

Delayed Treatment of a Thoracic Wound with Lung Evisceration in the Kinshasa University Hospital, Democratic Republic of Congo

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1. Abstract

Lung evisceration is a rare complication of a penetrating chest trauma. We report on the first case in Kinshasa University Hospital involving a thoracic wound with lung evisceration, treated 19 hours after the trauma.

2. Introduction

Lung Evisceration (LE) is a rare complication of a penetrating thoracic trauma [1-3]. Injury consists of the lung parenchyma protruding through the breach on the chest wall. Only few cases of lung evisceration have been reported [2, 3]. Numerous and life-threatening complications can occur, such as respiratory distress and/or hemorrhage, strangulation, torsion or lung parenchyma volvulus [3]. Patients with such trauma require emergency surgical treatment.

Here we report on the first case involving a thoracic wound with lung evisceration, documented in Kinshasa University Hospital in the Democratic Republic of Congo.

3. Observation

A 29-year-old man was referred to the emergency room of the Kinshasa University Hospital for an anterior right chest wound associated with maxillofacial wounds, following multiple stabbing. He arrived at the emergency room 19 hours after being stabbed. Upon arrival, the patient was hemodynamically stable. His oxygen saturation was over 95% on ambient air.

The patient presented with evisceration of two lobes through a linear parasternal wound of 20 cm long, from the right 2nd to the 4th

intercostal space (Figure 1). Additionally, there were two facial wounds: the first one, 8 cm long, located in the left zygomatic region and the second, located on the left mandibulo-jugal region, showed a "V" musculocutaneous flap about 6/6 cm long with an underlying fracture of the mandible (Figure 1).

The chest radiograph was normal (Figure 2). A chest CT scan was ordered, but not done because of the inability of the patient's family to pay for the cost.

The surgical procedure for the eviscerated lung consisted in an enlargement of the chest wound. The two exteriorized lobes, the upper and middle, were readily placed back into the chest. Fractures of the 2nd, 3rd and 4th costal cartilages were reduced and fixed. Although the pleural cavity was clean and free of blood, it was thoroughly washed with physiologic saline solution. Chest wall was closed after placement of a 24 Fr drain (Figure 3).

The exploration of the facial wounds showed complete section of the superficial musculoaponeurotic webbing. Parotid gland, masseter, and marginal branch of the facial nerve were partially transected. The injury to the mentone artery was treated by ligation. The wounds were sutured after careful cleaning and hemostasis control.

Two days after surgery, a right bronchopneumonia developed, which resulted in acute respiratory distress. The patient received oxygen therapy, antibiotics and ventilatory physiotherapy. He was transferred out of the intensive care unit (ICU) after 10 days and was discharged from the hospital 1 month after surgery.



Figure 1: Lung evisceration and maxillofacial post-traumatic wounds



Figure 2: Patient Chest-X Ray



Figure 3: Thoracic and maxillofacial stitched wounds

4. Comment

As far as we know, this is the first documented case in our country of LE following a stab wound. Moreover, few similar cases have been reported in the literature.

LE is the result of a sudden increase of the intra-thoracic pressure associated with a breach of the chest wall from a high-energy trauma-

ma [1, 2]. Chest injury is most often consecutive to either a road traffic accident or a stabbing. LE is most commonly found in the parasternal region. This could be explained by the thinness of the muscular layer [1, 2, 5].

The preoperative chest radiograph of our patient was unremarkable. Despite the large chest wall opening, the patient had not presented with a pneumothorax. The reason was the obturation of the breach by the exteriorized lobes and the integrity of the lung parenchyma [2]. Internal thoracic artery lesions have been described for similar lesions [1, 2]. They are explained by the presence of this artery, running along the outer edges of the sternum and therefore not far from the usual site of lung evisceration.

Lung reintegration should be performed only during the surgical procedure. With this precaution, an internal thoracic artery injury can be prevented or promptly controlled. We conducted an anterior thoracotomy by extending the chest wound. Reintegrating the lung into the chest was therefore easier. The pleural cavity was thus fully explored. An anterior or anterolateral thoracotomy has been performed by other authors for the same reasons [1, 2, 5].

The postoperative course of our patient was marked by the occurrence of the bronchopneumonia that required a 10-day stay in the ICU. This complication is thought to be related to a bacterial infection of the pulmonary contusion induced by the incarceration of the right lung in the thoracic wall for 19 straight hours.

Delayed treatment of our patient primarily is the result of the challenges in managing emergencies in our environment. The aggression occurred at around 2:00 am, 20 km from our hospital. Due to the lack of a prehospital rescue system, the patient was not quickly transferred to our department. Even when the patient was admitted to the hospital, his family was still not able to afford the cost of care. Thus, a thoracic CT scan that was ordered could not be performed. The rest of this patient's care relied on the generosity of the healthcare providers.

Lung evisceration requires an urgent surgical treatment. Morbidity and mortality are high because of the potential for early life-threatening complications such as compressive pneumothorax or massive hemothorax. Later, thoracic empyema or pulmonary infarction may also occur. No such complications were observed with our patient.

5. Conclusion

We reported a delayed management of the first case of LE documented in Kinshasa University Hospital, Democratic Republic of Congo. The postoperative course was complicated by a bronchial infection that led to a prolonged ICU stay. The patient was discharged alive from the hospital. This delay in treatment was essentially due to the organizational difficulties of the healthcare system and the management of emergencies in our country. In addition to the lack of prehospital care for trauma patients, the financial burden of care falls on the patients themselves and their families.

Lung evisceration is a surgical emergency that requires immediate reintegration of the lung parenchyma into the chest and treatment of associated parietal and/or intrathoracic injuries.

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