

Management of Chest Trauma in Allama Iqbal Memorial Teaching Hospital, Sialkot

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ABSTRACT

Aim: To determine the nature and progress of the patients with chest trauma presenting to general surgeon in emergency setting at Allama Iqbal Memorial Teaching hospital, Sialkot.

Study Design: Prospective study.

Place & duration of study: Department of General Surgery, Khawaja Muhammad Safdar Medical College, Sialkot from January 2015 to January 2018.

Methods: All patients serially presented in the surgery Department of Allama Iqbal Memorial hospital fulfilling the inclusion criteria are registered. The patients are divided in two groups: Group I (CT- P, chest trauma penetrating) patients having penetrating injuries to chest Group II (CT- B) Blunt Trauma to chest. Minimum of three months of follow up is must for inclusion in the study. Injury to head and neck, chest and limbs are excluded as these are managed by the respective departments. Females having history of gestational amenorrhea are not included.

Results: Total number of people in our study are 204 with mean age ranging from 4 -72 years having male to female ratio 3.25:1 in which % of injuries cause by firearm is 15.6%,by RTA's is 48.5%,violence with sharp weapons is 13.2% firearm injuries is 22.5% from penetrating trauma is 28.9% and from blunt trauma is 71.07%. So we made diagnosis that 86.4% people develop pneumothorax, 20.3% hemothorax, 33,8% hemopnumothorax, 72.8% develop multiple rib fracture, 7.3% lung contusion, 3.3% major vascular injury,18.6% subcutaneous emphysema caused by penetrating trauma to chest. Blunt trauma result in100% pneumothorax, 6.2% hemothorax,2% hemopnumothorax ,96.5% multiple rib fracture, 0.6% lung contusion major vascular injury 18.6%subcutaneous emphysema.

Conclusion: Majority of patients with trauma are managed successfully by chest intubation or thoracotomy alone. Thoracotomy for trauma in emergency is rarely performed and has excellent prognosis. There is very less mortality while the incidence of complications in patients with blunt trauma to chest is encountered more than in cases of penetrating trauma chest.

Key words: Penetrating trauma , Thoracotomy, Chest intubation, Rib resection

INTRODUCTION

Trauma is major public health problem round the globe as it is associated with high complications and death toll in developed and developing countries. It is reported to be the leading cause of death, hospital admission, and life-long disabilities till the age of forty^{1,2}.

Chest trauma comprises 10-15% of all traumas. Thoracic trauma directly accounts for approximately 25% of trauma related mortality and is a contributing factor in another 25%. Fortunately over 80% of injuries can be managed non-operatively utilizing chest tube placement, appropriate analgesia and physical therapy^{3,4,5}.

Rising incidence of road traffic accidents has led to blunt chest injuries. In most cases chest wall and soft tissues get affected. Trauma to thoracic cage may cause profound pathophysiological issue if not identified and managed promptly. However fracture to bony framework of thorax are often benign in nature and managed by chest intubation. However in this article trauma caused by both penetrating and blunt injuries included^{9,10}.

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PATIENTS AND METHODS

All patients serially presented in the surgery Department of Allama Iqbal Memorial hospital fulfilling the inclusion criteria are registered. The patients are divided in three groups: Group I (CT- P, chest trauma penetrating) patients having penetrating injuries to chest Group II (CT- B) Blunt Trauma to chest. Minimum of three months of follow up is must for inclusion in the study. Injury to head and neck, chest and limbs are excluded as these are managed by the respective departments. Females having history of gestational amenorrhea are not included. Data was entered and analysis done by SPSS v 22.

RESULTS

The basic demographic data of our patients is shown in Table I

Table I: Demographic details

| | | |
|-----------------------------------|--------------|---------------------|
| Total no of patients in Study | 204 | 100% |
| Age | 4 - 74 years | Mean age 42±8 years |
| Male: female | 156: 48 | 3.25: 1 |
| Injuries caused by Firearm | 32 | 15.6% |
| Road traffic accidents | 99 | 48.5% |
| Violence with sharp weapon /stabs | 27 | 13.2% |
| Falls | 46 | 22.5% |
| Group I- Penetrating Trauma | 59 | 28.9% |
| Group II- Blunt trauma | 145 | 71.07% |

Table II: Diagnosis

| | Group I | Group II |
|--------------------------------------|-----------|------------|
| Pneumothorax | 51(86.4%) | 145(100%) |
| Hemothorax | 12(20.3%) | 9(6.2%) |
| Hemopneumothorax | 20(33.8%) | 3(2%) |
| Multiple Rib fractures | 43(72.8%) | 140(96.5%) |
| Flail Chest | - | 4(2.7%) |
| Lung contusion | 4(7.5%) | 1(0.6%) |
| Major intra thoracic vascular injury | 2(3.3%) | 0 |
| Subcutaneous Emphysema | 11(18.6%) | 27(18.6%) |

Table III- Details of management

| | Group I | Group II |
|------------------------------------|------------|-------------|
| Chest intubation only | 56(94.91%) | 138(95.17%) |
| Thoracotomy | 2(3.3%) | 2(1.37%) |
| Rib resection | - | 3(2%) |
| Decortications for chronic empyema | 1(1.69%) | 2(1.37%) |

Table IV shows complications encountered

| | Group I | Group II |
|------------------------|-----------|-----------|
| Persistent air leak | 6(10.1%) | 2(1.37%) |
| Chronic Empyema | 0 | 3(26.8%) |
| Subcutaneous emphysema | 20(33.8%) | 39(26.8%) |
| Respiratory failure | 0 | 2(1.37%) |
| Mortality | 2(3.3%) | 3(2%) |

DISCUSSION

In our research mortality rate is 3.3% in patient with blunt chest trauma as compared to 1% in study done by Serfie Tuba et-al¹¹. Our patients with multiple rib fracture are 43 cause by penetrating chest injuries as compared to 54 in other study done by Eva cornia et-al¹². The mechanism of injury cause by RTA is 48% and by fall is 22% as compared to 54% caused by RTA and falls 33% done by Eva cornia et-al¹². Our 100% patients develop pneumothorax as compared to 24.9% in study done by Serfie Tuba Liman et-al¹¹.

In our study complications that are develop are persistent air leak, chronic empyema, subcutaneous emphysema ,respiratory failure while in other study complications develop are pulmonary contusion, flial chest, pnumothorax by Sirmil M et-al¹⁴.

Total number of patients in our study is 204 as compared to 1735 patients in study done by Neil Smith et-al¹⁵. Mean age taken in our research is 42 yrs as compared to greater than sixty years in other study done by Elmistekawy et-al¹⁶.

CONCLUSION

Majority of patients with trauma are managed successfully by chest intubation or thoracostomy alone. Thoracotomy for trauma in emergency is rarely performed and has excellent prognosis. There is very less mortality while the incidence of complications in patients with blunt trauma to chest is encountered more than in cases of penetrating trauma chest.

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