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Research Article

**MANAGEMENT OF CHEST TRAUMA IN GENERAL  
SURGICAL DEPARTMENT OF SERVICES HOSPITAL  
LAHORE AND ITS OUTCOME**

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**Abstract:**

**Objective:** To determine the dominant pattern of lesions after thoracic trauma and evaluate the appropriateness of treatment strategies used in the general surgery unit of a trauma care hospital.

**Study Design:** In the Surgery Department of Services Hospital, Lahore for one year duration from March 2016 to March 2017.

**Place and Duration:** A Case Series with prospective data collection study.

**Methodology:** A total of 100 consecutive patients with thoracic trauma who were referred to emergency services were evaluated. Patients older than 12 years were included, either alone or with multiple traumas with chest trauma.

**Findings:** 103 total patients were studied over a period of 18 months in different chest injuries. In general, blunt thoracic lesions occur in 58% of patients with penetrating injuries comparison occurs in 42%. 30 patients (29%) were treated conservatively for lesions on the chest wall (mild pulmonary contusion, rib fracture) without pneumothorax or hemothorax. In 64 patients (62%) thorax intubation was necessary with pneumothorax/ hemothorax. 9 patients (8.8%) required thoracotomy and emergency thoracotomy was done in 2 patients and seven were elective. 8% was the total mortality rate.

**Conclusion:** Penetrating chest injury increases because of gunshot wounds with the passage of time, but most common is blunt trauma. Most patients with chest injury can be treated satisfactorily in the general surgery unit and fewer patients require vast surgical treatment.

**Key words:** Penetrating trauma, thoracic trauma, pneumothorax, tube thoracostomy, closed traumatism, hemothorax.

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**INTRODUCTION:**

Trauma is the main conviction of mortality and morbidity, mainly in the first forty years of life. There is no research database published on national trauma. Armed violence and Accidents are the cause of increased penetration chest injuries. Depending on the U.S National Trauma Data Bank, in the last decade, the number of applicants has steadily increased due to the trauma of 12 per cent to 12 per cent annually and 20 per cent to 25 per cent of deaths occurs because of trauma in the U.S.A They depend on chest injuries. Many patients with traumatic brain injury die after they arrive at the hospital. Large number of mortalities can be halt by proper management and rapid diagnosis. In this anatomic region, the knowledge and the operative skills of the general surgeon can not be competed with those of cardiothoracic Surgeons. Despite high death ratio, approximately 81-91% of patients with chest injuries in life threatening condition can be organize with a simple intervention, such as tube thoracostomy and pleural space drainage. These patients critical condition may force surgical treatment for the general surgeon. Among traffic accidents causes in chest trauma, weapon injuries and knife injuries take the share of the lion. Pre-hospital deaths due to thoracic injuries are due to rupture and extirpation of large vessels, cardiac tamponade, tension pneumothorax and deep refractory hypoxia of the bilateral thorax. All surviving patients in the hospital should survive with adequate treatment. The aim of this study was to determine the predominant injury pattern after penetrating and closed thoracic injury and evaluate the treatment adequacy plan based on trauma primary care guidelines used for chest trauma in a general surgery unit of a hospital.

**MATERIALS AND METHODS**

This Case Series with prospective data collection study was conducted in the Surgery Department, Services Hospital Lahore for one year duration from March 2016 to March 2017. A total of 100 consecutive patients with thoracic trauma who were referred to emergency services were evaluated. Patients older than 12 years were included, either alone or with multiple traumas with chest trauma. According to the guidelines of PTC all patients were treated. Life-threatening traumas were handled as evidence of treatment evaluation of emergency care; for example, an emergency thoracostomy with a tension pneumothorax was performed in a patient. A secondary questionnaire was made after stabilizing the patient. A complete imaging of blood, abdominal x-ray and chest x-ray, blood grouping and ultrasonography was performed in the cases studied.

The treatment varied from thoracostomy to thoracotomy and ventilator support. Minor lesions of the rib fractures, chest wall without pneumothorax/heme and patients with mild pulmonary blunt trauma were managed with just conservative management. The patient with pleural air and blood was managed with chest intubation. The first line treatment of life-threatening chest traumas was performed according to the injury nature and trauma type.

**RESULTS:**

103 of total patients were selected over a period of 18 months in different chest injuries. The patient's age range was from 13 to 71 years and 36 years was the average age. 95 of the selectees were male and females were only 8. The manner of injury is indicated in Table-I.

**Table-I: Mode of injury of chest trauma**

<i>Blunt trauma</i> (n=60)		<i>Penetrating trauma</i> (n=43)	
Road side accident	40	Stab	05
Assault	12	Gun shot	38
Fall from height	05		
Animal related	03		
<b>trauma</b>			

In general, blunt thoracic lesions seen in 58% of patients compared to penetrating injuries in 42%. 30 patients (28.97%) underwent conservative treatment of the chest wall (mild pulmonary contusion, rib fracture) without pneumothorax or hemothorax. thoracic tube penetrating injuries 34 patients and closed chest (Table II), trauma 30 patients 64 patients (62%) hemothorax / pneumothorax were required.

**Table-II: Treatment required for patients suffering from chest trauma (n=103)**

<i>Treatment modality</i>	<i>n</i>	<i>%</i>
No operative intervention	30	29
Tube thoracostomy	64	62
Thoracotomy	09	09

Nine patients required thoracotomy and emergency thoracotomy was done in 2 patients only and elective thoracotomy in seven patients. All thoracotomies were performed with penetrating injuries. The first hemorrhagic bleeding was found in the internal mammary artery, indicating that 1500 mL of intubation was performed with chest urgent thoracotomy. Elective thoracotomy is performed by five thoracic surgery departments referred to after

bronchopulmonary fistula, chest tube in two patients, emergency chest trauma in patients with emphysema developing as a complication (Table III decortication required).

Table-III: Indications of Thoracotomy (n=09)

Mode of Surgery	Indications	n	%
Emergency	Hemothorax	02	22
Elective	Bronchopleural fistula	05	78
	Empyema	02	

Twelve patients had a large number of lesions related to the abdomen, head and neck, thorax with dual body systems in the flank and eight. Diaphragm rupture occurs in Five patients repaired during laparotomy. Patients with neurosurgical problems referred to the neurosurgery room. but in general surgery their follow up was done. Two patients performed well with chest intubation, pain control and oxygen, respiratory support was needed in one patient. 15 patients after postoperative chest intubation develop complications, pneumonia in 8 patients, empyema occurs in two patients and wound site infection in 5 patients. Acute respiratory distress syndrome (ARDS) developed in four patients in multiple trauma and septicemia developed in four patients. Respiratory tract infection occurs in 11 patients during conservative management and 3 of them had pulmonary contusion. In general, 8% was the mortality rate, five were multiple traumas, one was ventilator support thorax and two were neurosurgical trauma.

### DISCUSSION:

Most general surgeons feel empowered to participate in multisystem injury patients treated and suffered from trauma due to surgery. However, there is less confidence in the treatment of retroperitoneal, chest cardiac and vascular lesions in the organization. Better Care for a Severe Injury Report The general surgeon has shown that serious trauma is vital to getting a study done in the UK. Most experienced surgeons are trained in the techniques necessary to perform emergency surgery to save lives. Maintain the ability to cope with general trauma. We believe that these are the best way for severely injured patients, or through the direct derivation of acute intakes from the transfer of a patient after resuscitation and initial stabilization, either by a specialist trauma or by a hospital. In the Civil Hospital, where there is no experience in thoracic surgery, this chest trauma is responsible for emergency surgical treatment of the patient with the

general surgical team. In spite of high mortality rates, injury cardiothoracic surgery chest lesions require less than 10% contusion and 15-30% penetrator. Many Western studies also show that a chest tube is the only treatment that requires 80-85% of patients instead of adequate volume, respiratory support and occasional serial chest X-rays. In this study, the same simple principle of managing chest trauma to PTC rules resulted in successful management in 85% of cases. By adding fan support, this success rate is no different than the speed that Farooq1 showed in his work on management, and Hanif 85 rose to 92% without a major thoracic surgical procedure, such as thoracotomy, showing this rate. The age of patients in this study is 36 years with a range of 12-70 years, while Farooq studies show Hanif9 at 37 years and 30 years. Percent ninety percent of the patients showed chest trauma is common between the second and fifth decades of age and in males. In Hanif9 65, these figures show that Farooq1 is penetrated by blunt trauma (42%), penetrating damage (42%), penetration damage is 44% and 56%, while work shows less frequent penetration (58%) and 35% respectively. It is consistent with the observation that penetration trauma incidence increases over time, depending on the trauma injuries. Thirty (29%) patients had hemo / pneumothorax and were conservatively treated without adequate analgesia, elimination of antibiotics and adequate analgesia to prevent chest physiotherapy and respiratory tract infection. Two patients (2%) developed postoperative chest intubation complications and necessary decortication as emphysema. This is compared to 3% of Helling and Associates. In 44% of Farooq et al., Rib fractures and 76% of them were Hanif et al. In our study, rib fracture frequency was 85%, while 76% of other local authors were reported. El Cofre Flail with 3% and Farooq and Hanif with 6.6%. Ventilatory support was required in 9% of patients who had an unstable thorax or multiple trauma. Western studies show high morbidity due to ventilatory support in situations such as ARDS and barotrauma and volume trauma. ARDS is a significant contributor to a mortality rate of 30% to 60% in ventilated patients. The overall mortality rate was 8%, five in more than one trauma, 2 in neurosurgical trauma and one in thorax. Each one received respiratory assistance. Three had lung contusion, ARDS, four septicemias, and one had multiple organ failure due to SIRS. Our mortality rate, Farooq et al and Hanif and his colleagues reported a mortality rate of 7%.

### CONCLUSION:

Although blunt trauma is larger, penetrating injury into the thorax increases with time due to firearm injuries. We believe that the majority of patients with thoracic trauma can be treated successfully in the general surgery unit and that only a few patients require large surgical treatments such as thoracotomy.

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