

Pattern of Abdominal Trauma in North Eastern Nigeria

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ABSTRACT

Fifty patients treated for abdominal trauma at the University of Maiduguri Teaching Hospital between 1990 and 1997 were studied. Twenty three (46%) of these patients had penetrating abdominal injuries while 27 (54%) had blunt abdominal trauma. The overall peak age at risk was 21-30 years. Road traffic accident (RTA) accounted for 74% of blunt injury while gunshot injury accounted for 57% of the penetrating injuries. All those who had haemodynamic instability or had penetrating abdominal injuries had emergency exploratory laparotomy or wound exploration and definitive management depended on findings. Splenic rupture was the commonest intraabdominal injury in the blunt trauma group and these patients had splenectomy. Overall mortality rate was 10% and these were among those with haemodynamic instability at presentation. (*Nig J Surg Res 2000; 2:48-51*)

KEY WORDS: *Abdominal trauma, North Eastern Nigeria.*

Introduction

The injured abdomen is relatively common among both civilian and military casualties^{1,2,3,4} and remains a major source of morbidity and mortality especially when there is delay in diagnosis or treatment. In developed countries, advances in imaging modalities, patient monitoring devices, and prompt intervention has improved the outcome. In developing countries, however, late arrival to hospital, poor diagnostic facilities as well as late intervention continue to adversely affect the outcome. We report the experience in the management of these patients at the University of Maiduguri Teaching Hospital

(UMTH) before the arrival of Computed Tomography (CT) scan.

Patients and Methods

A total of 50 analysable case records out of 78 cases treated at the UMTH with abdominal injury between 1990 and 1997 were studied. These were analysed for age, sex, type and cause of injury, presence or absence of haemodynamic instability, investigation done,

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type of treatment offered and outcome.

Results

Age/Sex distribution

The peak age at risk in this study was 21-20 years for penetrating injury group while the peak age for the blunt trauma group was 10-20 years. Overall male: female ratio was 4:1 the females being more in the blunt injury group (Table1).

Table 1 Age and Sex Distribution of Abdominal Trauma

Age (years)	Blunt		Penetrating		Total.(%)
	M	F	M	F	
0-11	2	1	0	0	3(6)
11-20	5	5	1	0	11(22)
21-30	4	2	8	1	15(30)
31-40	4	1	5	0	10(20)
41-50	3	0	5	0	8(16)
51-60	0	0	3	0	3(6)
> 60	0	0	0	0	0(0)
Total	18	9	22	1	50(100)

Type and Cause of injury

Blunt abdominal injury accounted for 54% of cases while the rest were penetrating injuries (46%). Of the blunt injury group, road traffic accident (RTA) was responsible for 74% of cases while gunshot injury accounted for 56% of the penetrating injuries. This was followed by stab wound (13.04%): (Tables 2 and 3).

Table 2: Causes of Blunt Abdominal Trauma

Cause	No. (%)
RTA	20(74)
Assault	4(15)
Fall from height	2(7)
Others	1(4)
Total	27(100)

Presentation

Most patients who came with blunt injury gave a history of RTA or fall from a height. The commonest physical sign was bruising of the anterior abdominal wall in cases of blunt injury, while puncture wounds and in some cases exit wounds were noted in the penetrating injury group.

Table 3: Causes of Penetrating Injuries

Cause	No. (%)
Gunshot	13(57)
Arrow shot	5(22)
Knife	3(13)
Others	2(9)
Total	23(100)

Haemodynamic instability assessed as systolic blood pressure of 90mmHg or less or pulse rate of 100/minute or more was seen in 30% of patients. The commonest investigation done for the blunt injury group was plain abdominal x-rays taken in both erect and supine positions (75%) and abdominal paracentesis (30%).

Type of Treatment

Patients who were diagnosed as having penetrating abdominal injuries all had emergency exploratory laparotomy after adequate resuscitation. Those patients who had blunt abdominal trauma without haemodynamic instability or signs or peritonism were managed conservatively. However, those who had haemodynamic instability or signs of peritonism or peritonitis had exploratory laparotomy. Haemoperitoneum was found in 75% of the blunt injury group.

Most organ injuries were solitary affecting mostly the spleen (32) 64% and liver 34%. Multiple injuries accounted for the rest. All injured spleens were removed while injured liver was managed conservatively.

One patient who had blunt injury following RTA had associated multiple unilateral rib fractures with haemopneumothorax. Two patients had limb fractures while another 2 had associated head injuries. The injury severity score (ISS) and the penetrating abdominal trauma index (P.A.T.I.) could not be calculated.

Outcome

Five mortalities were recorded among the haemodynamically unstable patients and those who presented late. Four of these were from the penetrating injury group while one

was from the blunt trauma group with associated chest injury.

Discussion

The incidence of abdominal trauma has been on the increase worldwide, especially with the advent of high-speed transportation system, high velocity missiles and increased domestic violence.^{2,5,7,10} While violent injuries are common in war torn countries¹ and some developed countries,^{2,5,8} road traffic accident remains the commonest cause of blunt abdominal trauma in this study. This is similar to experiences elsewhere in Nigeria.^{3,4}

The peak age at risk in this study was 20-30 years representing the most dynamic age group. This was followed by teenagers who are known to be active and adventurous. This pattern is similar to studies elsewhere.^{1,4,11} The male preponderance in this study may be related to the African culture where man is frequently the sole breadwinner for the family, moving from place to place and therefore accident-prone.

The incidence of penetrating injury in this study during peacetime is high. This however could be explained by the rising trend of armed banditry being experienced in the North Eastern Nigeria with the downturn of the economy.

The spleen was the commonest organ injured in the blunt injury group and splenectomy was the commonest operation. Though more conservative approach has been advocated and is practiced in many countries,¹³ in this centre splenectomy remains the treatment of choice for the ruptured spleen even with the advent of CT-scan. This is due to many factors, which include the low socio economic status of most of our patients and the relatively slow reaction time for emergencies. The low

socio-economic state makes it unaffordable should the patient require a second operation after a conservative approach might has been adopted at first operation. Again the low socio-economic state is largely responsible for the relatively slow reaction to emergencies as the patient or relatives must provide for necessary consumables required for operation even in cases of emergencies. Until these factors are reversed, splenectomy remains the safest option for our environment.

Mortality (10%) in this study was associated with haemodynamic instability and multiple injuries as seen in other studies.^{9,12} Though details of interval between time of accident and arrival to hospital, as well as interval between arrival to hospital and time of operative intervention could not be ascertained, they may well have contributed to the outcome since poor transportation system and lack of facilities for quick intervention remain a problem in developing countries.

Since most of the causes of abdominal trauma are preventable, it is our belief that enhanced security patrol could reduce armed robbery and over speeding on our highways while overall improvement in the economy may be the bottom line. Also, improved prehospital and peripheral hospital care and rapid transfer to equipped trauma units could improve morbidity and mortality.

References

1. da-Rocha-Afodu, J.T. Military and civilian abdominal injuries. *J Nig Med Assoc* 1970; 7:20-26.
2. Cox FE. Blunt abdominal trauma: A 5-years analysis of 870 patients. *Ann Surg* 1983; 190:467-474.
3. Odelalo EO. Pattern of pedestrian injuries from road traffic accidents in Nigeria. *W Afr Med J* 1992; 11:130-134.
4. Adekunle OO. Abdominal trauma in Ibadan, Nigeria. *Nig Med J* 1980; 10:131-136.
5. Aho AJ, Vurri J. Penetrating abdominal injuries with special reference to knife wounds. *Acta Chir Scand* 1983; 146:47-54.
6. McIntyre R, Alld DC, Cushieri RJ, Toggart I, McKay A.J. Penetrating abdominal stab wounds: a plea for more conservative policy: *Injury* 1989; 15:372-375.
7. Yates DW. Scoring System for trauma. *Br Med J* 1990; 301:1090-1094.
8. More EE, Dunn EI, Moore JB, Thomas JS. Penetrating abdominal trauma index. *J Trauma* 1983; 21:96-96.
9. Afolabi IR, Adesanya AA, Atimomo CE, da-Rocha-Afodu JT. Prognostic factor in abdominal injuries. *Nig J Surg* 1995; 12:2-7.
10. Dent RI, Jena GP. Missile injuries of the abdomen in Zimbabwe-Rhodesia. *Br J Surg* 1984; 67:305-375.
11. Nwaburinke T. Closed and penetrating abdominal injuries in Nigerian Igbos. *Br J Acc Surg* 1984; 15:372-375.
12. Burns RK, Sariol HS, Ross SE. Penetrating posterior abdominal trauma. *Injury* 1994; 25:429.
13. King DR, Lobe TE, Haase GM, Boles ET. Selective management of the injured spleen. *Surgery* 1981; 90:677.