



**ABDOMINAL TRAUMA AMONG PATIENTS ATTENDED A
SUDANESE STATE PUBLIC HOSPITAL**

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ABSTRACT

Background: Abdominal trauma is an important medical emergency that needs special attention. The objectives of this study was to determine the types, clinical presentation management and treatment outcome of abdominal trauma among patients attending Gadarif teaching hospital, Sudan. **Methods:** The study was retrospective descriptive, 210 records of patients attended the surgical department in Gadarif teaching hospital following abdominal trauma during 2009 –

2011 were reviewed using a check list. Analysis was done by SPSS. **Results:** Results showed that 58.1% and 41.9% of patients presented with penetrating and blunt trauma respectively. Investigations performed for the patients were Ultra sound, X- Ray, CT scan and diagnostic peritoneal lavage constituted 47.6%, 27.1%, 5.7% and 1.0% respectively. Most of the patients presented with blunt and penetrating trauma were treated conservatively (85.2%) and surgically (93.4%) respectively. Cure rate in surgical and conservative treatment was 92.1% and 81.9% respectively. The death rate among patients underwent surgical management was 6.3% while it was 3.6% among patients underwent conservative management. **Conclusion:** The study concluded that penetrating anterior stab wounds are the commonest type of abdominal trauma. All patients with abdominal trauma presented with

abdominal pain. Most patients with blunt and penetrating trauma were treated conservatively and surgically respectively. Cure rate is higher in surgical than in conservative management.

KEYWORDS: Trauma, penetrating, blunt.

INTRODUCTION

Trauma ranks the fourth cause of death in the general population worldwide. Abdominal trauma constitutes around 7-10% of trauma patients.^[1, 2]

Abdominal trauma is an important aspect of trauma due to difficulty in diagnosis and high fatality if not properly treated. It is one of the most common causes of preventable, trauma-related deaths.^[3] Abdominal trauma may be blunt or penetrating and may involve damage to the abdominal organs. The most common cause of blunt trauma is road traffic accidents while gun shot is a leading cause of penetrating abdominal injuries followed by stab wounds.^[4, 5]

Signs and symptoms include abdominal pain, tenderness, rigidity, and bruising of the external abdomen. Abdominal trauma presents a risk of severe blood loss and infection. Diagnosis may involve ultrasonography, computed tomography, and peritoneal lavage. Abdominal trauma diagnosis is usually based on clinical signs and may be missed because clinical signs are sometimes less obvious.^[6, 7] Injury to the upper abdomen may cause splenic and/or liver damage.^[8] Blunt injuries predominate in rural areas, while penetrating ones are more frequent in urban settings.^[9]

Initial treatment for abdominal trauma involves stabilizing the patient enough to ensure adequate airway, breathing, circulation, and identifying other injuries.^[3] Treatment of abdominal trauma may include surgical intervention, which is necessary for patients with penetrating injuries and signs of peritonitis or shock.^[9] Laparotomy is often performed in blunt abdominal trauma^[6], and is urgently required if an abdominal injury causes severe bleeding.^[9] However, intra-abdominal injuries are also frequently successfully treated conservatively.^[3, 10] The use of CT scanning allows care providers to use less surgery because they can identify injuries that can be managed conservatively and rule out other injuries that would need surgery.^[3] Delayed treatment is associated with high morbidity, long hospital stay and mortality if perforation of the gastrointestinal tract is involved.^[11]

The objective of this study was to determine the types, clinical presentation, management and treatment outcome of abdominal trauma among patients attending surgical department in Gadarif Teaching Hospital, Sudan.

PATIENTS AND METHODS

The study was descriptive retrospective. Two hundred and ten records of patients attended the surgical department in Gadarif teaching hospital following abdominal trauma were enrolled in the study. Gadarif State is located in the southern east part of the Sudan. The service area is about 72000 square kilometers and the population was about 1384000.^[12] The state has 26 hospitals, 51 health centers and 241 basic health care units.^[13] Gadarif Teaching Hospital is the main state hospital providing services for population from the capital and the localities as long as educating medical students of Gadarif University. The surgical department in the hospital acquires five specialists besides registrars, medical practitioner, and house officers as long as other allied personnel.

The data were collected by a pre tested check list. Records of patients presented to the hospital with abdominal trauma during 2009-2011 were reviewed and data were obtained from them. The data analysis was done by the computer using SPSS version 16. The comparison between qualitative data was conducted by a chi square and p value less than 0.05 was considered significant.

RESULTS

Table (1) shows the social factors of patients with abdominal trauma attended the surgical department of Gadarif teaching hospital. Most of the patients were children below fifteen years of age (32%). Age 15-24 years, 25-34 years, 35-45 years and more than 45 years constituted 24.7%, 23.8%, 15.7% and 3.8% respectively. As regards gender, males and females constituted 76.2% and 23.8% respectively. Most of abdominal trauma patients were living in urban areas (64.8%), patients from rural areas constituted 35.2%. Most of patients were laborers (48.1%), Students, farmers and those without jobs constituted 26.7%, 12.4% and 5.2% respectively.

Table (2) shows types and presentation of abdominal trauma. Penetrating and blunt trauma constituted 58.1% and 41.9% respectively. Types of penetrating trauma were anterior stab wound, gun shot and posterior stab wound constituted 82.8%, 9.0% and 3.3% respectively. Results showed that most patients presented within 24 hours of trauma (94.3%). As regards

presentation, all patients presented with abdominal pain. Bleeding and abdominal distension were seen in 57.1% and 17.6% of patients respectively.

Table (3) shows the management performed for patients presented with abdominal trauma. Ultra sound, X- Ray, CT scan and diagnostic peritoneal lavage were performed for 47.6%, 27.1%, 5.7% and 1% of the patients respectively. As regards treatment of patients with blunt trauma, most were treated conservatively (85.2%) while most of the patients presented with penetrating trauma were treated surgically (93.4%). Results shows that cure ratio in surgical and conservative trauma patients were 92.1% and 81.9% respectively. Death ratio in surgical and conservative management was 6.3% and 3.6% respectively.

Table (1): Social factors of patients with abdominal trauma

n=210

Social factor	Frequency	Percent
Age/yr		
Less than 15	67	32.0%
15 – 24	52	24.7%
25- 34	50	23.8%
35-45	33	15.7%
More than 45	8	3.8%
Gender		
Male	160	76.2%
Female	50	23.8%
Residence		
Urban	136	64.8%
Rural	74	35.2%
Occupation		
Workers	101	48.1%
Students	56	26.7%
Farmers	26	12.4%
No work	11	5.2%
Others	16	7.6%

Table (2): Types and presentation of abdominal trauma

n =210

Item	Freuency	Percent
Types		
Penetrating	122	58.1%
Blunt	88	41.9%
Time of presentation		
Within 24 hours	198	94.3%
After 24 hours	12	5.7%

Presentation		
Abdominal pain	210	100%
Bleeding	120	57.1%
Abdominal distension	37	17.6%
Type of penetrating trauma(n=122)		
Anterior stab wound	101	82.8%
Gun shot	11	9.0%
Posterior stab wound	4	3.3%
Other	6	4.9%

Table (3): Management modalities of abdominal trauma

Item	Freuency	Percent
Investigations (n=210)		
Ultra sound	100	47.6%
X- Ray	57	27.1%
CT scan	12	5.7%
Diagnostic protineal lavage	2	1.0%
Type of treatment for blunt trauma (n=88)	75	85.2%
Conservative	13	14.8%
Type of treatment for pnetratting trauma (n=122)		
Surgical	114	93.4%
Conservative	8	6.6%
Outcome of conservative treatment (n=83)	68	81.9%
Cured	12	14.5%
Discharged Against medical Advice	3	3.6%
Died		
Outcome of surgical treatment (n=127)	117	92.1%
Cured	2	1.6%
Referred	8	6.3%
Died		

Table (4): Relation betwenn treatment outcome and type of management for abdominal trauma

Type of treatment	Outcome			p
	Cured	Referred/ Discharged Against medical Advice	Died	
Conservative	81.9%	14.5%	3.6%	0.003
Surgical	92.1%	1.6%	6.3%	

DISCUSSION

Results showed that most of the patients presented to the surgical department in Gadarif teaching hospital with abdominal trauma were children below fifteen years of age. These findings are not in line with other studies which found that the most affected age group was between 21 – 30 years.^[14,15] In our study children were mostly affected may be due to their

more outdoor activities. Our findings showed that males and urban population were mostly affected by abdominal trauma.^[14,16, 17] Results showed that workers (skilled and unskilled) were mostly affected by abdominal trauma followed by students and farmers.^[16] Gadarif state depends mainly on agriculture in its economy, many workers arrive from other states to work in farming specially during Autumn and they are in close contact with instruments and machines used in agriculture. The study showed that penetrating injuries were predominating over blunt injuries.^[14,18] These findings contradict Gad et al.^[19] Results revealed that the majority of patients had stab wounds, and abdominal pain was the most frequent symptom to all patients. On the other hand most of the patients arrived at the hospital within 24 hours following trauma.^[3,14]

Ultrasonography was the commonest investigation for abdominal trauma patients followed by X-Ray. Computed tomography and diagnostic peritoneal lavage were used less commonly.^[15] Most of the patients presented with blunt trauma were treated conservatively (81.9%) while surgical intervention was performed in 93.4% of patients presented with penetrating trauma.^[6] Cure rate was higher in surgical intervention than in conservative management (92.1% versus 81.9%). The death rate was higher among patients underwent surgical intervention than those underwent conservative management (6.3% versus 3.6%), this may be due to the fact that patients who underwent surgical intervention were more serious than those underwent conservative management. The relation between type of management of abdominal trauma and treatment outcome is significant (Chi square= 11.67, P=0.003).

CONCLUSION

The study concluded that penetrating anterior stab wounds are the commonest type of abdominal trauma. All patients with abdominal trauma present with abdominal pain. Most patients with blunt and penetrating trauma were treated conservatively and surgically respectively. The study showed statistical relation between treatment outcome and type of management for patients with abdominal trauma. Cure rate is higher in surgical than in conservative management. Discharge against medical advice from the hospital was related to conservative management rather than surgical management.

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