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Two Self-Stabbing Pneumothorax Cases

Kendini Bıçaklama ile Oluşan Iki Pnömotoraks Vakası

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ABSTRACT

Self-inflicted chest stabbing complicated with tension pneumothorax (TPX) is a rare condition. We report two stabbing cases which were complicated with pneumothorax and were successfully treated.

Keywords: Tension pneumothorax, thoracostomy, suicide

ÖZ

Kendini bıçaklama sonucu oluşan tansiyon pnömotoraks olgusu nadir görülen durumdur. Biz başarılı bir şekilde tedavi edilmiş kendini bıçaklama sonucu oluşan iki pnömotoraks vaksını sunuyoruz.

Anahtar Kelimeler: Tansiyon pnömotoraks, torakostomi, intihar

Introduction

Rare cases of suicide that involve stab wounds on the chest causing pneumothorax have been reported. They constitute approximately 1.6%-3.0% of suicide attempts (1). Pneumothorax is caused by air leakage from the lung parenchyma and/or the tracheobronchial area to the inner pleural cavity. Pneumothorax is a clinical diagnosis (2). Air should be drained from the lungs by performing key emergency interventions. Needle thoracostomy (NT) is a life-saving procedure intended to evacuate tension pneumothorax (TPX) and stabilize the patient until a tube thoracostomy can be inserted (3). The removal of any penetrating foreign body in the chest wall is recommended with video-assisted thoracic surgery (VATS) to control bleeding and damage to the diaphragm and pleura in hemodynamically stable patients; it should not to be performed in the emergency room (4).

Case Reports

Case 1

A 28-year-old female patient was admitted to the emergency department (ED) with a self-inflicted stabbing. She was left-handed, and a bread knife had entered flush in line with the fourth intercostal space above the right breast, showing an inferolateral course, and was still in her chest. The knife remained completely stuck (Figure 1). She had a blood pressure (BP) of 120/80 mmHg, respiratory rate of 22 breaths per min, and heart rate of 80 beats per min. She was dyspneic but alert and cooperative. She had a relaxed abdomen. There were no incisions on any other parts of her body. She had thought about the suicide attempt for 3 days. Hemoglobin level on admission was 13.2 mg/dL. To evaluate internal organ injury, intravenous contrast-enhanced tomography was performed. The knife penetrated the right lung, and a small amount of hematoma was seen in the pleural cavity. There was no hematoma around the liver or hematuria in the urinary catheter, but there was suspected laceration on the diaphragm. Under resuscitative supportive therapy, video-assisted thoracic exploration was planned. If needed, laparotomy or laparoscopy was planned for the diaphragm. Attempts at intubation with a Carlens tube under general anesthesia were negative. Intubation was attempted with an 8F double-lumen tube because of discomfort to the vocal cords due to tube insertion. The double-lumen tube was removed in the absence of selective lung ventilation, and a single-lumen left selective tube intubation was performed. On VATS, the knife was seen exiting from the basal section while entering into the lung from the front end of the medial segment of the lower lobe. It was controllably removed. Approximately 500 cc of loose blood was removed through aspiration. The knife was removed with careful observation of all surrounding organs, vessels, and tissues. It was also seen that the diaphragm had not been injured. After

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Figure 1. The knife remained completely stuck to the thorax

Figure 2. Twelve non-penetrating and one penetrating stab wounds are seen on the chest, accompanied with multiple hesitation wounds over the left lateral aspect of the neck

these procedures, the patient was hospitalized. In her psychiatric consultation, she was diagnosed with major depressive disorder and was administered 15 mg of escitalopram and 0.5 mg of lorazepam. She was discharged after hospitalization for 3 weeks.

Case 2

A 34-year-old male patient with no past medical history was brought to the hospital in a car and admitted to ED due to a self-stabbing wound and severe dyspnea. He had no psychiatric disorder but had recently been fired from work. He was alone at home and had left the gas stove on and unlit for poisoning. His neighbors smelled the gas. On arrival, he was hemodynamically unstable with a heart rate of 115 beats per min, BP of 65/42 mmHg, and respiratory rate of 32 breaths per min. His oxygen saturation rate was 80% at room temperature. External examination revealed one deep horizontal incision into the pleural cavity and 12 non-penetrating wounds on the chest. Five superficial dermal incisions over the left lateral aspect of the neck showed multiple hesitation wounds (Figure 2). The presence of several self-inflicted stabs and hesitation wounds and absence of clothing demonstrated self-inflicted suicide. While the first intervention (positioning, oxygenation, fluid resuscitation, and monitoring) was in progress, a deep incision was noticed, and the patient's consciousness was deteriorating. A 14-gauge intravenous catheter was inserted in the space below the left second rib in the mid-clavicular line, and a large release of air was noticed. The patient's BP increased to 100/65 mmHg, whereas the heart rate decreased. He no longer was exhibiting signs of respiratory distress as his tachypnea had considerably decreased. Arterial blood gas showed a pH of 7.42, $PaCO_2$ of 42 mmHg, PaO_2 of 46 mmHg, $HCO3^-$ of 27.7 mmol/L, O_{2sat} of 83%, COHb level of 2.1%, all of which ruled out CO poisoning. We performed chest tube insertion in the sixth intercostal region at the proximal auxiliary line under local anesthesia and connected it to a 3-chamber chest drain system with 20-cm suction. Next, chest X-rays were obtained, and an expanse was observed in the lung parenchyma. The patient was hospitalized, TPX resolved, and a psychiatric consultation was performed. On psychiatric evaluation, he was diagnosed with major depressive disorder and administered fluoxentine 20 mg. He was discharged after hospitalization for 24 days.

Discussion

Thoracic trauma has priority over all other traumas on arrival to emergency services. It usually comprises multiple traumas. If there is chest stabbing, there may be a life-threatening lung or heart injury. To the best of our knowledge, there are no other cases of PTX associated with a suicide attempt in the literature. PTX is an emergency, wherein immediate intervention can be life-saving. Also, self-inflicted stabbing with the intent of suicide is not common. These attempts constitute approximately 2%-3% of all suicides (5). A stab wound on the left breast can penetrate the heart (6). Studies in the literature have shown that most self-inflicted chest stabbing cases may not survive until reaching the hospital (7). Right-sided chest injuries are less common in self-inflicted stabbings (8). Usually, there are multiple hesitation wounds with stab lacerations (7).

Because PTX may develop, the removal of penetrating substances from the chest should be performed under suitable conditions. The appropriate approach is to complete this in the operating room accompanied by VATS (9). VATS is performed with a minimally invasive surgery. It is used to evalu-

ate the lung, pleura, pericardial, and diaphragm abnormalities. Moreover, it is used for chest penetration wounds (10). It has previously been used for the removal of substances such as knife, glass, and bullet, which penetrated the thorax (11).

Conclusion

Stab or penetration wounds on the chest have high mortality rates. In patients with suspected TPX, NT is a life-saving procedure and should be implemented as soon as possible.

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