

Original Research

Assessment of cases of thoracoabdominal penetrating injuries

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ABSTRACT:

Background: The present study was conducted to assess thoracoabdominal penetrating injuries. **Materials & Methods:** The present study was conducted on 104 cases of thoraco-abdominal injuries of both genders. Type of injury, length of hospital stay, intensive care unit (ICU) requirement, use of radiologic modality, need of surgery etc. was recorded. **Results:** Out of 104 patients, males were 64 and females were 40. 26 cases had gunshot and 78 had stab injuries. The difference was significant ($P < 0.05$). The mean length of hospital stay was 6.5 days, treatment was done in ICU in 86 and general ward in 18 cases, organ injured was lung in 39 and liver in 65. Clinical findings were pneumothorax in 20, Hemothorax in 24 and Hemo/Pneumothorax in 60 cases. **Conclusion:** Authors found that penetrating thoracoabdominal injuries are common in day today's life.

Key words: Hemothorax, Penetrating, Thoracoabdominal injury.

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INTRODUCTION

The diagnosis of penetrating thoracoabdominal injuries is often predicated on the presence or absence of diaphragmatic penetration, which at times can be difficult to establish preoperatively.¹ Errors in diagnosis often occur, as these injuries vex even the most experienced trauma surgeons. A particularly difficult scenario is the unstable patient whose operative findings on one side of the diaphragm cannot account for the patient's hemodynamic instability.²

Right side thoracoabdominal penetrating injuries are caused mostly by firearm injuries or sharp penetrating objects, and these may lead to organ injuries like blung and liver lacerations (graded depending on the severity), hemopneumothorax, diaphragmatic injury and less frequently bowel injury etc.³ The World Health Organization (WHO) in its international conference on RTA noted the importance of adequate data on traffic injuries.⁴ The abdomen is the third common region of the body that is injured in civilian trauma. Blunt abdominal trauma (BAT) is one of the leading causes of

mortality among trauma victims. It is the main cause of death in people under 35 years of age in worldwide. Most common cause of blunt abdominal trauma in India is road traffic accident followed by pedestrian accidents, abdominal blows, and fall from heights.⁵

The traditional surgical approach towards most of thoracoabdominal penetrating injuries has given way to non-operative, conservative approach due to advances in radiologic evaluation, establishment of new organ injury scaling systems, and increase of clinical experience in this field. By this, even severely injured patients but hemodynamically stable could be followed up conservatively throughout the hospitalization period.⁵ The present study was conducted to assess thoracoabdominal penetrating injuries in known patients.

MATERIALS & METHODS

The present study was conducted in the department of general surgery. It comprised of 104 cases of thoraco-abdominal injuries of both genders. The study was

approved from institutional ethical committee. All patients were informed regarding the study and their consent was obtained.

Data such as name, age etc. was recorded. A careful examination was done in all patients. Type of injury, length of hospital stay, intensive care unit (ICU)

requirement, use of radiologic modality, need of surgery, solid organ injury and any complaint occurred after discharge from the hospital was recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 104		
Gender	Male	Female
Number	64	40

Table I shows that out of 104 patients, males were 64 and females were 40.

Table II Type of injuries

Type	Number	P value
Gunshot	26	0.01
Stab	78	

Table II, graph I shows that 26 cases had gunshot and 78 had stab injuries. The difference was significant (P< 0.05).

Graph I Type of injuries

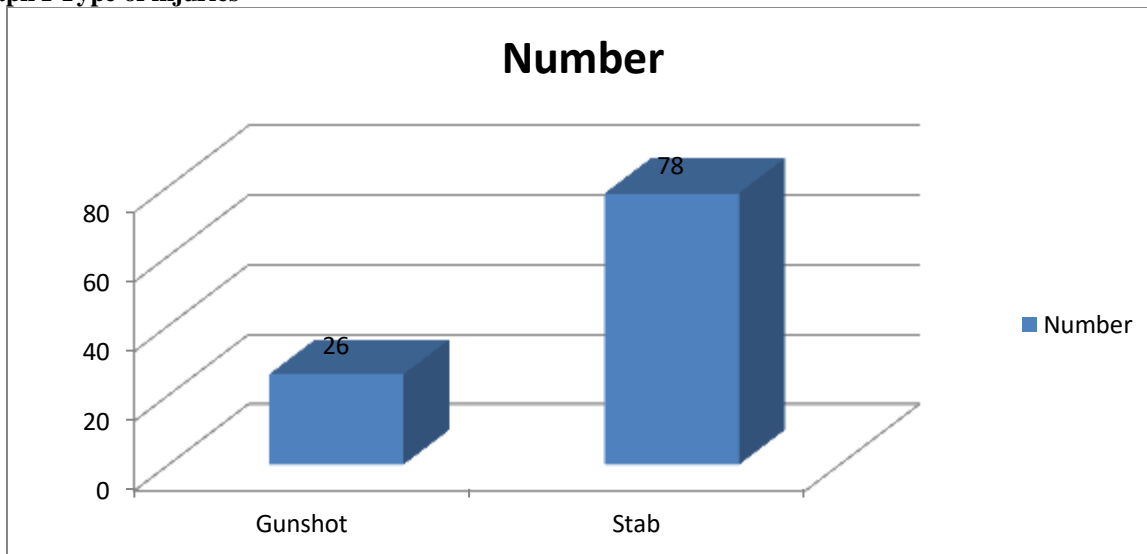


Table III Assessment of parameters

Parameters	Mean
Length of hospital stay	6.5 days
Treatment	
ICU	86
General ward	18
Organ injured	
Liver	65
Lung	39
Clinical findings	
Pneumothorax	20
Hemothorax	24
Hemo/Pneumothorax	60

Table III shows that mean length of hospital stay was 6.5 days, treatment was done in ICU in 86 and general ward in 18 cases, organ injured was lung in 39 and liver in 65. Clinical findings were pneumothorax in 20, Hemothorax in 24 and Hemo/Pneumothorax in 60 cases.

DISCUSSION

Accidents are a counter product of modernization and hasty life and are considered as a modern day epidemic.⁷ The statistical profile reflects a global estimate of 5.1 million deaths in 2000, which was due to injuries that accounted for 10% of deaths due to all causes.⁸ Out of this, a quarter of injury-related deaths occurred in the South-East Asian region. Road traffic accident (RTA) is one among the top 5 causes of morbidity and mortality in South-East Asian countries. Most of the experienced trauma surgery centers follow up penetrating thoracoabdominal injuries conservatively, or in other words non-operatively.⁹ It has been shown to be reliable and safe for selected patient groups who are hemodynamically stable and without diffuse peritonitis. Diaphragmatic injuries due to thoracoabdominal penetrating traumas are mostly a challenge for the surgeons, both in diagnostic and therapeutic ways. It is difficult to make the diagnosis when specific symptoms and radiological signs are absent. They may be unrecognized for long periods of time and might show up 1 day with herniation of abdominal contents.¹⁰ The present study was conducted to assess thoracoabdominal penetrating injuries in known patients.

In present study, out of 104 patients, males were 64 and females were 40. We found that 26 cases had gunshot and 78 had stab injuries. Asensio et al¹¹ found that 254 patients who had sustained thoracoabdominal injuries requiring surgical intervention: 187 (73%) gunshot wounds (GSWs), 64 (25%) stab wounds (SWs), and 3 (2%) shotgun wounds (STWs). The mean revised (RTS) was 6.04; the mean Injury Severity Score (ISS) was 27; the mean estimated blood loss (EBL) was 3000 ml. The overall survival was 175 of 254 (69%). Of the 254, 51 (20%) underwent emergency department (ED) thoracotomy. Altogether, 73 (29%) underwent combined thoracotomy and laparotomy: 59 (81%) GSW, 13 (18%) SW, 1 (1%) STW (mean RTS 5.2, mean ISS 34, mean EBL 6800 ml). Overall survival was 30 of these 73 (41%). A total of 21 of the 73 (29%) underwent ED thoracotomy. In group I (laparotomy then thoracotomy: Lap + Thor, n = 34) the initial procedure was interrupted in 18 (53%). In group II (thoracotomy then laparotomy: Thor + Lap, n = 39) the initial procedure was interrupted in 14 (36%). Pitfalls leading to inappropriate surgical sequencing were persistent hypotension (13/73, 18%) and misleading chest tube output (8/73, 10%). It was concluded that

penetrating thoracoabdominal injuries incur high mortality (31%), and the mortality doubles for patients who require combined procedures (59%). Inappropriate surgical sequencing occurred in 32 of 73 (44%) patients undergoing combined procedures.

We found that mean length of hospital stay was 6.5 days, treatment was done in ICU in 86 and general ward in 18 cases, organ injured was lung in 39 and liver in 65. Clinical findings were pneumothorax in 20, Hemothorax in 24 and Hemo/Pneumothorax in 60 cases. Sonmez et al¹² in their study found that 54 of the patients were male and 1 patient was female. Since 12 of the patients had undergone operations due to various causes, they were excluded from the study. A total of 43 patients were included into the study. The average age of the patients was calculated as 26.6 years (range 13–53 years). Average length of hospital stay was 6 days. Median follow-up time of the patients who were managed non-operatively was 2.6 years (range 5–72 months). Thirteen of the patients were gunshot injured, though they were followed up by conservative approach also. The liver is present on the right side of upper abdomen and therefore, its presence acts as an anatomical barrier for trauma towards the right hemidiaphragm.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that penetrating thoracoabdominal injuries are common in day today's life.

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