

CLINICAL PRESENTATION AND RADIOLOGICAL FINDINGS OF PENETRATING CHEST TRAUMA; A CROSS SECTIONAL OBSERVATIONAL STUDYMohd Altaf Wani¹, Showkat Hussain Tali^{2*}, Mohd Ashraf Bhat², Ashiq Hussain Naqshbandi³¹Senior Consultant District Hospital Anantnag.²Consultant MCCH Anantnag.³Professor Surgery GMC Srinagar.***Corresponding Author: Dr. Showkat Hussain Tali**

Consultant MCCH Anantnag.

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ABSTRACT

Introduction: Thoracic injuries account for almost one quarter of deaths due to trauma and contribute to one quarter to one half of the remaining deaths. Timely recognition of serious injuries is expected to make a huge difference in caring of such patients. **Material and Methods:** Patients of all ages with penetrating chest trauma were enrolled in the study. Clinical features at the time of admission and radiological findings (when investigations performed as needed) were recorded on a predesigned proforma. **Observations and Results:** Most common clinical features and clinic-radiological findings were dyspnea with chest pain (41.6%), shock with dyspnea (28%), haemopneumothorax (40.8%) and shock with haemopneumothorax (28.8%). Abnormal radiological findings were predominantly on left side of the chest. **Conclusion:** Most common clinical feature in the penetrating chest trauma is dyspnea with chest pain and the most common clinic-radiological finding is haemo-pneumothorax.

KEYWORDS: Penetrating injury, chest trauma, clinical features, radiological findings.**INTRODUCTION**

Hippocrates statement in 400 B. C. that war is the proper School for surgeons, has stood the test of time for over 2000 years. Trauma presents surgeon with an endless variety of injuries and problems that demand rapid evaluation and decision making and surgical intervention to save life and prevent permanent disability. The responsibilities of the trauma surgeon are not limited to mechanical repair of various injuries but include physiological support of the Patient and rehabilitation of those disabled. Physiological effects of penetrating wounds of chest are impairment of ventilation and reduction of cardiac out-put. Ventilation may be effected by pneumothorax, haemothorax, injury to pulmonary parenchyma, diaphragm, chest wall or phrenic nerves and retention of trachea-bronchial secretions. Cardiac out-put is affected by a reduction in circulating blood volume secondary to hemorrhage and by cardiac temponade.

The increased prevalence of penetrating chest injury and improved prehospital and perioperative care have resulted in an increasing number of critically injured but potentially salvageable patients presenting to trauma centers.^[1] Chest injuries account for 25% of all deaths from traumatic injury.^[2] Early diagnosis is essential if treatment is to be instituted promptly. This study was undertaken to know the clinical features and

clinicoradiological findings of penetrating chest trauma at the time of hospital admission.

MATERIAL AND METHODS

This cross sectional observational study was conducted at the post graduate department of surgery, GMC Srinagar, which is a tertiary care centre for surgical patients in the state of Jammu and Kashmir, India. Study was commenced after taking written informed consent from subjects or their parents/ guardians in cases where the patient was a minor or unable to give consent. Patients of all ages with penetrating chest trauma were enrolled in the study at the time of admission. Clinical features and radiological findings, if any, were noted and recorded on a predesigned proforma.

OBSERVATIONS AND RESULTS**Table 1: Signs and symptoms at the time of admission.**

Presentation	No. (%age)
Dyspnoea & chest pain	52(41.6)
Dyspnoea only	5 (4)
chest pain only	7 (5.6)
Shock with dyspnea	35 (28)
Shock with Haemoptysis	7 (5.6)
Haemoptysis only	2 (1.6)
Haemoptysis with dyspnoea	4 (3.2)
Shock only	13 (10.4)
Shock &Haemothorax	20 (16)
Shock &Haemopneumothorax	36 (28.8)
Haemopneumothorax	51 (40.8)
Haemothorax	7 (5.6)
Sucking open wounds	5 (4)

Table 2: Radiological investigations performed.

Technique	No. (%age)
Chest X Ray (PA/ lateral)	119 (95.2)
Chest X Ray and fluoroscopy	2 (1.6)
Chest X Ray and Gastrograffin Swallow	4 (3.2)

Table 3: Laterality of radiological findings.

Finding	Laterality	No. (%age)
Haemopneumothorax	Right-side	31 (24.8)
	Left-side	47 (37.6)
	Bilateral	7 (5.6)
Haemothorax	Right-side	12 (9.6)
	Left-side	10 (8)
	Bilateral	3 (2.4)
Haemopneumothorax with rib fractures &subcut-aneous emphysema	Right-side	2 (1.6)
	Left-side	1(0.8)
	Bilateral	0 (0)
Lung-contusions	Right-side	3 (2.4)
	Left-side	1 (0.8)
	Bi Lateral	0 (0)

DISCUSSION

In our study the commonest clinic feature was dyspnea with chest pain (41.8%) followed by shock with dyspnea (28%). Haemoptysis with dyspnea (4%) and haemoptysis (2%) were the least common. Of the clinico-radiological features haemopneumothorax was the commonest finding (40.8%) followed by shock and haemopneumothorax (28.8%). Shock with haemothorax was found in as many as 16% of cases. Isolated haemothorax (5.6%) and sucking open wounds (4%) were least common (table 1). Haemopneumothorax was on left side in majority of the cases (37.6%) while as haemothorax (9.6%), haemopneumothorax with rib fracture and subcutaneous emphysema (1.6%) and lung contusion (2.4%) were predominantly on right side (table 3).

In thorax cavity vital structures for breathing and circulation are located, so it is not surprising that the clinical features and clinic-radiological findings are closely linked to these two systems. Dyspnea results from direct trauma to lung parenchyma or indirectly by external compression to lungs by blood or free air that accumulates inside the plural cavity. Blood loss into the body cavities or external haemorrhage may result in shock. Cardiac tamponade is another reason. Inci et al in

a 1998 study of 755 patients with thoracic injuries, penetrating chest trauma (PCT) comprises a broad spectrum of injuries and severity.^[7] The spectrum of the injuries was more or less the same as of ours. Other researchers have reported similar findings.^[4, 5, 6]

Most of the haemopneumothorax lesions were on the left side of the chest (37.6) but a significant proportion was on the right side as well (24.8%). This may be because of the fact that our study was carried in a population that lives in war zone and where chest is often hit by the perpetrator with an intention to kill. And there is natural tendency to hit the left side of the chest. Lung contusions were more common on the right side possibly for the large volume of the lung on that side.

CONCLUSION

Most common clinical feature in the penetrating chest trauma was dyspnea with chest pain and the most common clinic-radiological finding was haemopneumothorax. Haemopneumothorax predominantly occurred on left side where as lung contusions most often were right sided.

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