

Inadvertent sharp object in thorax

Abstract

We present the case of a patient who, after a fight in a bar, suffered an injury from a broken mirror in the scapular region, with a fragment of the broken glass embedded in the right dorsal region. This fragment penetrated completely and deeply into the integuments without causing symptoms and went unnoticed only receiving sutures of the wound. The patient was readmitted 5 days later due to pain when breathing and inability to raise his arm. Magnetic Nuclear Resonance (MRI) studies were performed and the presence of a foreign object in the pleural cavity was observed without pneumothorax present. It was decided to perform a Left Posterolateral Thoracotomy (LPLT) to remove the foreign body that turned out to be a mirror fragment. The patient is doing well.

Keywords: thoracic wound, chest x-ray, pneumothorax.

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Introduction

Sharp objects of any material are very frequently involved in traumatic injuries caused by car accidents, due to the high plastic component that cars currently make up. Wounds caused by reflective glass (mirrors) are more frequently found in accidents that occur at home and are characterized by small punctures or large linear wounds with section of skin, muscles, tendons and/or blood vessels in the lower or upper limbs. The anatomical characteristic of the rib cage allows the development of a relatively thick fatty tissue, depending on the build of the person, which in turn covers the different muscles of the anterior and posterior region of the thorax. The possibility of lodging foreign elements between the muscle mass of the thoracic area or between the skin and the muscle mass is widely proven with the placement of breast prostheses in their different anatomical situations. These «foreign» elements can remain in their position without causing any discomfort for many years; this is because they are malleable or soft.¹⁻³ A different situation occurs when the foreign element is not malleable or soft, and is located in a muscular “neo-compartment” that, when moving, could cause local injuries, pain, or even infectious complications. In the context of an accident involving soft tissue injuries with fragmented material, the complete removal of the same must be ensured when making surgical repairs. Sometimes, the wounds are deep but the hole in the skin is relatively small. When this characteristic is present, the complete removal of foreign material from the depth of the wound must be ensured.^{4,5}

Presentation

This is a 47-year-old male who is brought to the emergency room with multiple wounds on the face and right chest region, the result of a fight in a bar, where he received blows to the left costal region and was thrown against a mirror that broke and caused the cutting wounds.⁶⁻⁸ He reports pain with deep inspiration. On physical examination: Multiple wounds are seen in the left suprascapular region, and no abnormalities are palpated. Painful unevenness is present in the 8th and 9th costal arches in the middle segment. Respiratory sounds are normal and without aggregates. Laboratory parameters are all normal, including a saturation of 98%. Heart rate: 103x'; Respiratory rate: 21 x'; Blood pressure: 145/83 mmHg. Simple Chest Imaging

studies are performed and no bone or soft tissue lesions are observed. The wounds are sutured and the patient is discharged 6 hours later with an indication of analgesics and antibiotics due to the number of contaminated wounds.^{9,10} Five days later, the patient consults due to intense pain in the left hemithorax in the subscapular region, which increases when raising the arm, and difficulty with pain during deep inspiration. The wounds are reviewed and their good evolution is confirmed. An advanced imaging study (MRI) was performed, where a foreign body was observed in the subscapular area that crossed the 5th intercostal space but did not produce visible injury to the pulmonary pleura or injury to the pleural cavity (effusion or pneumothorax) (Figures 1–6). It was decided to perform a standard left posterolateral thoracotomy and extract the foreign element. No injury was observed in the pulmonary parenchyma or visceral pleura, and the lung was found to be completely expanded.¹¹⁻¹³ The foreign body was removed, which turned out to be a fragment of a broken mirror that had become embedded without causing respiratory symptoms (Figures 7, 8).

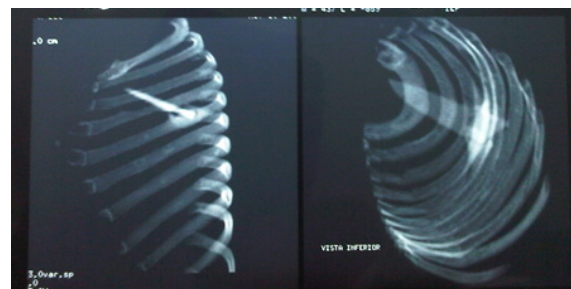


Figure 1, 2 Simple chest imaging.

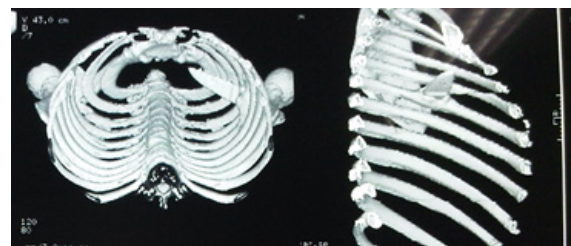


Figure 3, 4

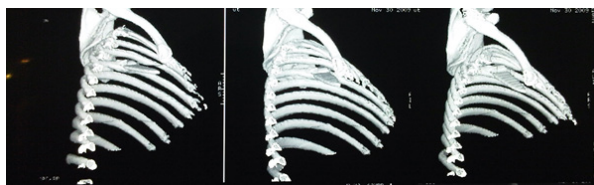


Figure 5, 6

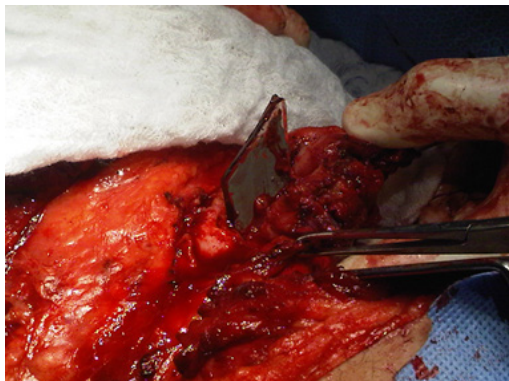


Figure 7 Surgery where foreign body was removed.



Figure 8 Image of foreign body.

Discussion

When glass breaks, it produces segments with very sharp and cutting edges, which when introduced quickly produce a clean cut without jagged edges. When these fragmented elements are introduced leaving an area of tissue behind them, the tissue collapses in that path, achieving a perfect seal where no air flow can pass or, failing that, the tissue acts as a valve closing the posterior path.¹⁴ In this way, a hermetic seal was achieved, not establishing a communication between the exterior and the pleural cavity. When suturing the skin wounds, the hermetic seal of the entire path was completed, which, being occupied by the glass segment, did not produce a change in pressure or bleeding, so neither pneumothorax nor hemothorax occurred. On the other hand, the peeling of the film of liquid tin and silver from the mirror did not allow an accurate image of the presence of a foreign body to be given. Since there was no clinical picture of pneumothorax and there was no image, the problem was not diagnosed.¹⁵

Conclusion

Sharp cutting injuries caused by fragments of broken glass must be thoroughly explored, due to the possibility of leaving foreign elements inside the wounds, which due to the elasticity of the skin, could reduce the size of the wounds, hiding larger fragments underneath within the soft tissues. The speed with which the beveled mirror fragment was introduced, and the closure of the posterior path due to the elasticity of the tissues, prevented the occurrence of pneumothorax.

Acknowledgments

None

Conflicts of interest

The authors declare that there are no conflicts of interest.

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