

## CASE NOTE

# Video-assisted thoracoscopic surgery (VATS) for penetrating chest wound: thoracoscopic exploration and removal of a penetrating foreign body

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Many thoracic surgeons have been reluctant to employ video-assisted thoracoscopic surgery (VATS) in patients with penetrating chest trauma owing to the possibility of great vessel injuries. However, with a meticulous preoperative workup, VATS could be successfully performed in select patients. We report the case of a patient with penetrating chest trauma in whom removal of the impaled knife and hemostasis were performed thoracoscopically.

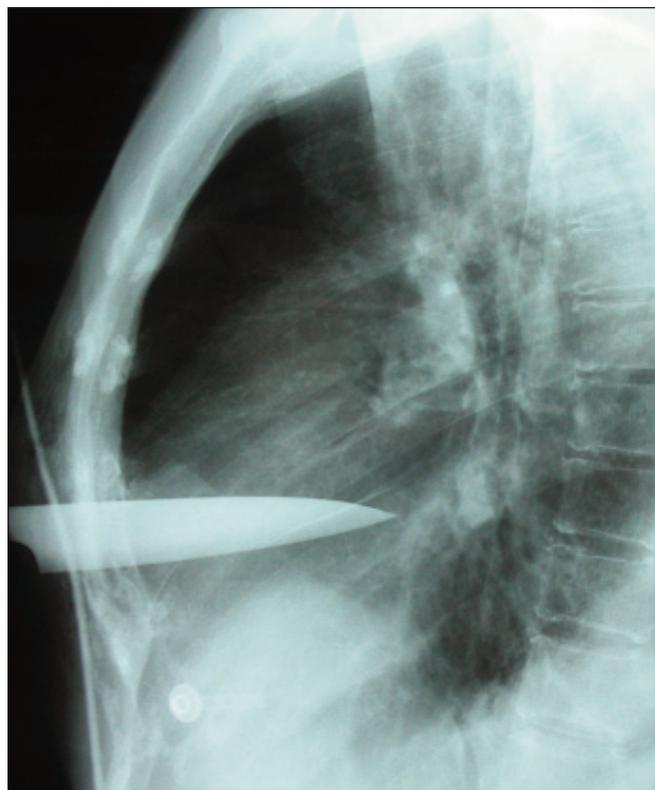
**CASE REPORT**

A 57-year-old woman with a 40-year history of schizophrenia stabbed her own chest and was brought to our emergency department. On arrival, the knife remained in situ, with the entire blade impaled into her chest. A radiograph of her chest showed the penetrating knife causing a right hemothorax without cardiac or great vessel injuries (Fig. 1). On physical examination, the patient was stable with slightly decreased breath sounds on the right base. We brought the patient to the operating room and began VATS with the patient in the left hemilateral decubitus position. The 15-cm blade had entered the cephalad through the right lower end of the sternum. We removed about 500 mL of blood that was clotted around the diaphragmatic recess. The pericardium had a partial tear. The penetrating knife had barely missed the internal thoracic vessels (Fig. 2). We removed the knife thoracoscopically and electrocauterized the bleeding from the chest wall. We detected no other injuries. The patient's postoperative course was uneventful.

**DISCUSSION**

Thoracotomy has been the standard method to treat penetrating chest injuries owing to its safety and good exposure of the intrathoracic cavity. For patients with penetrating chest trauma, thoracic surgeons are less likely to choose VATS for 2 reasons. First, not all thoracic surgeons have experience with these kinds of injuries because of their low incidence.<sup>1</sup> Second, irrespective of preoperative radiological workup, there is the possibility of great-vessel or cardiac injury.<sup>2</sup>

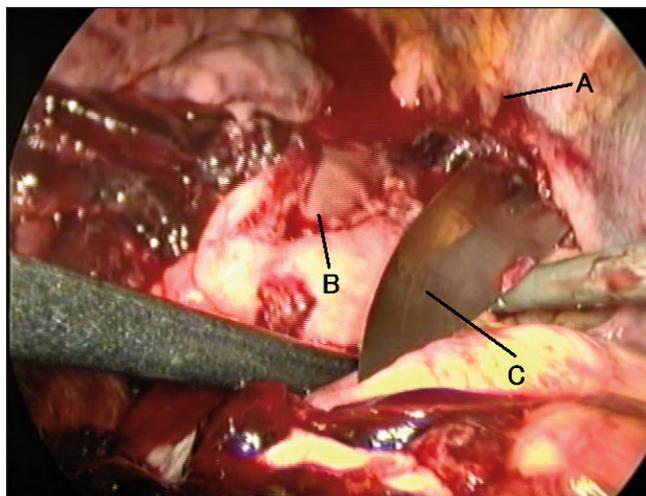
However, in select patients, VATS could be an acceptable treatment method. This technique should be applied in stable patients without any great-vessel or cardiac injuries. Burack and colleagues<sup>2</sup> reported that before choosing VATS, an exhaustive evaluation with a computed tomography (CT) scan, an angiogram and an esophagogram is crucial. If a large amount of hematoma is suspected in proximity to a great vessel, thoracotomy should be the first choice.<sup>2-5</sup>



**Fig. 1.** Lateral chest radiograph showing a knife impaled in the chest of a 57-year-old woman with a 40-year history of schizophrenia.

To our knowledge, no suggestions for the ideal operative position have been reported; even though the possibility of great-vessel or cardiac injury is estimated to be very low, patients such as ours with penetrating chest wounds should be positioned so that thoracotomy and emergent cardiopulmonary bypass could be performed promptly (e.g., supine or left hemilateral position).

In conclusion, VATS for penetrating chest wounds should be the treatment of choice in select patients; however, once VATS is performed safely, postoperative morbidity



**Fig. 2.** An intraoperative photograph shows (A) the right internal thoracic artery just adjacent to the penetrating knife, (B) cardiac beating observed through the torn pericardium and (C) the 15-cm impaled knife.

could be decreased dramatically with the limited invasiveness of the procedure.

**Competing interests:** None declared.

## References

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