



International Journal of Surgery Science

E-ISSN: 2616-3470
P-ISSN: 2616-3462
© Surgery Science
www.surgeryscience.com
2021; 5(1): 79-81
Received: 14-11-2020
Accepted: 21-12-2020

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Assessment of cases of thoracic injuries in 114 patients reported to surgery department

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DOI: <https://doi.org/10.33545/surgery.2021.v5.i1b.591>

Abstract

Background: Thoracic injuries are the third injuries in trauma patients, after to injuries to head and extremities. Chest trauma is a common cause of morbidity and mortality, especially in the young patients. The present study assessed thoracic injuries.

Materials and methods: 114 cases of thoracic trauma of both genders were recorded. Injury type, trauma etiology, clinical features, associated injuries, diagnostic procedures, traumatic bone fractures etc. were recorded.

Results: Out of 114 patients, males were 64 and females were 50. Type of trauma was blunt in 35 and penetrating in 79. Location was right in 60 and left side in 54 cases and associated injuries were present in 67 and absent in 47 cases. The difference was significant ($P < 0.05$). Intrathoracic pathology after trauma was pneumothorax in 28, hemothorax in 30, hemo- pneumothorax in 20, pulmonary contusion in 12, pneumomediastinum in 15 and pericardial tamponade in 9 cases.

Conclusion: Thoracic injuries are common nowadays. Type of trauma was blunt and penetrating. Location was right in maximum cases.

Keywords: Thoracic injuries, hemothorax, pulmonary contusion

Introduction

Chest trauma is a common cause of morbidity and mortality, especially in the young patients. Thoracic injuries are the third injuries in trauma patients, after to injuries to head and extremities [1]. Thoracic trauma has an overall mortality rate of 15-25%, which is the highest with cardiac or tracheobronchial-esophageal injuries patients. Really the presence of thoracic injuries in the setting of polytrauma can significantly increase the mortality rate [2]. Injuries such as lung contusion, flail chest, pneumothorax and hemothorax can complicate globally a case management. Thoracic trauma is a significant cause of mortality. Many patients with these injuries die after reaching the hospital. However, many of these deaths could be prevented with prompt diagnosis and treatment. Less than 10% of blunt chest injuries and only 15 to 30% of penetrating chest injuries require operative intervention [3].

Thoracic trauma is divided into two parts as blunt trauma (traffic accidents, falls from height, pounding) and penetrating injuries (stab wounds, gunshot wounds). In patients with thoracic trauma, penetrating injuries occur less frequently than blunt trauma. In addition, the mortality rate is less for penetrating wounds [4]. However, the mortality rate varies according to the mechanisms of trauma and developing organ damage after trauma. The mortality rate for stab wounds is 14-20%. However, this rate is 1-8% after the gunshot. The mortality rate is the highest in patients with cardiac injury. Mortality rate is around 25-28% in the case of diaphragmatic, lung, and vascular injury after trauma [5]. The present study assessed thoracic injuries.

Materials and Methods

The present study was conducted among 114 cases of thoracic trauma of both genders. All patients were informed regarding the study and their consent was obtained.

Data such as name, age, gender etc. was recorded. Injury type, trauma etiology, clinical features, associated injuries, diagnostic procedures, traumatic bone fractures such as rib, clavicle, sternum, and scapula fractures and intrathoracic pathologies, surgical procedures, complications, length of stay in intensive care unit and duration of hospitalization were recorded. Results thus Obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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Results

Table 1: Distribution of patients

Total-114		
Gender	Males	Females
Number	64	50

Table I shows that out of 114 patients, males were 64 and females were 50.

Table 2: Assessment of parameters

Parameters	Number	P value
Type of trauma		
Blunt	35	0.021
Penetrating	79	
Location		
Right	60	0.15
Left	54	
Associated injuries		
Present	67	0.05
Absent	47	

Table 2 shows that type of trauma was blunt in 35 and penetrating in 79. Location was right in 60 and left side in 54 cases and associated injuries were present in 67 and absent in 47 cases. The difference was significant ($P < 0.05$).

Table 3: Intrathoracic pathology after trauma

Pathology	Number	P value
Pneumothorax	28	0.14
Hemothorax	30	
Hemo- Pneumothorax	20	
Pulmonary contusion	12	
Pneumomediastinum	15	
Pericardial tamponade	9	

Table 3, Fig1 shows that intrathoracic pathology after trauma was pneumothorax in 28, hemothorax in 30, hemo-pneumothorax in 20, pulmonary contusion in 12, pneumomediastinum in 15 and pericardial tamponade in 9 cases. The difference was significant ($P < 0.05$).

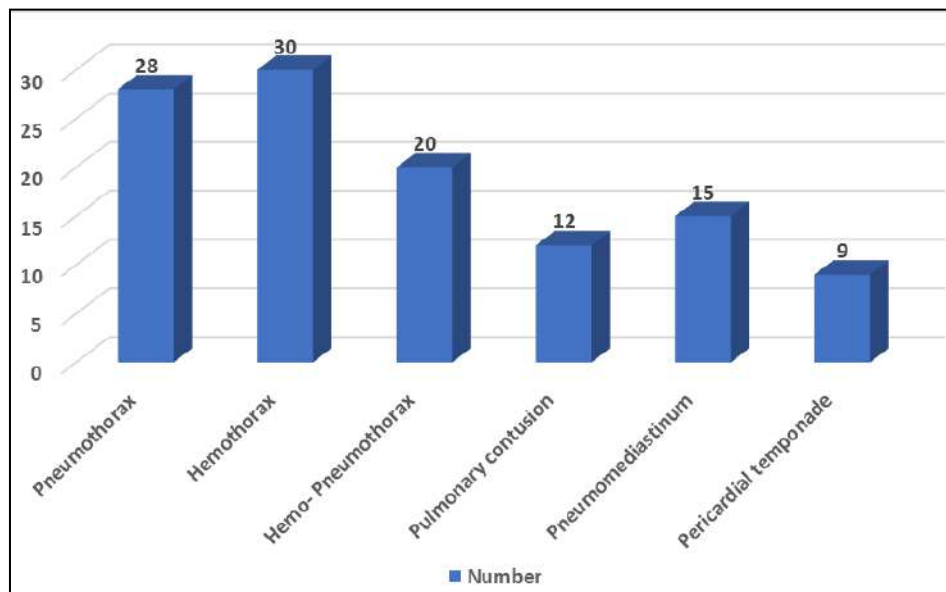


Fig 1: Intrathoracic pathology after trauma

Discussion

Chest trauma is an important public health problem accounting for a substantial proportion of all trauma admissions and deaths. It directly accounts for 20-25% of deaths due to trauma.⁶ Physical examination is adequate for the diagnosis of rib fractures in almost all conscious patients and useful in the diagnosis of other conditions like hemopneumothorax, pneumothorax, tension pneumothorax, surgical emphysema, flail chest, cardiac tamponade etc. Symptoms developing after thoracic trauma depend on the respiratory and hemodynamic changes due to trauma. The most common pathology is hypoxia.⁷ Hypoxia develops owing to reasons such as bleeding, collapse or compression of lungs, respiratory or cardiac failure, pulmonary contusion, intrathoracic pressure changes, and mediastinal flutter. Therefore, the first response must be to ensure tissue oxygenation. The airway must be kept open, the underlying causes must be removed, and oxygen need must be met⁸. The first and most valuable diagnostic tool in establishing the pathologies developing after thorax trauma is chest radiograph. By means of chest radiograph, subcutaneous emphysema, rib fractures, mediastinal shift, mediastinal

widening, pneumomediastinum, pneumothorax, hemothorax, hemopneumothorax, changes in the lung parenchyma, and diaphragmatic pathologies can be detected. Computerized tomography is also helpful for revealing the pathology undetectable by chest X-ray⁹. The present study assessed thoracic injuries.

In present study, out of 114 patients, males were 64 and females were 50. Cakmak *et al.*¹⁰ found that penetrating injuries were found in 258 (59%) of the patients, and blunt trauma was identified in 175 (41%). Depending on the trauma, pneumothorax was discovered in 130 patients (30.02%), hemothorax in 117 (27.02%), hemopneumothorax in 61 (14.08%), pulmonary contusion in 110 (45%), pneumomediastinum in 14 (3.23%), and pericardial tamponade in 1 patient (0.23%). It was demonstrated that 385 of 433 patients examined in the study underwent tube thoracostomy, 41 were treated with thoracotomy, while 6 of them underwent video-assisted thoracoscopic surgery (VATS), and 1 underwent sternotomy. No correlation was observed between mortality, morbidity, and gender and type of trauma and location of trauma ($p > 0.05$). However, statistically significant correlation was

found between mortality, morbidity, and the presence of concomitant injuries, the duration between injury and admission being more than 1 hour.

We found that intrathoracic pathology after trauma was pneumothorax in 28, hemothorax in 30, hemo- pneumothorax in 20, pulmonary contusion in 12, pneumomediastinum in 15 and pericardial tamponade in 9 cases. Gupta *et al.* ^[11] found that there were 146 cases. The type of trauma, mode of trauma and physical signs and symptoms were recorded. Out of 146 patients, males were 72 and females were 74. 102 cases were of blunt trauma and 44 were of penetrating. The difference was significant ($P < 0.05$). The mode of trauma was road side accident in 124, fall in 15, gun shot in 2 and physical violence in 5. Emphysema was seen in 45, clicks in 50 and crepitation in 34. Authors found that maximum cases were of blunt trauma as compared to penetrating trauma. Mode of trauma was road side accident, fall, gun shot and physical violence.

Wilson *et al.* ^[12] stated that the need for intubation in patients with chest trauma was 11%, and the mortality rate for these patients was 58%. The indications for intubation include pathologies such as large parenchymal injury, acute respiratory distress syndrome, flail chest, and multiple injuries. Supporting mechanical ventilation contributes to the stabilization of the chest wall and the normalization of the damage in parenchyma.

Conclusion

Authors found that thoracic injuries are common nowadays. Type of trauma was blunt and penetrating. Location was right in maximum cases.

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