords: *excess stock ammunition, risks, elimination process, solutions*

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Full text

Introduction

Albania, like all the former communist countries, has inherited in 50 years a large arsenal of weapons and ammunition stockpiles, as shells and projectiles of various calibers, which constituted a negative phenomenon and seriously jeopardized the lives of people and communities throughout the geography of their deployment. After the 1990s, the Albanian Armed Forces embarked on the path of transformation and integration of Albania into NATO.
In this framework, the implementation of defense reforms aimed the reduction and modernization of the military. In this context, one of the transformation goals was the getting rid of the remaining excess ammunition that was being destroyed under the programs of the Ministry of Defense and partner countries and the role of the University Hospital of Trauma and the Military Hospital in Tirana, Albania.
The legacy of the enormous stockpiling of military capabilities throughout the communist era has plagued Albania for more than two decades. These stockpiles pose a security threat to our nation and the wiser region.

From the public health point of view, the risks and threats were ranked as the following:

1. Natural risks:
    a) Geological (earthquakes, rocks, landslides);
    b) Hydrological (rivers and streams floods);
    c) Atmospheric (heavy snowfalls, snow storms, avalanches, wind storms, droughts);
    d) Biophysics (epidemics, forest fires);
2. by human origin: floods from dams damages, technological disasters;
3. Potential ecological events due to a very large number of industrial facilities and installations of communist era now completely destroyed and abandoned.

However, among all these various risks and threats, a "hidden enemy" was not yet identified and discovered: risks and threats arising from the excess stocks of ammunition and explosives. (3)

General Remarks

The explosion of the ammunition collected for the demolition happened at the disposal site in a disestablished former military unit in Gërdec, on March 15, 2008 at 12:15 am, 10 km northwest of Tirana, near the Tirana-Durrës national highway, at a straightaway distance of about 3-4 km from the National Airport. (1)

The explosion, like an atomic mushroom, in a few minutes, created a huge detriment in the health of people directly or indirectly involved in the region and urged the immediate commitment and involvement of some disaster-related state agencies such as the Ministry of Defense, Ministry of Public Order, and Ministry of Health. This disaster caused 26 deaths and over 300 injured. More than 60% of the injured were treated in the Military Hospital ***(Picture 1).***



***Picture 1**: Some view of explosion in Gërdec on March 15, 2008, Vora-Tirana, Albania*

The main purpose in this situation was the salvation of the lives of wounded and injured people, giving first aid, stabilizing and treating at the tertiary level.

The medical institution that hold the main burden and managed a large inflow of hurt people, because of its position as the closest medical facility, was the former Central Military Hospital (CMH), today Trauma University Hospital and Military Hospital, as one of the most important medical institutions in country due to its tradition, experience created over the years activity as National Trauma Center (***Picture 2).***



Picture 2: *University Hospital of Trauma & Military Hospital Tirana, Albania*

On March 15, the day of the event, even though it was the official holiday, in less than 25 minutes 100% of medical staff went at their workplaces without any official call or warning, but only concerned by the explosion echo and the media news. In less than 1-2 hours, the hospital emergency was invaded by 178 cases, 61 of which were hospitalized ***(Table 1).***

No	Data	Age			Sex		Total	%
		0-14	14-30	>30	M	F		
1	**Total Cases**	27	44	105	87	89	**176**	100
2	**VLC**						99	**56.2**
3	**Fractures**						20	**11.3**
4	**Commotions & Contusions**						43	**24.4**
5	**Armamputation**	1				1	1	**0.5**
6	**Different Burns**						13	**7.3**
7	**Total (2+6)**						**176**	100
8	**Hospitalized**						**66**	100
9	**Evacuated abroad**	**Greece**					**6**	9%
		Italy					**4**	6%
		Turkey					**1**	1%
		Total					11	16.6%

***Table 1**: Statistical Data, Ammunition Explosion in Gerdec - March 2008*

Over 98% of those injured treated in Emergency Ward had incision, crush wounds at the head, face and extremities, limb fractures, body and head contusions, burns etc ***(Picture 3).***



Picture 3*: *Views of traumatized from the explosion presented to the Emergency of the Military Hospital

Emergency medical staff and all other hospital departments, with unmatched dedication, professionalism, humanism and solidarity, elaborated and stabilized all the injured. The private "American Hospital" was also directly committed in providing first aid and hospitalizing the serious cases. This was highly

appreciated by all the top authorities of the country and foreigners.

Six of the most seriously injured hospitalized in Military Hospital, were transported to Thessaloniki and Ioannina Hospitals in Greece and four others to Italy. It is also worth mentioning and appreciated the support and helps coming from France, USA, Germany and Greece with medical supplies and equipment, and the assistance and solidarity of neighboring and other countries like, Italy, Turkey, Greece, FYROM, Kosovo and the involvement of the diplomatic corps and military attaches to this humanitarian operation.

The Preventive Medicine Corps, part of the Military Medical Institute, provided the health insurance of the military troops engaged on search and rescue and consequences relieving operations at the site of the explosion. For this purpose, the Health Service of the Commando Forces and the Rapid Reaction Brigade (Land Force) established a field health center close to the explosion area with medical personnel, evacuation tools etc ***(Picture 4).***



Picture 4: *Medical Facility Role 1 in field*

For the health insurance of the military troops participating in the operation, in addition of the Operational Center for providing troops support, it were established and engaged even Field Health Centers manned with high and medium professional level personnel, with 10 beds, ambulances as well as additional supporting personnel and medical evacuation means and capabilities. This entire staff coordinates perfectly with each other for health support operations. Considerable military forces were directly committed in searching and clearing operations at the disaster area, almost right away after explosion. These committed forces were closely and directly supported by medical personnel for providing their first aid to the field. The military troops engaged on the cleaning operations' area were provided with dust masks protection, handgrips for the protection of hands from hurts of metal scraping wastes, explosive shell pieces, etc. Hygiene and sanitation nods were also

set up in support of all military forces committed on operations in field ***(Picture 5).***



Picture 5: *The scene after the exploded large caliber, shells scattered after the explosion*

After Armed Forces' medical Service intervention, it was the Forensic Medicine Institute that provided legal experts and necessary logistic stuff (plastic bags) for the for the removal of dead bodies and body wastes found and further on, for the transport of corpses.

All dead animals and poultries found within and around the explosion area were disinfected with hypochlorite and buried in deeply grounded landfills. For this purpose Albanian Armed Forces veterinary staff was involved in identification of animal and poultries dead bodies, in coordination with specialized stuff and counterparts of country's other veterinary agencies to prevent the spread out of infections and epidemics.

All military forces and other personnel that participated in the operation applied prophylactic vaccination with a dose of Rapel with anti-tetanus Immunoglobulin 1 ml for 600 persons.

An additional health problem was the dead animals and poultries. In the disaster area some 233 (19 cattle, 4 small livestock, 3 pigs, 4 equines and 203 birds) dead animals and poultries were found, disinfected and buried.

Lessons learned

The bitter experience stemmed from this abovementioned huge explosion, has been subject of a careful consideration, in order to identify the problems, shortages and responsibilities.
First of them was a re-assessment of the potential risks and threats that can face the military and civil community from the excess stock ammunition, but not only.

Another problem that needed urgent solution was the training and early

preparation of military forces, especially military medical personnel, for effective management of major human disasters. In this context, it has been discussed installing better utilization human and medical resources. In this framework, creating and establishing the necessary medical logistic reserve, especially on medicines and medical supplies at the depot and pharmacies network has been one of the most urgent General Staff's decision.

Effective and better coordination between domestic civil-military medical services capabilities with foreign assistance and support has been considered one of the main measure in order to speed up the process.

Last, but not the least, the Health Directory in the General Staff has established or updated all the medical Standard Operation Procedures (SOP) for any similar situation in the future, in order these kind of situations be effectively managed.

Based on the abovementioned lessons learned, all the difficulties and problems have been considered and solutions have been reviewed. Any plan, any program at any site related to the elimination of the excessive stockpiles of munitions have been vested with disciplined medical measures. Medical teams that were equipped with all the necessary techniques were present from the beginning to the end of the process. The teams that were in charge of the elimination process have been certified not only from the professional point of view but from the medical point of view as well in order to successfully face even the smallest health situation. At any case, the military hospital has been devoted a ready medical team on 24h bases in order to respond in time to any unexpected situation.

Nowadays Albania has completed the excess munitions elimination process, but very strict rules and instructions for the management readiness and reserve munitions have been determined. Medical training is definitely an integrated part of professional training.

This demilitarization process was accomplished using different methodologies, in order not to avoid any massive ammunition consolidation. The primary emphasis was placed on the industrial dismantling of munitions at three distant military factories: Mjekës, Gramsh and Poliçan. When industrial demilitarization was impossible due to technical and safety reasons, we carried out open detonations at 11 demolition ranges throughout the country, with all detonation sites approved by Parliament. A much smaller amount of munitions were sold and exported, generating much needed revenue to help fund the demilitarization effort. As part of the demilitarization process we have been able to close 23 legacy munitions storage locations. It has been decided an extremely rigorous process of site-cleaning, checking and certification prior to declaring any site free of munitions or explosive material. At any case rigorous standards has been decided related to oversight and certification role while in the supervision, training, accreditation and certification processes in order to ensure safe operations.

At the end of the year 2016, more than 100.000 tons of munitions have been eliminated, which equates to approximately 450 million rounds of various calibers. Due to the above mentioned measures, not even the smallest accident occurred. All the process has been completed in a safe and secure environment.

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Original Article

The Situation of Violence in the High Schools of Shkodra City

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Abstract

Background: Any behavior or attitude that harms the physical, emotional, and sexual well-being of one or more persons and affects the termination of the individual's normal development is considered as violence. Violence at school includes behaviors such as: victimization of a child and teachers, raping of a child and / or a teacher, physical and psychological harassment, cyber threatening, controversies, bullism, physical and psychological harm, teachers and students sexual violence, using of weapons in school environments. The main violence forms at school are: teachers to students, students to teachers, students to students.

This is a punctual, transversal, cross-sectional study. 100 students at high school of Shkodra city participated in this study. The sample selection was randomized. Students of 14 18 years old; 63 females and 37 males were included in the study. The timeframe of the study was January – February 2018. The information was gathered from face to face interviews using standatized questionnaires: Global School based Student Health Survey (GSHS) 2003, Core Expanded Questions for the Violence and Unintentional Injury Module Violence (adapted). The information collected by the questionnaires was confident, self report and with permission of school. All data were calculated with Microsoft Office 2010.

Keywords: *school, student, teacher,violence.*

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Full Text

Introduction

Any behavior or attitude that harms the physical, emotional, and sexual well-being of one or more persons and affects the termination of the individual's normal development is considered as violence. Violence at school includes behavior such as: victimization of a child and teacher, raping of a child and / or a teacher, physical and psychological harassment, cyber threat, controversy, bullism, physical and psychological harm, teachers and students sexual violence, usage of weapons in school environments. The main forms of violence at school are: teachers to students, students to teachers, students to students.

Violence is a global problem around the world. The literature evidences that violence betwen students at school, causes negative efefects in accademic, physic, social, emotional and psicological aspects to the students. The ones that have experienced violence at school exhibit behavior such as anxiety, sadness, loneliness, insecurity, hyperactivity, impulsiveness, frustration, sorrow and anger. *Lockwood (1997)* states that about half of violence cases have occured at a school, gym or recreation center and the main reasons were: self-defense or resisting the antagonist's demands.

The more frequent victimization situations are verbal and exclusion, followed by verbal aggressions and violence against properties. The percentages of adolescents that suffer the extreme violence situations (like sexual abuse or being threatened by guns) are low, but the seriousness of these situations makes them very important. The aggressor role has a similar patron of results: The more frequent situations are verbal aggression and exclusion, violence against properties, and finally, extreme violence situations. *(Pulido R., Martín Seoane G., Díaz Aguado, 2010)*

The school authorities could be consistently effective in preventing and reducing the violence regarding school-related factors. These factors like: teacher reprimands for racist comments made by students, anti-bullying policies, and formally communicated school rules are associated with decreased violence. The climate, culture, and structure of schools plays an important role in molding the level of violence that exists between students. *Grunseit 2005*.

Schools should gather students and discuss aspects of their own school environment important for the occurrence of violence at school. Even limited changes in the school environment can have positive results. The primary role of the school environment in violence prevention is stopping a violent event from its beginning or its extension. Focusing on the prevention of school violence is more effective than focusing on its punishment. *(Nickerson AB, Martens MP., 2008, Greene MB, 2005)*

By bearing this in mind, we can say that positive relationships between students and feeling cared about by school personnel could help in the cessation of violent conflicts. It is also very

important to create positive relationships with school security. Schools should work on improving relationships between students and school personnel as an effective violence prevention strategy. Overall the school environment should be considered as an important intervention point to reduce school violence. *(Lindstrom Johnson S. 2009, Greene MB, 2008).*

Material and methods

This is a punctual, transversal, cross-sectional study that includes 100 students at a high school of Shkodra City. The sample selection was randomized. Students of 14-18 years old; 63 females and 37 males were included in the study. The timeframe of the study was January – February 2018. The information was gathered from face to face interviews using standatized questionnaires: Global School-based Student Health Survey (GSHS) 2003, Core-Expanded Questions for the Violence and Unintentional Injury Module Violence (adapted). The information collected by the questionnaires was confident, self-report and with permission of school. All data were calculated with Microsoft Office 2010.

Results and discussion

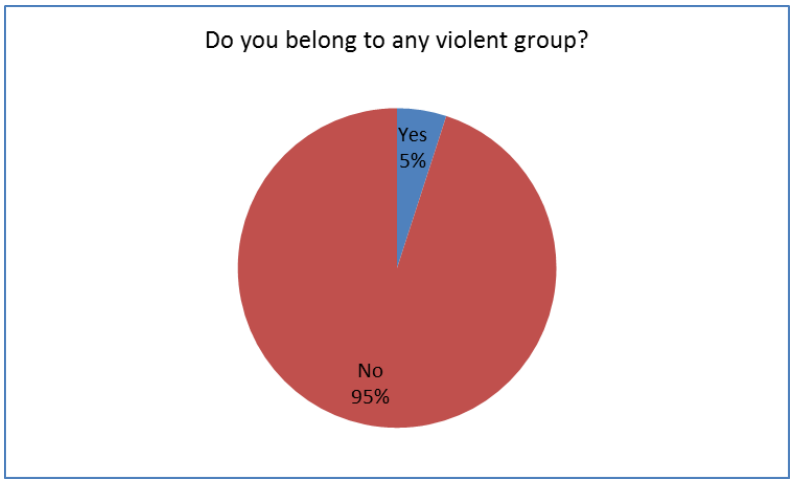


Figure 1: *The presence of violent group*

In this study we can observe that 5% of students belong in a violent group. The situation might be more problematic since the students do not refer alawys the true. We can evidence that 6% of them have been forced to have sexual intercourse.

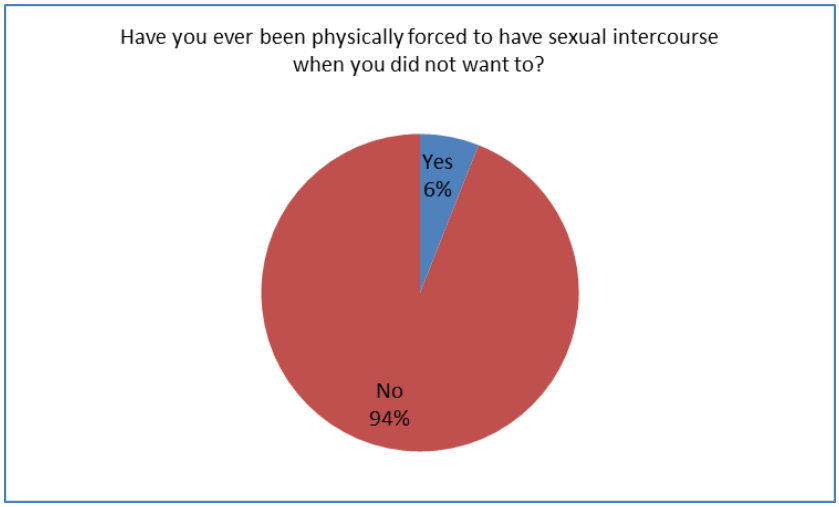


***Figure 2**: The presence of sexual intercourse forced*

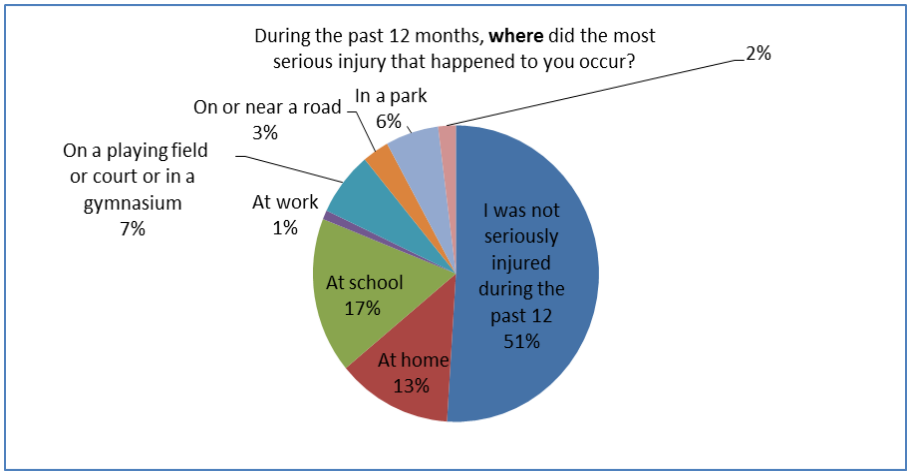


***Figure 3:** The place where the injuries occur*

In the figure 3 we evidence that 17% of students refer that they have been violated at home and 13% at school.

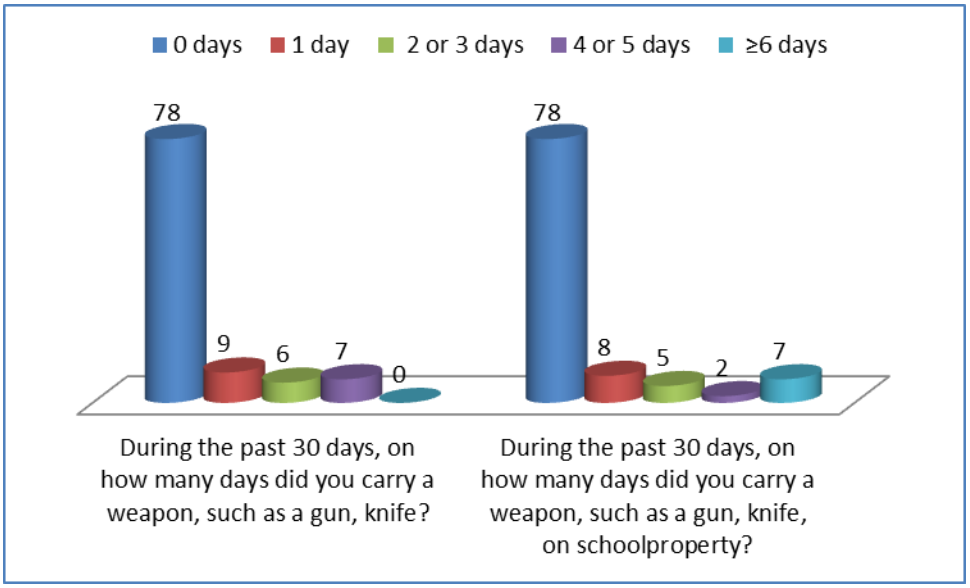


Figure 4: *The answers about the keeping weapons*

78% of students don't carry gun or knife at school or outside its environment, but more than 8% of them refer that they have weapons while on school property or outside for at least one day during the past month. This situation is scary, because the probability to use them is not small.

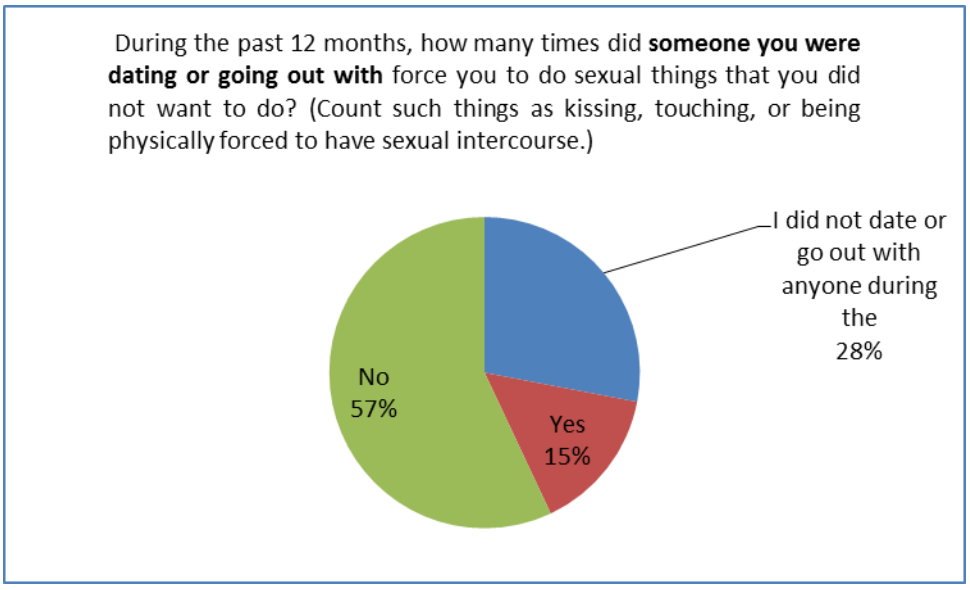


Figure 5: *The presence of sexual violence in relationship at the students*

Only 15% of students refer that are forced to do something that they did not want to do (kiss, touch or are physically forced to have sexual intercourse).

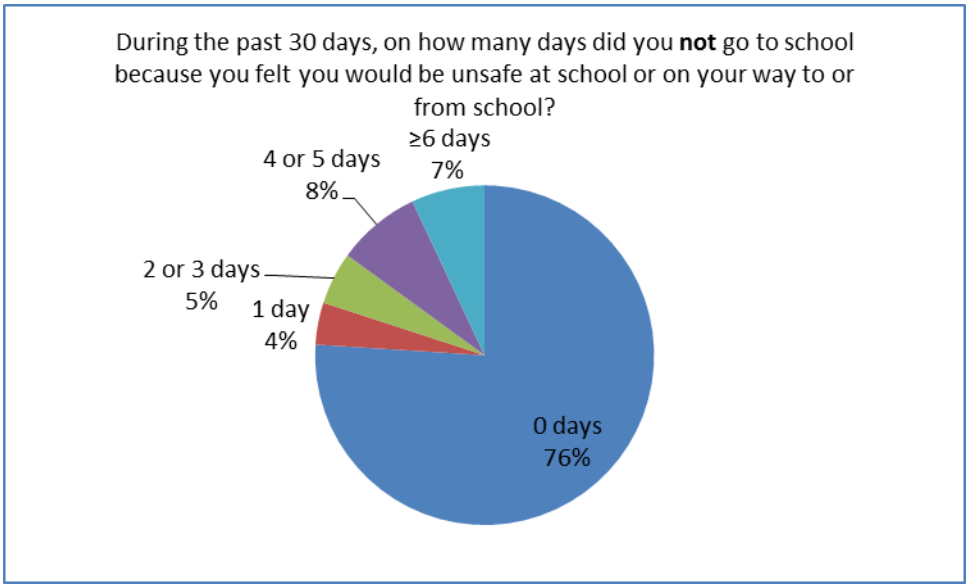


Figure 6: *Absences in school due to school insecurity*

24% didn't participate to school for at least one day during last month because they felt unsafe at school or on the way to or from the school. This reduces students' performance during the learning process.

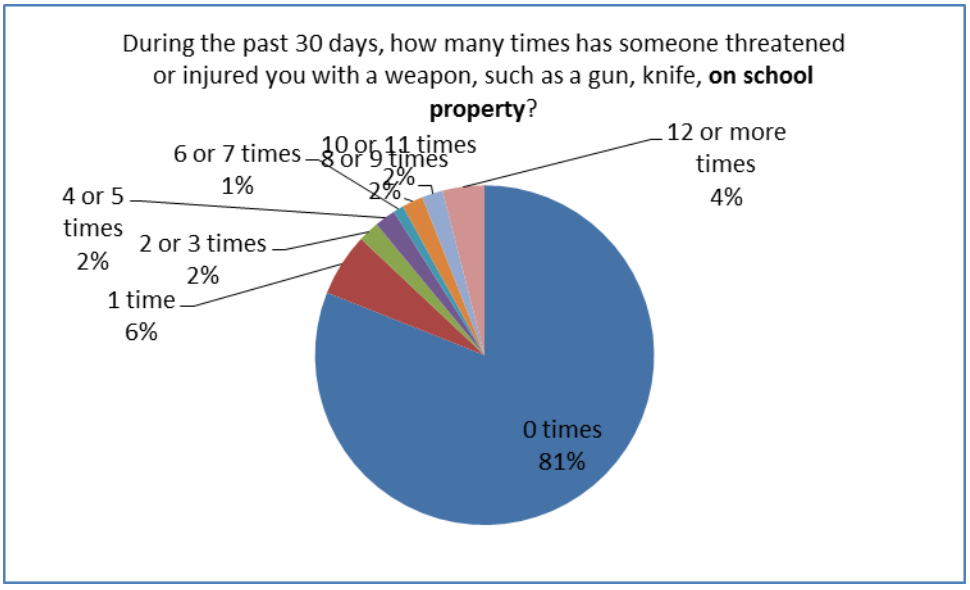


Figure 7: *The presence of threats among students with weapons*

19% of students refer that someone threatened or injured them at least once during last month with a weapon, such as a gun or a knife This event has occured at the school area or the surrounding environment.

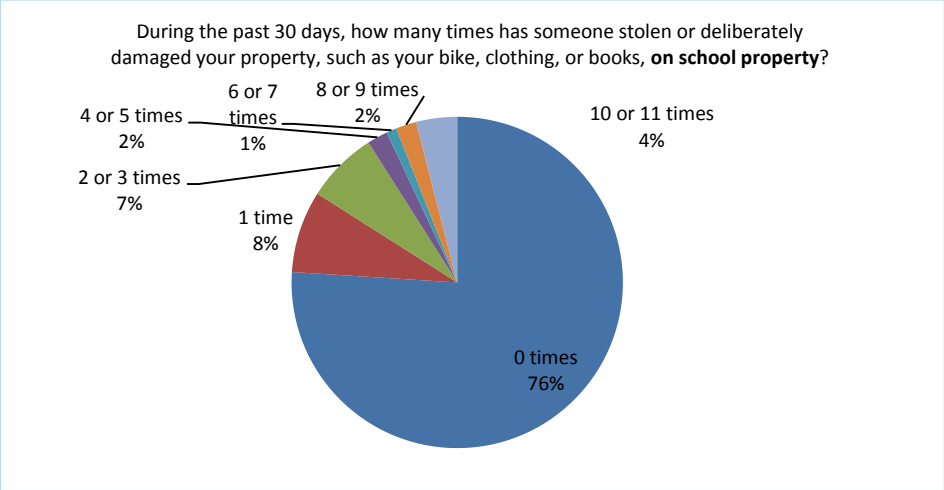


Figure 8: *The level of damage of student`s property*

24% of students refer that someone stole or deliberately damaged their property, such as their bikes, clothings, or books, while they were at school area or its surroundings.

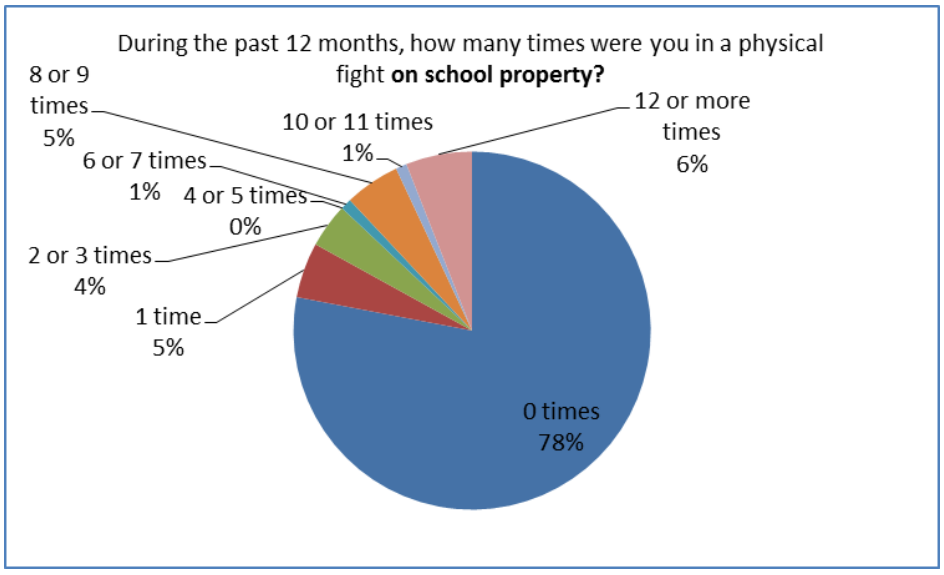


Figure 9: *The level of physical violence*

As we can observe at the figure 9; 22% of cases were involved in a physical fight at school at least once.

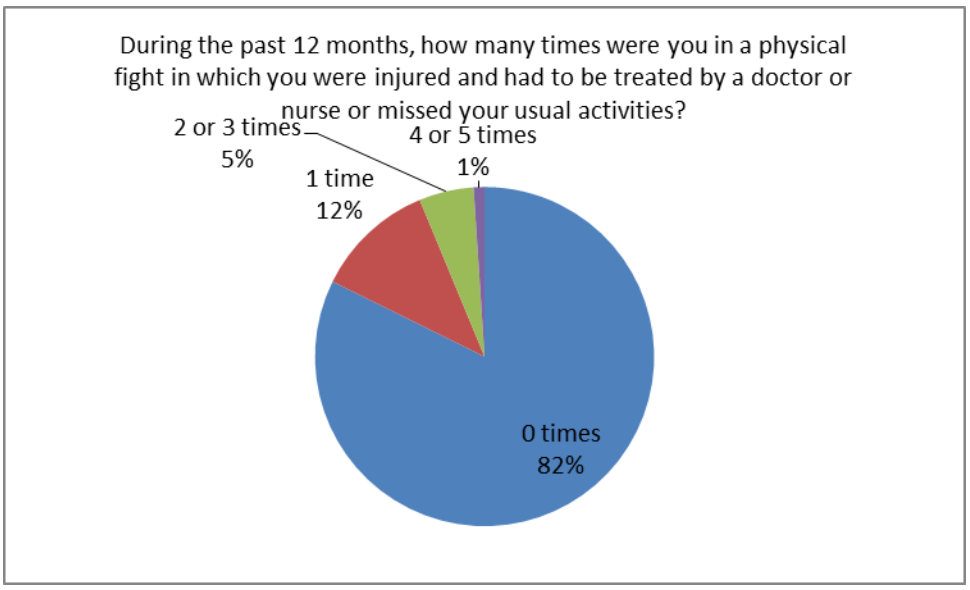


Figure 10: *The level of injuies from physical violence*

18% were involved in a physical fight in which they were injured and have had to be treated by a doctor or nurse or missed their usual activities at least once.

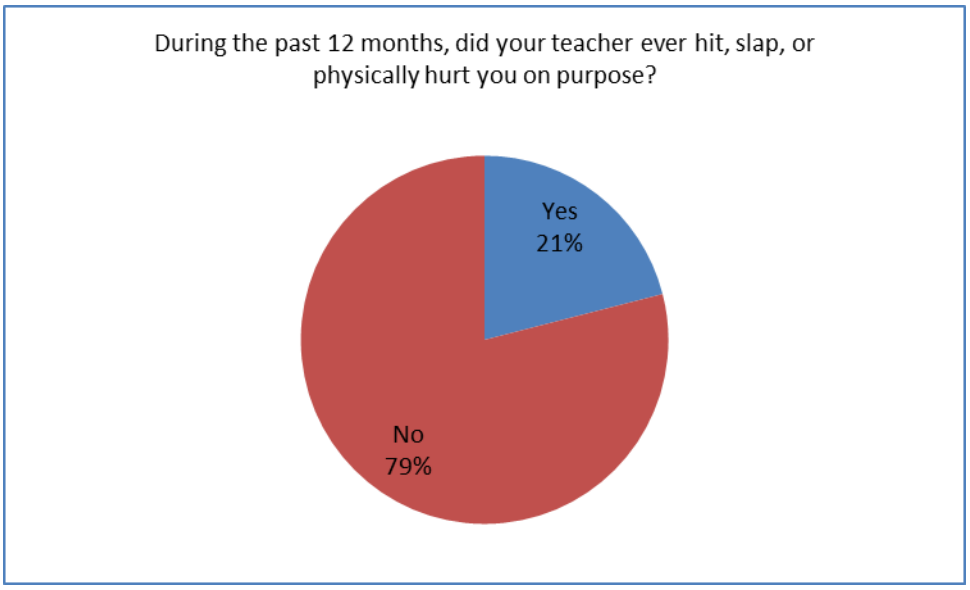


Figure 12: *The level of violence at the students from teachers*

21% refer that they were violated at school (hit, slap, or physically hurt) by teachers.

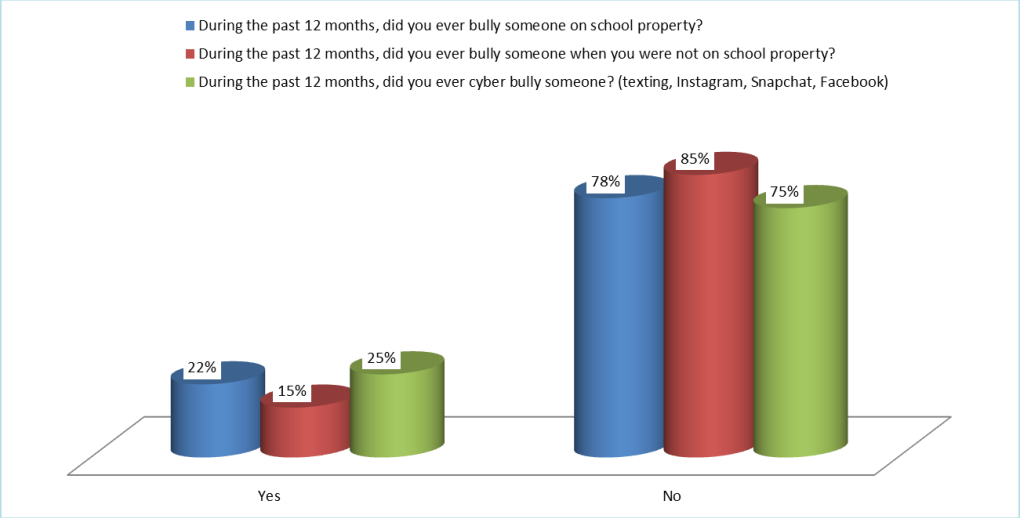


Fig. 12. The place and type of bullying

More than 15% of students bully cyber bully someone at school or out of it.

In 56% of cases the violence was only psychological, 22% psychological and physical, 22% was only physical. 67% of cases were male students practicing violence.

In 20% of cases the students intervene when they were present in the physical fight, 22% are spectators and the others are indiferent. This indiferentism is a big problem for the society and the future of our popullation.

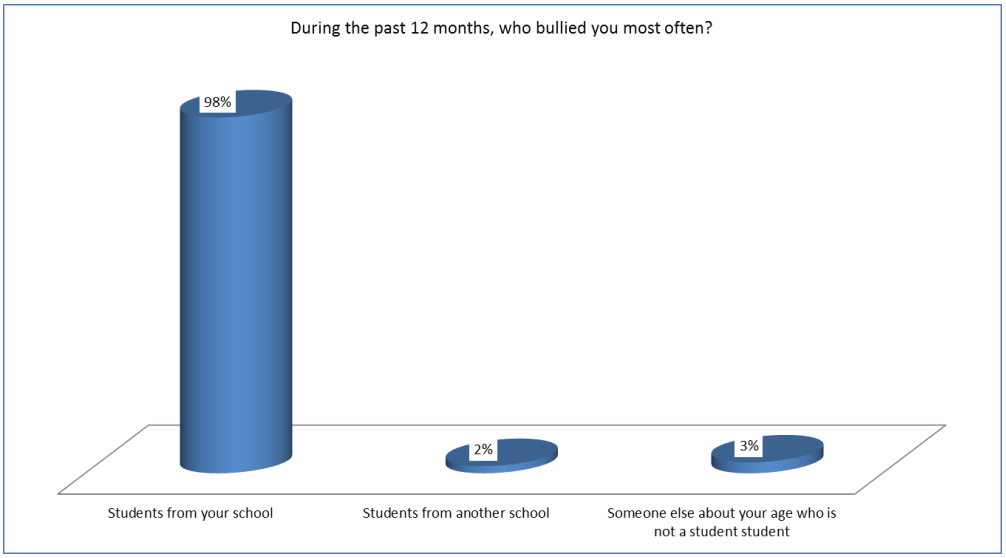


Figure 13: *The situation of bullying*

25% of the bullied students refer that in 98% cases the bullism comes from students of their own school.

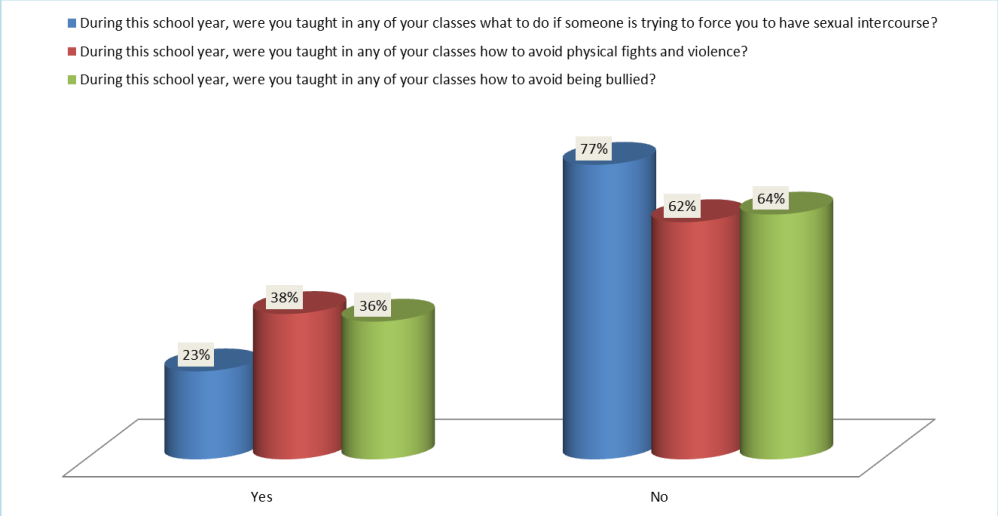


Figure 14*: The level of knowledgeand information at students about the protection and prevention from violence*

Only 23% refer that they have discussed and are informed at their classes about the ways to avoid bullism, to avoid physical fights and violence and what to do if someone is trying to force them to have sexual intercourse.

Conclusions

We conclude that violence exists at the school that was subject of our study. The students are exposed to violence both at home and at school (students, teachers and parents). They are bullied most often from students of their own school. The students that are involved in this situations carry guns or knives at school or outside it . A small group refers that they forced to do something that they did not want to (kiss, touch or are physically forced to have sexual intercourse).

The cases when students missed their classes because of violence fear are not rare. Students report to have missed the schooldays a least once because they felt unsafe at school or on the way to school since someone would threaten or injure them.

They also refer that someone has stolen or deliberately damaged their property, such as bikes, clothings, or books, while at school and its surroundings.

More than 22% were involved in a physical fight at school at least once, at which they were injured and had to be treated by a doctor or nurse or they

missed their usual activities at least once.

Violence was only psychological in more than half of cases, 67% of cases were male students practicing violence. Students were indiferent in more than half of cases when they were present in a physical fight.

The level of knowledge and information at their classes about the how to avoid being bullied, to avoid physical fights and violence and what to do if someone is trying to force them to have sexual intercourse is low.

Recommendations

- In order to prevent violence between students, the drafting of teaching strategies should be done by increasing their academic performance.
- Curriculums should provide strategies to prevent violence.
- We recommend positive school culture and radical programs against violence at school.
- We need to promote proper behavior and create a fair discipline system by increasing students' confidence in the rules and values of law.
- The training of mothers and teachers as the best mediator is needed in order to resolve the possible conflicts.
- It is obligatory to build strategies that deal with classroom relationship between teachers and their students in order to prevent violation by teachers.

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German Hospital

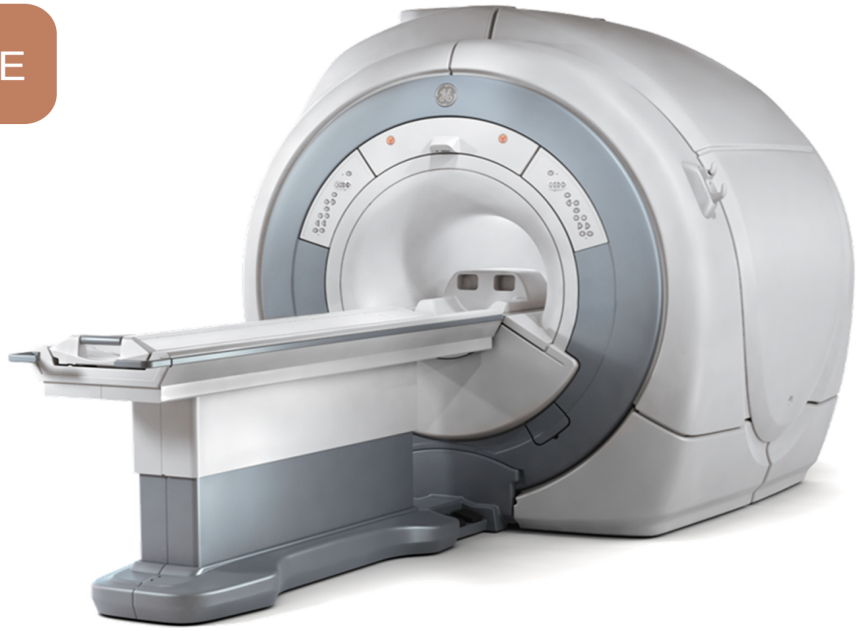
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