

SUCCESSFUL TREATMENT OF AN INTERSECTING PENETRATING THORACIC TRAUMA BY CIRCULAR SAW

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Abstract

Introduction: Trauma is one of the most common causes of morbidity and mortality in the World. Thoracic Trauma is responsible for 25% of all the deaths. Although blunt thoracic traumas are more common than penetrating thoracic traumas, penetrating thoracic traumas are more likely to require immediate life-saving interventions than blunt injury.

Case Report: Penetrating thoracic trauma by circular saw is defined very rare in the literature. In this article, we present a rare and interesting penetrating thoracic trauma cause which opened a window on anterior chest wall, created open pneumothorax and treated successfully in our department.

Conclusion: We believe that circular saw injury, a rare cause of penetrating thoracic trauma, can be successfully treated with the correct and timely intervention in the emergency department.

Key Words: Trauma, thoracic, penetrating, surgery

Introduction

Trauma is one of the most common causes of morbidity and mortality in the World. 5.8 million people is lost every year from traumatic injuries. It said that every minute nine people die from traumatic injuries. Thoracic Trauma (TT) is responsible for 25% of all the deaths. TT generally is detected in third place behind head and extremity trauma (1,2). Although blunt thoracic traumas are more common than penetrating thoracic traumas, penetrating thoracic traumas are more likely to require immediate life-saving interventions than blunt injury. Chest wall penetration seems most often from gunshots-rifleshots and stabbings. Other possible penetrating trauma causes are industrial accidents, farm accidents, falls, collisions, blast injuries and military traumas (3). Penetrating thoracic trauma by circular saw is defined very rare in the literature. In this article, we present a rare and interesting penetrating thoracic trauma cause which opened a window on anterior chest wall, created open pneumothorax and treated successfully in our department.

Case Report

A 23-year-old male was admitted emergency service. We learned from the history that he accidentally cut the

anterior chest wall with a chain saw while cutting tree branches in the farm about one hour ago. His symptoms were dyspnea and chest pain. On physical examination, the patient was conscious, oriented and cooperative. Blood pressure was 120/60 mm Hg, and pulse oximeter reading was 96%, with 4 liter/min. nasal oxygen. Pulse rate was 88 beats/min and respiration rate was 21 breaths/min. ECG, blood count, and blood gas analysis were within normal limits. He has no respiratory distress. Approximately 10 cm longitudinal destructed lacerate area including skin, subcutaneous tissue, muscles and ribs were detected in the inspection of the left anterior chest wall (Figure 1). The pleura, the lung and the aortic arch could be seen from this defect with air deflation. First, the defect was closed with sterile gases and left tube thoracostomy was performed. The thoracic cavity was than explored through the opening window and no injury in the lung, heart and large vessels was determined. The defect was primary closed with absorbable sutures according to anatomical layers. Chest radiography and thorax CT(Computed tomography of the thorax) showed the thoracic drainage in the apical region, bilateral full expansion of lungs, subcutaneous emphysema on the left side of the neck and fractures of the ribs at the anterior chest wall

(Figure 2 A,B). Other systems examinations were unremarkable. The patient was hospitalized without additional surgical interventions.



FIGURE 1. The image of the injury of the left anterior hemithorax at the time of admission to the emergency department.

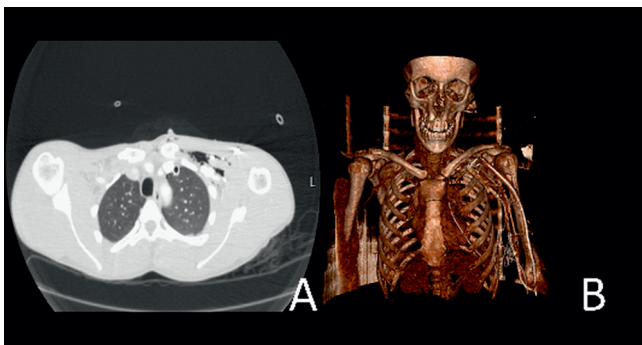


FIGURE 2. Thorax CT (A) and 3D (B) images show left thorax drain, subcutaneous emphysema on the left side of the neck and fractures of the ribs at the anterior chest wall

He was treated conservatively with 100% oxygen via nasal mask for 24 h, and given paracetamol for pain control and broad spectrum empirical antibiotics for infection control. The postoperative course was uneventful. The thorax drain was removed at the third

day with no drainage and air leakage. He was discharged at the fourth day. Control chest radiography and repaired defect area was normal on follow-up visit period. His written consent was obtained before this case before the article was written.

Discussion

The thoracic cavity is well preserved with the muscles and bone tissues of the thoracic cavity due to the vital organs and large vessels. Chest wall injuries vary from relatively simple injuries to large defects with fatal prognosis. High-energy penetrating traumas can disrupt this phenomenon and become life-threatening (4). Interestingly in our case after chest integrity was impaired after thoracic injury, there was no damage to vital organs. Tube thoracostomy and damage control surgery for chest wall was sufficient.

Different and interesting penetrating thoracic injuries have been described in the literature as kebab's shish, composite hockey stick, self-inflicted thoracic knife wounds, metallic (iron) bar injury, garfish attack (5,6). However, penetrating thoracic trauma with a circular saw was not found in the literature.

In high-energy penetrating thoracic traumas, as well as chest wall, lung parenchyma, diaphragma injury, cardiac and major vascular injuries should be considered. Basic target in this patients should be rapid diagnosis of traumatic pathologies, convenient and quick surgical intervention, appropriate hemodynamic and respiratory support (7). In our case, a successful outcome was obtained with rapid diagnosis and surgical intervention in emergency room.

In some penetrating thoracic traumas, emergency service thoracotomy can be a life-saving maneuver. Cardiac arrest after penetrating chest trauma can be an indication for emergency service thoracotomy. Interventions that can be performed in cardiac tamponade and within 10 minutes of cardiac arrest are successful (8). Since our patient had auto thoracotomy, it was sufficient to close the traumatic artificial thoracotomy.

Conclusion

We believe that circular saw injury, a rare cause of penetrating thoracic trauma, can be successfully treated with the correct and timely intervention in the emergency department.

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