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INCIDENCE OF ABDOMINAL TRAUMA IN A TERTIARY CARE HOSPITAL

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Abstract:
Objective: *There has been a global increase in the incidence of abdominal trauma in surgical patients. We conducted this study to evaluate the pattern of abdominal injuries, patient characteristics and the management outcome in our setting.*
Methods: *It was a descriptive (combined retrospective and prospective) study of all patients with abdominal trauma admitted and managed at the Emergency department of Sheikh Zayed Hospital, Rahim Yar Khan for one-year duration from March 2019 to March 2020. Data on socio-demographics, clinical profile, investigations, treatments and outcome were entered into a spread sheet and analyzed using SPSS version 20.0.*
Results: *A total of 2728 trauma patients presented during the study period. Of these, 68 (2.5%) suffered from abdominal injuries. Their ages ranged from 6 to 72 years (mean 30.3±13.2). Fifty-nine (86.8%) were males while 9 (13.2%) were females (M: F ratio = 6.6:1). Forty-nine (72.1%) sustained blunt trauma while 19 (27.9%) had penetrating injuries. Road traffic incident (RTI) (n=41; 60.3%) was the most common source of trauma, followed by assault: gunshot (n=9; 13.2%), and stab (n=7; 10.3%). Spleen (n=23; 33.8%) was the most common solid organ injured followed by the liver (n=7; 10.3%) while small bowel (n=8; 11.8%) was the most common hollow viscous injured. Forty-seven (69.1%) required operative intervention. Post-operative complication rate was 17% with wound infection (12.5%) predominating. The mortality rate was 4 (5.9%).*
Conclusion: *RTI and assault are major causes of abdominal injury. Measures to reduce RTI, youth restiveness and criminal activities will stem the tide.*
Keywords: Abdominal trauma, Semi-urban tertiary institution, Treatment outcome

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INTRODUCTION:

Abdominal trauma has been described as a disease in evolution and has been described as an important cause of morbidity and mortality among trauma patients. About a third of patients with injuries worldwide have abdominal trauma, which is a significant part of the tragic loss of life. According to the World Health Organization (WHO), trauma will be the first or second leading cause of life productivity in both developed and developing countries by 2020.

There are regional and global differences in the incidence of abdominal trauma and etiological factors associated with abdominal injury worldwide. These factors include civil and political violence, robbery attacks, increased car accidents, riots and global terrorism, but are not limited to them. Abdominal trauma can also occur in recreational activities such as contact sports, and internal events such as workplaces and falls from a height. Health problems caused by car accidents may not be a part of the case, especially in developing countries where those who are focused on productive life are often involved.

Abdominal trauma is usually classified as blunt or penetrating. Blunt injuries can be the result of car accidents, war injuries, ill-treatment, high-altitude falls, sports accidents, martial arts, athletics and mountaineers, penetrating types often during stabbings, arrows and spears, firearms and secondary gun injuries.

Diagnosis of abdominal penetrance injury is usually easy and reliable, but blunt abdominal trauma is a real problem even for experienced general surgeons and trauma, some injuries may not occur during the initial assessment and treatment period. This situation is deteriorating in an environment with limited resources, such as ours, where advanced diagnostic weapons such as trauma-oriented ultrasound (FAST), computed tomography (CT) and laparoscopy are not available in many centers.

Over the years, blunt and penetrating injuries from routine operational management have been the shift of the paradigm to selective inoperable damage management (SNOM). The current purpose of penetration of the injury is that when all patients are required a routine laparotomy, it differs from the "need to scan all people with a hole in the abdomen". We do this work around us to know the abdominal injury, assess the pattern of abdominal injuries, the characteristics of the patient and the result of treatment.

METHODS:

It was a descriptive (combined retrospective and prospective) study of all patients with abdominal trauma admitted and managed at the Emergency department of Sheikh Zayed Hospital, Rahim Yar Khan for one-year duration from March 2019 to March 2020. During the prospective period, all patients who came for emergency treatment with abdominal trauma entered the datasheet for the study. Required information: patient socio-demographic, complaints, time of arrival at the emergency room, type and mechanism of injury, results of clinical trials, results of appropriate radiological examinations (chest X-ray and ultrasound of the abdomen) and laboratory tests. All patients under abdominal examinations before leaving the emergency room to be admitted to the ward or operating room.

Patients were sufficiently revitalized and executed by the executive council, who on the basis of his decision to continue the operation or, among other things, his hemodynamic state, mechanism and degree of injury in patients. Requirements for mass blood transfusions and intraoperative results (those performed) have been recorded. Complications related to patient management have also been reported. The resources obtained from this study were morbidity and mortality.

The generated data was entered into a spreadsheet and analyzed using the Statistical Social Sciences (SPSS) version 20.0 package. (IBM internal).

RESULTS:

A total of 2,728 patients with injuries were treated over a one-year period 68 (2,5%) patients with abdominal injuries (43 (63.2%) in the retrospective period and 25 (36.8%) well taken into account during the prospective period. Age ranges from 6 to 72 years (average 30.3 to 13.2). Fifty-nine (86.8%) are men and 9 (13.2%) male and female: ratio of women to 6.6:1. The age distribution of patients is shown in Figure 1. The most affected age group are 21-30 years and 31-40 years. 2 patients over 70 years of age were diagnosed with house collapses and blunt spinal cord injury, respectively.

Forty-nine patients (72.1%) suffered a serious injury and 19 (27.9%) had stabbing wounds. The injury mechanisms are set out in Table 1. Most injuries (60.3%) traffic incidents (ITI). The trauma caused by the blunt object was the lowest (2.9%). Iatrogenic injuries caused by dangerous abortion practices account for 15.8% of penetrating injuries.

Table 1. Mechanisms of injuries

A etiology	No.	Percent
RTI	41	60.3
Gunshot	9	13.2
Stab	7	10.3
Fall	6	8.8
Criminal abortion	3	4.4
Hit by blunt object	2	2.9

Table 2. Intraabdominal visceral injuries

Organs	No.	Percent
Solid organs		
Spleen	23	33.8
Liver	7	10.3
Pancreas	3	4.4
Kidney	2	2.9
Hollow viscera		
Stomach	1	1.5
Small bowel	8	11.8
Large bowel	4	5.9
Rectum	3	4.4
Urinary bladder	1	1.5
Other structures		
Mesentery	4	5.9
Greater omentum	1	1.5
Retroperitoneal haematoma	2	2.9
Multiple abdominal viscera	9	13.2

The visceral injury formula is defined in Table 2. Spleen (33.8%) was the most common solid organ in the small intestine (11.8%), the most common in this study.
Other accompanying non-defect changes experienced by patients are shown in Table 3.

Table 3. Associated extra abdominal injuries with BAT

Associated injuries	No.	Percent
Thoracic*	13	26.5
Head	7	14.3
Extremities (long bones fractures)	5	10.2
Pelvic fracture	3	6.1
Spinal injury	1	2.0
Multiple	5	10.2

Chest (26.5%) was the most affected area of the body with varying degrees of injury. Five patients (10.2%) had a lot of injuries. Patients had non-surgical and surgical treatment as shown in Table 4. A total of 47 patients (69.1%) require surgery. More patients (32.7%) in the blunt group compared to the penetrating group (26.3%).

Table 5 demonstrates various surgical procedures performed in patients. Splenectomy was the most common operation.

Eight patients (17%) mainly from postoperative complications (12.5%) with wound infection. The hospital stay lasts from 2 to 32 days (on average 11.4-6.0), and patients with non-smoker injuries have had longer stays at the entrance. Four patients died with a mortality rate of 5.9%. Patients were monitored for an average of 14 months and no delays were reported.

Table 4. Mode of treatment

Treatment	No.	Percent
Blunt		
Non-operative	16	23.5
Operative	33	48.5
Penetrating		
Non-operative	5	7.4
Operative	14	20.6
Total	68	100

Table 5. Surgical procedures performed

Operative procedures	No.	Percent
Splenectomy	18	38.3
Hepatorrhaphy	4	8.5
Nephrectomy	1	2.1
Closure of bowel perforation	6	12.8
Bowel resection with primary anastomosis	5	10.6
Repair of rectal injury with diverting loop colostomy	3	6.4
Repair of urinary bladder tear	1	2.1
Laparotomy and drainage of haemoperitoneum only*	9	19.2

DISCUSSION:

Worldwide, there has been an increase in the incidence of abdominal injuries in significant morbidity and mortality. The number of crimes may increase in our environment due to increased urbanisation rates, civil and political unrest and an increase in crime rates, including armed robberies and road accidents. Younger age groups are the most vulnerable groups because they are riskier and mobile. Mean age 30.3 years in the third and fourth years (41, 60.3%) was most affected in our study. This is contrary to the findings of other authors around the world. This will therefore lead to significant economic losses for the family, society and the nation as a whole. Men (86.8%) were more likely to be affected in this study and are consistent with observations from previous studies. This male domination may not be alien to the increased involvement of outdoor activities, crime and violence.

Most blunt abdominal injuries (72.1%) 27.9% of patients treated for abdominal trauma. This is more similar to the work of other employees who report blunt injuries. However, more penetrating injuries contrast with several other recorded reports. The dominance of blunt injuries can be attributed to the high rate of car and motorcycle accidents, as many unemployed young people are now resorting to using motorcycles for commercial purposes.

Most are road accidents (n-41; 60.3%) blunt injury and subsequent high falls (n-6, 8.8%). Similar results have been reported in various national and international studies. Poor road infrastructure (no damaged roads, pedestrian crossings and road signs), poor driving habits, congestion, lack of compliance with standard safety measures and a lack of adequate regulatory control by road law enforcement authorities are responsible for the increase in accidents. Shooting (13.2%) followed by a stab wound (10.3%) it was the most common cause of penetrating abdominal trauma, attack and everything happened in men. Penetrating changes only (n-3, 4.4%) were the result of a criminal abortion observed in women in this study. Unsafe abortion remains an important health problem in our environment. Most abortions are performed

secretly by many unskilled and inexperienced health care professionals, and even charlatans, as a result of intra-abortion injuries.

In our study, the spleen was the most common solid organ, followed by the liver. Similar results of dominance of spleen lesions have been reported by other authors. The most affected gastrointestinal segment was 17 (25.1%) patients, large, small intestine penetrating abdominal trauma. The susceptibility of the small intestine to the lesions is the result of a large area occupied in the abdomen and the fact that they are protected only by the wall of the anterior snow. Other parts of the digestive tract, such as the stomach, duodenum and pancreas, are fairly well protected by the skeleton or position compared to other structures. Similarly, the urinary bag is protected by an empty pelvic bone.

Patients with abdominal injuries may experience other associated non-deep injuries that may affect their treatment and the outcome of this treatment. In this study, 13 (26.5%) patients were found to be associated with chest injuries. It is also similar to other authors who report that chest trauma is most commonly associated with injury in their studies. This is due to the proximity of the abdomen, and some injuries to the solid organs can be associated with fractures of the ribs. However, Chalya and others reported that head injuries were the most common injury. The presence of related injuries has been shown to be significantly linked to increased hospital stay and mortality. Our results were similar because patients with abdominal injuries were hospitalized for a long time and three of the four deaths were injured. Therefore, early diagnosis and rapid treatment of these changes can reduce morbidity and mortality.

Although SNOM tends to drive available for low-quality spleen lesions and even some high-quality spleen lesions, the surgical option can be a wise option in our environment where dreamy patients are under the workforce and appropriate equipment for proper monitoring. It is not available in our IT facility, which helps determine the desire of operational intervention, and is also the gold standard for detecting and classifying solid organ injuries. This may probably be responsible for the high operational level in our facility. Various surgical operations were performed, such as simple closure, resection with primary engagement, and especially the repair of the deviant colostomy for various intestinal lesions than penetrating trauma.
Two patients (4.2%) had a negative laparotomy and symptoms were found in class 2 and 3. An indication for surgery on them was hemoperitoneum, which had hemodynamic instability.

Postoperative complications were reported as eight (17%) Patients. In six (12.8%) patients, superficial infections developed in the surgical area, 1 (2.1%) endovascular coagulation occurred in patients with liver injuries and 1 (2.1%) had a pelvic abscess. Infection with the surgical area has also been reported as the most common postoperative complications in studies conducted elsewhere. Four deaths (5.9%) were recorded and all were blunt injuries. One of them was an elderly man with chronic liver disease, while the rest suffered multiple injuries. There was no mortality in people with penetrating injuries, as most of them had no ablution injuries. The presence of related changes is a factor in the increase in mortality. This mortality rate was comparable to some reported by the authors. In other studies, higher mortality rates were reported between 10% and 17.9%. However, we are aware that mortality will be a function of how complex injuries are among other factors.

CONCLUSION:

The incidence of abdominal trauma is increasing globally and it is a cause of considerable morbidity and mortality among trauma patients. In our setting, blunt abdominal trauma is mostly secondary to road traffic crashes while penetrating injuries were due to stab and gunshot and the pattern of injuries is not different from those reported in other studies. Various preventive measures to reduce RTA will lead to a reduction in the incidence of abdominal trauma. Concerted efforts should be made by government at all levels at providing gainful employment for the teeming unemployed youths in order to reduce their restiveness and criminal activities.

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