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Original article:

Study of chest injury cases and utility of chest x ray for patient evaluation at tertiary care hospital

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Abstract

Introduction: Blunt chest trauma accounts for a proportion of trauma mortality and clinicians should rule out chest injury in evaluation of blunt trauma.The evaluation of thoracic injury can lead to appropriate treatment and life-saving.

Material and methods: The present study work was done in Department of Radiology. The sample size was 100 patient included in our study. The sample size was estimated with the help of expert statistician. Herewith we included cases of chest injury complaints visiting to OPD. The patients that were referred from surgery Department were only included in present study. The Pediatric cases were excluded from present study.

Results: In our present study , maximum cases were with blunt trauma (38%) which were diagnosed using chest x ray , followed by rib fractures (28%).

Conclusion: Blunt chest wall injuries are a significant cause of mortality and morbidity in trauma patients. Accurate identification and description of chest wall injuries by the radiologist can aid in guiding proper patient management.

Keywords: chest injury, X ray , blunt trauma

Introduction:

Blunt chest trauma accounts for a proportion of trauma mortality and clinicians should rule out chest injury in evaluation of blunt trauma.[1]The evaluation of thoracic injury can lead to appropriate treatment and life-saving. Both conventional radiography (chest X-ray, CXR) and thoracic computed tomography (TCT) are commonly used in the emergency setting. Chest trauma survivors experience a complexity of problems. Plain radiography of the chest has being the standard diagnostic tool in the initial evaluation of chest trauma patients. The aim of this study is to identify plain chest radiograph findings seen in chest trauma patients and investigate the major causes of chest trauma.[2]

Material and methods:

The present study work was done in Department of Radiology. The sample size was 100 patient included in our study. The sample size was estimated with the help of expert statistician. Herewith we included cases of chest injury complaints visiting to OPD. The patients that were referred from surgery Department were only included in present study. The Pediatric cases were excluded from present study. The routine X ray was carried out. Results were tabulated and analyzed.

Results:

A total of 100 patients that underwent chest X-ray due to chest trauma were reviewed. The majority of the cases were of the age group of 28–40 years, followed by age range 40–59 years. The majority of the cases were males 82 , while females accounted for 18 only.

Table 1) Distribution of diagnosed cases

Diagnosed cases	Number of cases	Percentage
Blunt trauma	44	44
Penetrating injury	6	6
Accidental injury	21	21
Rib fracture	9	9
Others	20	20
Total cases	100	100

In our present study, maximum cases were with blunt trauma (44%) which were diagnosed using chest x ray, followed by accidental injury (21%)

Discussion:

Physical traumas are tragic and multifaceted injuries that suddenly threaten life. Although it is the third most common cause of death in all age groups, one out of four trauma patients die due to thoracic injury or its complications. Blunt injuries constitute the majority of chest trauma.

Chest injuries often occur in combination with other severe injuries, such as extremities, head and brain and abdominal injuries. Chest trauma is an important cause of morbidity and mortality globally, however in recent years the overall survival rate has improved. A chest injury is any form of physical injury to the chest including the heart and lungs. Chest injuries account for 25% of all deaths from traumatic injury.[3] Generally chest injuries are caused by blunt mechanisms such as motor vehicle collisions or penetrating mechanism such as stabbings.[4] Chest trauma can be classified as blunt and penetrating thus blunt, and penetrating injuries have different pathophysiology and clinical courses. Penetrating trauma occurs when the victim suffers an injury that breaks the skin, such as knife in the chest or a gunshot wound. Victims with blunt trauma may have some torn skin, but the tear is not the cause of the trauma itself, and the damage is often less localized. Blunt trauma accounts for 25% of all death due to trauma emergencies.

Blunt chest injuries are the primary or contributing cause of about a quarter of all trauma-related death. The mortality rate is about 10%.[5] Thoracic injuries account for 20–25% of deaths due to trauma and contribute to 25–50% of the remaining deaths. Approximately 16,000 deaths/year in the United States alone are attributable to chest trauma.[6]

Chest radiography is very important because it will identify most significant chest wall injuries. Chest trauma is caused by the recklessness of motorcycle riders, vehicle drivers, violence and so on. Car accidents and falls cause the most blunt chest trauma in contrast, gunshot wound cause the most penetrating trauma. Direct forces, abrupt

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deceleration, and other mechanisms can cause injury to thoracic structures like major intrathoracic vessels or the heart. Deaths are often due to airway obstruction, hemorrhage, flail chest, tension pneumo-thorax, cardiac tamponade, and associated intra-abdominal and skeletal injuries.

In Nigeria, the spectrum of chest trauma cases varies from mild injuries to major life-threatening conditions.[7] Motor vehicle accident is the most common cause of thoracic injuries. Wounds sustained either by accident or malice can cause thoracic trauma and these may include stabs wound to the chest, falls and physical abuse among other conditions. Early fatalities following severe trauma can be accounted for by injury to the chest wall and intrathoracic contents. However nowadays , Faster and more detailed diagnosis of thoracic injuries has been achieved by multislice computed tomography. But the primary role of chest X ray is important at PHC level as well as at initial level. (8)

Conclusion:

Blunt chest wall injuries are a significant cause of mortality and morbidity in trauma patients. Accurate identification and description of chest wall injuries by the radiologist can aid in guiding proper patient management.

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