

## Blunt Trauma Injuries of Cervico-Thoraco-Abdominal Region among the Victim around Costal Area of Odisha

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### Abstract

**Objective:** The present study aims to highlight the distribution of cervico-thoraco-abdominal injuries sustained to the victims of blunt force trauma. **Material & Methods:** This is an autopsy-based observation of cervico-thoraco-abdominal injuries to victims during the period of May 2014 to May 2015 at central morgue SCB Medical College Cuttack. All the deaths from cervico-thoraco-abdominal injuries were included in the study. The autopsy case files and information furnished by the police in inquest were studied in detail. **Results:** Among the 246 cervico-thoraco-abdominal injury related deaths, the thoracic injury accounted for most. Male predominance was observed and the age group most vulnerable were 21 to 40 years. Lungs and Solid organs of the abdomen were most commonly involved organ in thoracic and abdominal region respectively. Many of the victims are hospitalized and treated. Accidental manner predominant, followed by rare homicidal cases. No cases of suicidal manner were reported. Many of such cases remain undiagnosed during hospital stay due to inadequate initial assessment and management. **Conclusion:** This study not only help in the pattern of injury sustained but also help in its prevention.

**Keywords:** Cervico-Thoraco-Abdominal Injuries; Blunt Force Trauma; Fatality.

### Introduction

In the field of forensic medicine several types of wounds are differentiated according to their origin like blunt force, sharp force, gunshot injury and injury due to cold, heat, etc. Furthermore, the wound morphology should be compared with the history to confirm the injury consistent with events.

The blunt force trauma, the term itself suggests physical damage due to mechanical force applied either by the object to the body or the movement of the body against a hard surface. Among all the injuries the human beings are invariably suffered by the most common form of blunt injuries in all spheres of life. Blunt trauma to the different region of the body, i.e. cervical area, chest and abdomen

end into a complex fatality by different manners irrespective of biomechanics of its production. The cervico-thoracic-abdominal region containing vital organs of the body is the major site of impact. The study deals with the pattern of cervico-thoracic-abdominal injuries sustained along with its application in the prevention of fatal outcomes[1, 6].

### Material and Methods

This study is an autopsy based observation of cervico-thoraco-abdominal injuries in victims during the period from May 2014 to May 2015. All the deaths from cervico-thoraco-abdominal injuries were included in the study. The autopsy case files and information furnished by the police in inquest were studied in detail. A detailed Victimologic profile was made. The data were compiled with a focus to analyzing injuries to the cervico-thoraco-abdominal region with special reference to the nature of the wounds and organs most commonly affected. The cases were analysed in accordance with parameters like age, sex, manner of production, duration of survival, associated injuries etc. Injuries to the head and extremities are excluded from the study.

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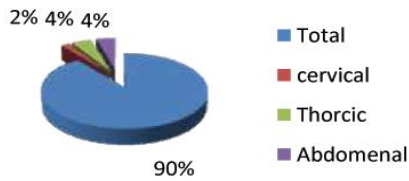
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**Observation**

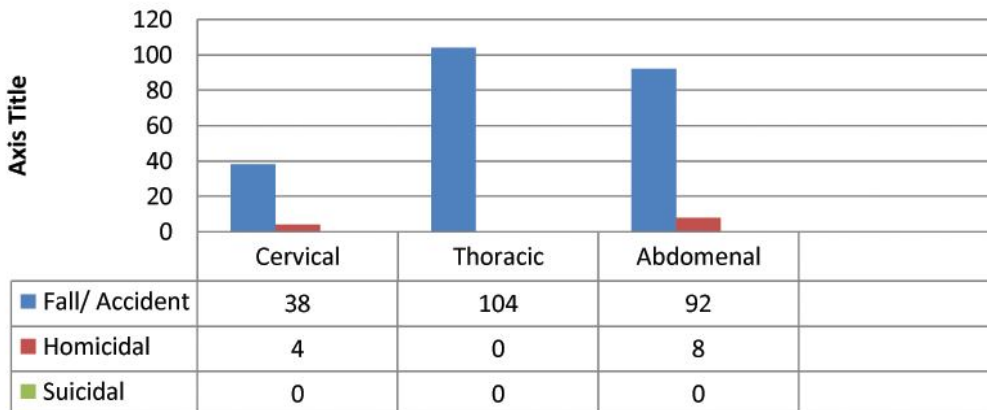
Out of 2107 autopsy cases during the study period, the blunt trauma to the cervical, thoracic and abdominal areas comprising of 246 cases (11.67%). Among which the cervical trauma were 42, thoracic region 104 and abdominal region consisting 100 cases (Fig-1). The incidence of upper cervical injury, i.e from C1 to C4 is less in comparison to the lower cervical injury 1:9.5. The male sex almost outnumbered the female sex and highest incidences were in the age group of 21 to 40 (Fig-2). Victims of blunt trauma cervical injury attended the medical treatment in a ratio of 2.5:1 (Fig-3), so also maximum number of deaths are delayed instead of early and immediate i.e 4:3:3.5 (Fig-4). The manner like fall and accident is greatly prevalent in contrast to suicidal and homicidal manner (Fig-5). The association of blunt trauma abdomen twice in comparison to the thorax.

The blunt trauma to the thorax comprising 104 autopsies revealed more frequent involvement of the lungs, followed by heart and great vessels. The males are dominating the females in a ratio of 16.3:1. The incidence is more in age group of 21 to 40 years. All the deaths are due to accidental in nature. The victims in the ratio of 1.4:1 were rendered medical treatment and the incidence victim of immediate death followed by early and late. The incidence of the blunt trauma abdomen is very frequent.

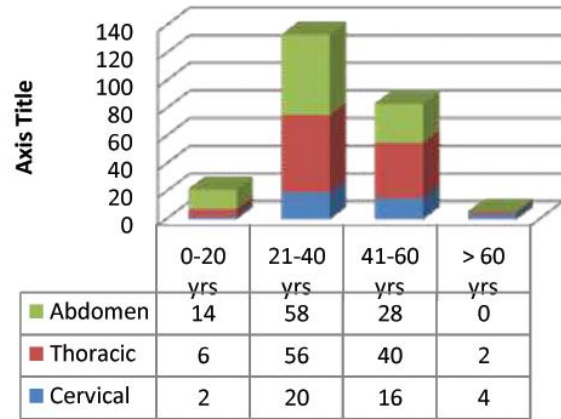
**Fig.1:** Total no. of autopsy in different injury cases



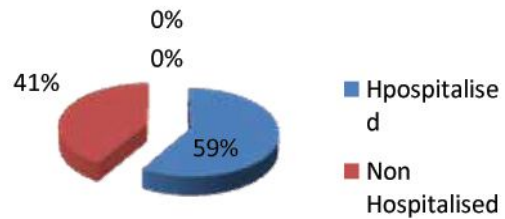
**Fig. 5:** Manner of injury in different parts



**Fig. 2:** Relationship between Age and Location



**Fig. 3:** Hospitalisation of injury cases



**Fig. 4:** Survival duration in different region

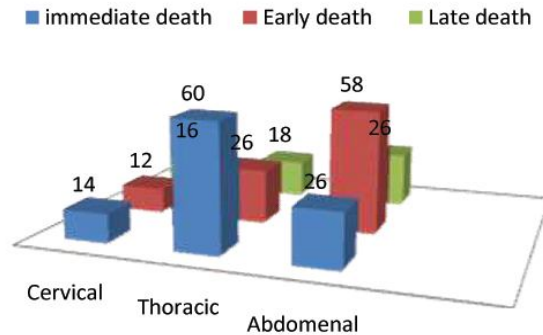
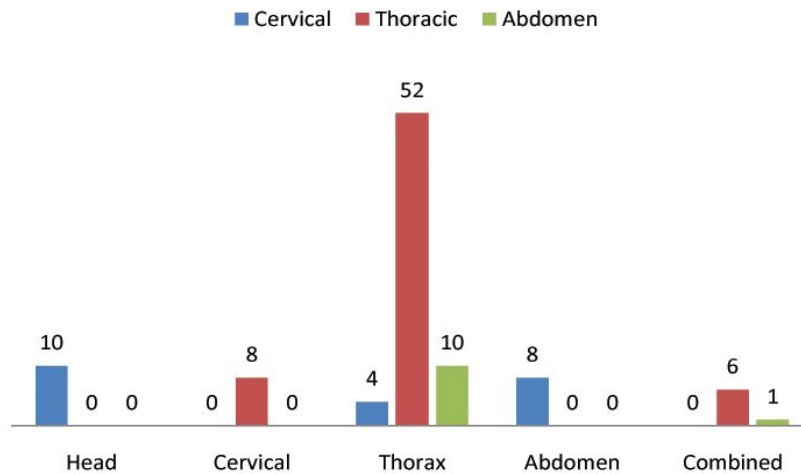


Fig. 6: Associated injury to different region



The 100 victims of blunt trauma abdomen revealed the involvement of mostly solid visceral injuries followed by hollow and vessels (2:1.1:0.9). The accidental manner of death in a higher frequency followed by homicidal. With a ratio of 2.5:1, the victims attended the medical treatment and most of them in the age group of 21 to 40 years having male sex dominance. Early death found to be in 52% of cases and next is late death followed by immediate. The blunt trauma abdomen has greater associated with thoracic trauma.

### Discussion

A total no. of 2107 autopsies were conducted during the study period of May 2014 to May 2015, of which 246 cases of cervico-thoracic-abdominal injury related death. Accident alone to the caused majority of injury related death followed by homicidal (29:1). Our findings coincide to the finding of Sharma B.R. et al (2004) , Husaini N et al (2009), Meera Th et al (2005) [2,5,7]. In the present study injury involve thoracic and abdominal region in majority of cases. This can be correlated with the cause as mostly in this study due to accident. This can also correlated with anatomical correlation with anatomical correlation of this region that can makes it easily susceptible to impact in any form [1] .

Males were more commonly involved in comparison to female due to the social structure of the Indian society where male dominating family exits and poor awareness of traffic rules and regulation. Another association could be assumed between the lack of adequate body fats and hence lesser Cushing

effect from blunt trauma in case of males and compared to female. Our as in the findings are accordance with the studies of Singh and Dhattewal et al [1].

The highest incidence of fatalities in the age group 21 to 41 years, as this age group is the tender age to be involved in activities of all works as a mean of earning livelihood and it is at par with the studies of other researcher like Husaini N et al, Wong Z.H et al, Kaul A et al [2,3,9]. With modernization of equipments as well as emergency medical facilities, the victims are immediately shifted to such care leading delay in death agrees to study like Meera T H et al [5].

### Conclusion

The cervico-thoraco-abdominal injuries require a multi-disciplinary approached in the management. The postmortem study describes the injury pattern and nature of injury to highlight the trends in this coastal region. In this study thoracic injuries are more common than cervical and abdominal. A meticulous autopsy helps to determine the actual anatomical site of primary impact which helps in preventing fatal consequences in undiagnosed cases. A trivial trauma in this region (cervico-thoracic-abdominal) without any external manifestation can end into disastrous consequences by involving the internal organ. Hence a thorough examination also always mandatory for evaluation and treatment. The study depicts and highlights towards prevention of not only medical negligence on parts of medical officers, but also in reference to prompt meticulous observation to such victims of cervico-thoracic-abdominal injury.

**References**

1. B. Suresh Kumar Shetty, Tanuj Kanchan et. Al. Victim Profile and Pattern of Thoraco-Abdominal Injuries Sustained in Fatal Road Traffic Accidents, J Indian Acad Forensic Med. Jan-March 2012; 34(1).
  2. Husaini N, Chavan KD, Bangal RS, Singh B. Pattern of thoraco-abdominal injuries in rural region. Indian J Forensic Med Pathol 2009; 2: 97-103.
  3. Jha N, Srinivasa D.K, Roy G, Jagdish S. Epidemiological study of road traffic accident cases: a study from South India. Indian J Community Med 2004; 24: 20-24.
  4. Kaul A, Sinha US, Pathak YK, Singh A, Kapoor AK, Sharma S, Singh S. Fatal road traffic accidents, study of distribution, nature and type of injury. J Indian Acad Forensic Med 2005; 27: 71-6.
  5. Meera T.H ,Nabachandra H, A POSTMORTEM STUDY OF BLUNT CARDIAC INJURIES, JIAFM, 2005 : 27 (2). ISSN 0971-0973.
  6. R.K. Punia, Dhruv Singh Meena, Missed Injuries in Fatal Blunt Thoraco-Abdominal Region, J Indian Acad Forensic Med. July-September 2013; 35(3).
  7. Sharma BR, Singh VP, Sharma R, Sumedha. Unnatural deaths in Northern India – a profile. J Indian Acad Forensic Med 2004; 26: 140-6.
  8. Supriya Keisham, Salam Bitam Singh, Rishilu Kamei, Memchoubi Ph. A Study of Fatal Internal Injuries without Significant External Injuries in Road Traffic Accidents in Imphal from 2009-2014, J Indian Acad Forensic Med. Jan-March 2015; 37(1) ISSN 0971-0973.
  9. Wong ZH, Chong CK, Tai BC, Lau G. A review of fatal road traffic accidents in Singapore from 2000 to 2004. Ann Acad Med Singapore 2009; 38: 594-6.
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