

# An Editorial Note on Pulmonary Trauma Care

Veena Priyadarshini S\*

School of Life Sciences, Crescent Institute of Science and Technology, Chennai, Tamil Nadu, India

## EDITORIAL

The airway, lungs, and cardiovascular system are the three major anatomical systems found in the thoracic cavity. As a result, any blunt or penetrating trauma can cause significant disturbance to each of these systems, which can soon become life threatening if not recognized and treated swiftly. The most common cause of death in trauma patients is chest trauma, which accounts for about a quarter of all deaths. Patients with polytraumatic injuries have a substantially greater rate. A handful of key techniques can quickly stabilize and revive 85-90 percent of chest trauma patients. Trauma patients can be found in any emergency room, not just trauma centers. As a result, emergency care providers should be prepared to assess, resuscitate, and stabilize any patient suffering from chest injuries.

Trauma patients, unlike patients with other diseases, frequently appear with a known traumatic mechanism, such as a vehicle accident, fall, gunshot, or stab wound. A patient may enter with significant altered mental status and be unable to provide any significant history in rare situations. Contusions, lacerations, and abnormalities are some of the physical examination signs indicating the existence of trauma in these cases. Crepitus palpation over the chest wall may also be helpful.

A few factors contribute to injury. The mechanism of injury differentiates thoracic trauma. Car collisions (the most common cause of thoracic trauma) and falls are examples of blunt trauma mechanisms that induce elevated intrathoracic pressure. Penetrating trauma, on the other hand, is most associated with gunshots, stab wounds, and impalement. In both penetrating and blunt chest trauma, there is a lot of overlap between the various traumatic illnesses. In contrast to penetrating trauma, however, blunt chest trauma patients may appear with a more modest presentation and less evident physical exam findings.

By carefully analyzing the patient, life-threatening injuries related with thoracic injuries are frequently discovered in the main survey. During the primary survey, the following injuries in the thoracic area will be discovered and treated. It includes:

1. Obstruction of the airway
2. Tension pneumothorax
3. Pneumothorax with an open wound

4. Chest flailing and pulmonary contusion
5. Hemorrhage in the lungs
6. Tamponade of the heart

Intubation, needle decompression, tube thoracostomy, or pericardiocentesis are all common treatments for these injuries. As soon as these life-threatening injuries and problems are recognized, they are addressed. Emergency Medical Services (EMS) can transport chest trauma patients to the ED, where they are often placed on a backboard and in a cervical collar.

### Trauma life support in the pre-hospital setting

To recognize serious thoracic injuries such as tension pneumothorax, open pneumothorax, flail chest, pulmonary contusion, and massive haemothorax, a breathing assessment and clinical examination of the thorax (respiratory motions and quality of respiration) are required. Inspection, palpation, percussion, and, most importantly, auscultation (sensitivity 90%, specificity 98%) will reveal whether a tension pneumothorax is present. A pneumothorax diagnosis may necessitate rapid intervention, such as needle decompression of the pleura gap. A large tension pneumothorax can be ruled out in the absence of hypoventilation on auscultation or chest discomfort in a stable patient. To avoid missing the advancement of a pneumothorax, a repeat examination is required. The most common reversible cause of death in trauma patients with cardiac arrest is tension pneumothorax.

The primary survey will include a repeat of the clinical examination as well as anamnestic information on the mechanism of thoracic trauma, which will provide information on the potential severity of thoracic injury. When the extent of the trauma cannot be determined, a contrast-enhanced CT scan is recommended. A chest X-ray in the emergency room has a sensitivity of only 58.3 percent. When a CT scan is not required, a thoracic ultrasound examination can be used instead; it has the same sensitivity and specificity as a chest X-ray for diagnosing pneumothorax.

In the emergency room, ultrasonography can be used to rule out pleural/pericardial effusion. Although anterolateral thoracotomy in the 4-6<sup>th</sup> intercostal space is commonly advised, it is insufficient to visualize all lesions in 20% of patients and must be changed. Clamshell surgery (transverse sternotomy and bilateral anterolateral thoracotomy) or hemi-clamshell surgery (longitudinal sternotomy

**Correspondence to:** Veena Priyadarshini S, School of Life Sciences, Crescent Institute of Science and Technology, Chennai, Tamil Nadu, India, Tel: +9500084421, E-mail: veenapriya31@gmail.com

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and anterolateral thoracotomy) can allow for improved thoracic organ exposition. Although emergency room thoracotomy is extremely uncommon, anterolateral thoracotomy will allow a

potentially lifesaving measure (clamping of a great artery) to be taken in a life-threatening condition before heading to the operating room.