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Case Report

Stab Wound with a Missed Broken Blade near Thoracic Vertebrae

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Abstract

Background: In case of a stab wound to the lower cervical region and upper dorsal region, many organs are prone to damage, including the lung, heart, pericardium, any of the vessels in the thoracic cage, the esophagus or trachea, thoracic duct, and even spinal cord.
Case Report: A 19 year-old patient arrived at the emergency department with swollen and painful upper dorsal region between the internal border of the left scapula and T2 vertebra. The patient had a history of a street fight with a stab wound on the corresponding area. Nothing abnormal was found on physical examination, and the patient was stable without any neuroglial deficit. Radiographic imaging demonstrated a foreign body lodged near the vertebra. The patient underwent an operation surgery, and the foreign body was removed without any serious complications. The foreign body was the blade of the stab, which was broken and hidden under soft tissue.
Conclusion: According to guidelines for a stab wound to the thoracic, a chest x-ray and exploration of the area must be performed, which were missed in the present case and potentially could lead to serious complications given multiple vital organs in that anatomical region.

Keywords: Foreign Bodies; Stab Wounds; Thorax

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Background

Stab wounds to the spinal cord are relatively infrequent (1). In a stab wound of the lower cervical and upper dorsal region, the thoracic cage is penetrated. When this occurs, the lung, the heart, the pericardium, any of the vessels in the thoracic cage, the esophagus or trachea, or even the thoracic duct may be cut (2). In this article, we report the case of a 19-year-old man who was attacked with a knife, and a broken blade of it had remained next to his thoracic spine. The foreign body did not damage vital organs and was surgically removed.

Case Report

This report was about a 19-year-old young man who complained of upper back pain in the area between the medial border of the left scapula and the spine and referred to our hospital emergency room. The patient stated that he was stabbed in that area three days ago during a street fight. He was then referred to a local clinic, and the wound was washed, disinfected, and bandaged on an outpatient basis. After three days, the wound became swollen and painful, and the patient was referred to our general hospital.

In the emergency room, the patient's vital signs were stable. Examinations showed a swelled and erythematous wound (6 cm long) between the left scapula and T2 vertebrae over the third rib on his back. There was no discharge or hemorrhage from the wound. The patient had no complaints other than the pain in the wound area. The patient did not have a fever or shortness of breath. There were no positive findings on neuromuscular examination. Additionally, the complete blood count (CBC) was in the normal range (hemoglobin: 13.4 g/dl, white blood cells: 7600/mm^3). In the chest x-ray obtained from the patient, a foreign object was accidentally found near the vertebral column at T2/T3 level with "metallic density" (Figure 1A). Therefore, a computed tomography (CT) scan without contrast was performed for a more accurate evaluation. In the CT scan, a sharp object was found at T2/T3 level beside the vertebral column, which was thought to be a broken blade of the knife (Figure 1B).

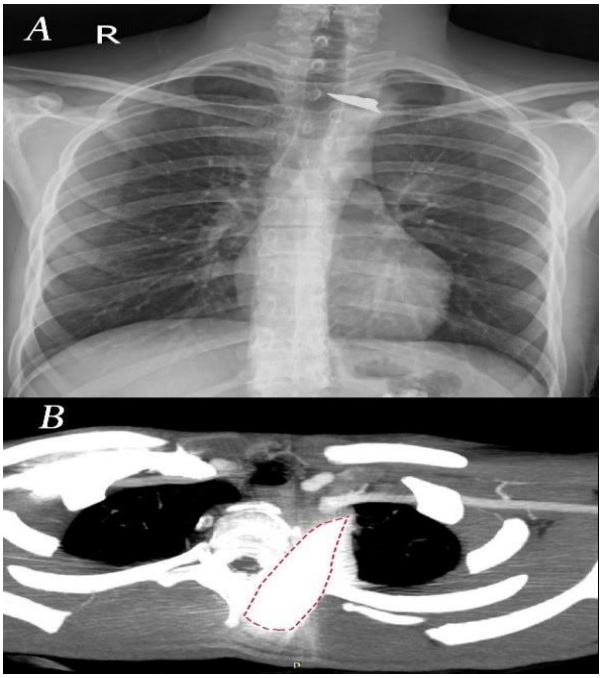

Figure 1. (A) Foreign body in chest x-ray, (B) Broken blade in computed tomography (CT) scan

The patient was admitted to surgical service to remove the foreign body. A complete detailed examination of the nervous system was performed to investigate possible spinal cord injury. The patient did not have any neurological defects. Due to the presence of vital organs at the wound site such as the aortic arch, left subclavian artery and vein, left common carotid artery, and left internal jugular vein, a CT angiography was performed for the patient that showed no damage to the main vessels or hemorrhage (however the tip of the foreign object was few millimeters apart from the left common carotid artery) (Figure 2).

Figure 2. Computed tomography (CT) angiography demonstrating the lodge place of the broken blade near arteries

After three days of admission to the hospital and antibiotic therapy (intravenous cefazolin four times a day), the patient experienced an operation to remove the foreign body. Under general anesthesia and in the prone position, the penetration site was opened, and a sharp metal object was removed (Figure 3, broken tip of the knife).

Figure 3. Broken blade

The damaged part of the superior lobe of the left lung was reconstructed, and muscles were sutured. Then a chest tube was placed at the left mid-clavicle line in the second intercostal space. The surgery took about one and a half hours, and the patient was transferred to the ward after one day in the recovery room without any problem.

The patient had no post-operative complaints other than pain at the operation site. The neurological examinations had no positive findings. One day after the operation, a chest x-ray was taken from the patient, which was reported to be normal. The patient's chest tube was removed after two days, and the patient was discharged.

Discussion

The importance of this case report is that a complete examination and exploration of wound site in stab wound cases is critical. Accurate imaging studies were necessary to locate the foreign body and assess any spinal cord damage. Standard plain x-ray graph and CT scan were essential for delineating the bony anatomy and fracture, simultaneously localizing the trajectory of the foreign bodies and fragments within the spinal canal (3).

In this case, the knife blade was broken and remained deep in the wound, which was impacted by the muscles. Therefore, the initial examination with a simple chest x-ray could show the existence of a foreign body, especially in such cases that the foreign body is deep in the tissue and not observed by wound exploration. As if in the early exploration of the wound, its presence was not known.

In this case, the foreign body was remained in place by impaction with surrounding muscles such as the trapezius and rhomboid, besides due to the absence of an outer part on the body surface, it did not cause serious damage to important adjacent elements such as spinal cord or major veins, despite its sharp nature. Surgical extraction of the foreign body may prevent further infection, myelopathy, and delayed neurological loss, and it is recommended that sharp fragments (e.g., a knife tip) be removed irrespective of spinal level to prevent worsening (4, 5). So, in this case, we surgically removed the foreign body for the patient.

Conclusion

Due to multiple vital organs in the thorax, any stab wound to this anatomical region should be explored and evaluated by appropriate radiographs. These standard approaches were missed in the present case, which potentially could lead to severe and life-threatening complications. Therefore, any foreign body lodged in the thorax should be removed after standard evaluations in order to prevent further consequences.

Conflict of Interest

The authors declare no conflict of interest in this study.

Acknowledgements

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