

## Original ARTICLE

### COMPARATIVE ASSESSMENT OF CONSERVATIVE VS INTERCOASTAL DRAINAGE IN BLUNT TRAUMA CHEST

AseemTrikha

Consultant, Department of Surgery, Sanjeev Bansal Cygnus Hospital, Karnal, Haryana, INDIA

#### ABSTRACT

**Background:** Injuries to chest secondary to trauma are on increase due to amplified incidence of road traffic accidents and increase in violence. The present study was conducted with the aim to compare conservative vs intercoastal drainage in blunt trauma chest. **Materials and methods:** The study enrolled subjects managed at the Department of General Surgery at our hospital with the diagnosis of chest injury. The records relating to the clinical evaluation of the patient, management, and the outcome were investigated. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. **Results:** The mean age of the subjects were 37.62±/2.43 years. There were 60 males and 40 females in the study. There were 70 subjects of pneumothorax, 15 had hemothorax, 10 had hemo/pneumothorax and 5 had tension pneumothorax. There were 60 subjects managed by conservative manner and 40 patients underwent chest tube insertion. **Conclusion:** Mild to moderate type of chest injuries due to trauma can be managed conservatively without the need for surgical intervention.

Keywords: chest, trauma, drainage, conservative

**Corresponding author:** Dr AseemTrikha, Consultant, Department of Surgery, Sanjeev Bansal Cygnus Hospital, Karnal, Haryana, INDIA.

**This article may be cited as:** Tarikha A. Comparative Assessment Of Conservative Vs Intercoastal Drainage In Blunt Trauma Chest HECS Int J Comm Health Med Res 2019; 5(4):16-18.

#### INTRODUCTION

Injuries to chest secondary to trauma are on increase due to amplified incidence of road traffic accidents and increase in violence. RTAs rank the first amongst all injuries and are in the growing trend in India suburbs.<sup>1</sup> The frequency of accidental deaths in India are on higher side when compared to the Western populace.<sup>1</sup> Thoracic trauma is one such outcome of these accidents along with head injury, orthopedic damages, and abdominal injury. Roughly, one-fourth of civilian deaths due to trauma are due to thoracic trauma, and majority of these deaths are preventable by accurate diagnosis and appropriate management.<sup>2</sup> Managing a critically injured subject represents a clinical challenge. The mixture of clinical knowledge, tendency to spot altered clinical signs, and even surgical courage to accomplish simple but lifesaving trials can bring a great difference in results for chest injured subject in resource-limited settings.<sup>3</sup> Insertion of chest tube for traumatic chest injuries can bring about significant morbidity and complications. Chest tubes are a reason of intrathoracic infections like empyema and

pneumonia. However, the efficacy of antibiotics prophylaxis during these complications has not been validated.<sup>4,5</sup> Yet, some more serious misplacements have been seen, for example, perforation of left atrium<sup>6</sup> and injury to liver injury with a large bore tube<sup>7</sup> and vascular damages, esophageal grievances, cardiac dysrhythmias and chylothorax.<sup>8</sup> The present study was conducted with the aim to compare conservative vs intercoastal drainage in blunt trauma chest.

#### MATERIALS AND METHODS

The study enrolled subject managed at the Department of General Surgery at our hospital with the diagnosis of chest injury. The study enrolled subjects managed for a period of 6 months. The hospital records were retrieved and the subjects with complete information were enrolled into the study. Ethical committee clearance was obtained from the institutional ethical board. The information relating to the etiology, nature, and mechanism of injury, the presence of other related injuries, and the treatment strategy opted for traumatic chest injury was

obtained. Related damages which required some surgical intervention for the subject were classified as significant. Since the radiographic visualization was variable, therefore the effort to quantify the size of pneumo/hemothorax was restricted. The records relating to the clinical evaluation of the patient, management, and the outcome were investigated. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software.

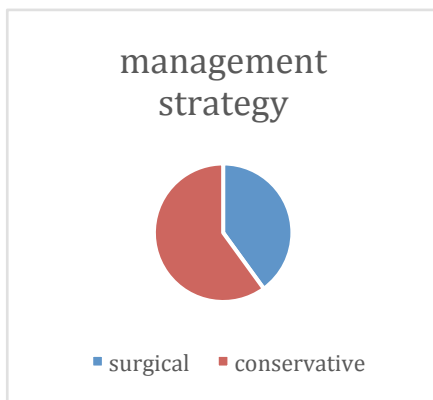
**RESULTS**

The present study enrolled 100 subjects with trauma to chest. The mean age of the subjects were 37.62+/-2.43 years. There were 60 males and 40 females in the study. There were around 50 cases of road traffic accidents, approximately 15 cases of assault were observed in the study. There were 25 cases affected by fall. There were 5 cases each of fall of heavy object and other mixture of injuries. (table 1) Graph 1 illustrates the management strategies opted for patient’s treatment. There were 70 subjects of pneumothorax, 15 had hemothorax, 10 had hemo/pneumothorax and 5 had tension pneumothorax. There were 60 subjects managed by conservative manner and 40 patients underwent chest tube insertion.

**Table 1: Distribution of subjects according to gender and mode of injury**

Variable	Frequency
<b>Gender</b>	
Male	60
Female	40
<b>Etiology</b>	
RTA	50
Assault	15
Fall	25
Fall of heavy object	5
Other	5
<b>Total</b>	<b>100</b>

Graph 1: management strategy opted in the study



**DISCUSSION**

The current strategies for the management of thoracic trauma are solely based on a plan of selective conservatism that is primarily dependent on clinical evaluation.<sup>9,10,11</sup> Although a many of new modalities have arose, they have always complemented the philosophy but do not entirely replace it. In the year 1997, Collop et al. found 3% early complication rate like misplacement and a delayed complication rate of 8% like dislodgement, infection, and kinking.<sup>12</sup> Occult pneumothorax, by definition is described as the ones recognized by abdominal CT scans but not noticed on routine chest X-rays screenings, observed in 2-6% of subjects who undergo CT scanning for the presence of blunt abdominal trauma.<sup>13</sup> These subjects generally do not need any further evaluation like repeated chest X-rays. Conservative management is possible with them. There are some prospective researches that compare the conservative management with chest tube insertion method amongst patients with traumatic chest injuries. A randomized study illustrates that subjects can be managed conservatively in absence of the usage of intermittent positive pressure ventilation. However, subjects with an occult pneumothorax who additionally received IPPV had a high frequency of progression of size of their pneumothorax, with 3 amongst 21 developing tension pneumothorax.<sup>14</sup> This conservative management approach can be applied to subjects with milder or smaller injuries, subjects who have no other associated injuries, and patients who maintain vital signs and oxygenation. In the present study, The mean age of the subjects were 37.62+/-2.43 years. There were 60 males and 40 females in the study. There were around 50 cases of road traffic accidents, approximately 15 cases of assault were observed in the study. There were 25 cases affected by fall. There were 5 cases each of fall of heavy object and other mixture of injuries. There were 70 subjects of pneumothorax, 15 had hemothorax, 10 had hemo/pneumothorax and 5 had tension pneumothorax. There were 60 subjects managed by conservative manner and 40 patients underwent chest tube insertion. The chest tube insertion is therefore not always an essential portion of the management of all chest tube injuries.<sup>15</sup>

**CONCLUSION**

Mild to moderate type of chest injuries due to trauma can be managed conservatively without the need for surgical intervention. Surgical intervention is required in cases with severe respiratory distress or subjects with other related significant injuries.

**REFERENCES**

1. Girish P, Murthy P, Janhavi V. A clinico - the Epidemiological study of traumatic spine injuries in a rural tertiary care center in India: Our experience. *Int J Biomed Adv Res* 2013;04:08.
2. Dalal S, Nityasha VM, Vashisht M, Dahiya R. Prevalence of chest trauma at an apex institute of North India: A retrospective study. *Internet J Surg* 2008;18:1.
3. Ball DR, Dreyer JS. *Critical Care Handbook for Global Surgery*. 1st ed. Dumfries: Alba CCCD; 2012.

4. Nichols RL, Smith JW, Muzik AC, Love EJ, McSwain NE, Timberlake G, et al. Preventive antibiotic usage in traumatic thoracic injuries requiring closed tube thoracostomy. *Chest* 1994;106:1493-8.
5. Demetriades D, Breckon V, Breckon C, Kakoyiannis S, Psaras G, Lakhoo M, et al. Antibiotic prophylaxis in penetrating injuries of the chest. *Ann R Coll Surg Engl* 1991;73:348-51.
6. Kerger H, Blaettner T, Froehlich C, Ernst J, Frietsch T, Isselhorst C, et al. Perforation of the left atrium by a chest tube in a patient with cardiomegaly: Management of a rare, but life-threatening complication. *Resuscitation* 2007;74:178-82.
7. Tanaka S, Hirohashi K, Uenishi T, Suehiro S, Shibata T, Kubo S, et al. Surgical repair of a liver injury in a patient: Accompanied with tricuspid regurgitation. *Hepatogastroenterology* 2003;50:523-5.
8. Kesieme EB, Dongo A, Ezemba N, Irekpita E, Jebbin N, Kesieme C. Tube thoracostomy: Complications and its management. *Pulm Med* 2012;2012:256878.
9. Clarke DL, Thomson SR, Madiba TE, Muckart DJ. Selective conservatism in trauma management: a South African contribution. *World J Surg* 2005; 29: 962 – 965.
10. Clarke DL, Quazi MA, Reddy K, Thomson SR. Emergency operation for penetrating thoracic trauma in a metropolitan surgical service in South Africa. *J Thorac Cardiovasc Surg* 2011; 142: 563 – 568.
11. Clarke DL, Gall TM, Thomson SR. Double jeopardy revisited: clinical decision making in unstable patients with, thoraco-abdominal stab wounds and, potential injuries in multiple body cavities. *Injury* 2011; 42: 478 – 481.
12. Collop NA, Kim S, Sahn SA. Analysis of tube thoracostomy performed by pulmonologists at a teaching hospital. *Chest*. 1997;112:709-13.
13. Garramone RR Jr, Jacobs LM, Sahdev P. An objective method to measure and manage occult pneumothorax. *Surg Gynecol Obstet* 1991;173:257-61.
14. Anderson BL, Abdalla R, Frame SB, Casey MT, Gould H, Maull KI. Tube thoracostomy for occult pneumothorax: A prospective randomised study of its use. *J Trauma* 1993;35:726-30.
15. Johnson G. Traumatic pneumothorax: Is a chest drain always necessary? *Accid Emerg Med* 1996;13:173-4.