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Case Report Open Access

Unusual complication of scarf pin aspiration: Thoracic aortic penetration and surgical management

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ABSTRACT

Scarf pin aspiration is a rare but significant health concern, primarily affecting young Muslim women who wear headscarves. Herein, we present a 13-year-old female case who aspirated a metallic scarf pin, which migrated into her thoracic aorta. Despite being asymptomatic, imaging revealed the extent of the injury, necessitating open thoracic surgery for pin retrieval and aortic repair. The patient recovered fully without complications. This case highlights the critical role of advanced imaging and surgical expertise in managing such cases and underscores the need for preventive measures, including public education and safer scarf pin designs.

Keywords: Foreign body aspiration, scarf pin, thoracic aorta.

Scarf pin aspiration represents a significant health concern, particularly among young Muslim women who commonly wear headscarves. This phenomenon arises from the widespread practice of holding scarf pins in the mouth while adjusting the hijab, inadvertently increasing the risk of aspiration. Most cases are reported among adolescent and young adult females in regions such as the Middle East, South Asia, and North Africa, although reports from multicultural regions have also emerged.[1]

The sharp and metallic design of scarf pins poses a unique risk, differentiating these cases from other foreign body aspirations. Their pointed nature often leads to complications, including tissue penetration into mediastinal or vascular structures.[2] Despite the potential for life-threatening outcomes, awareness of this condition remains limited outside culturally endemic areas. Management is often challenging, requiring advanced imaging for diagnosis and complex interventions such as rigid bronchoscopy or surgical procedures for retrieval and repair.

In this article, we present a rare case who aspirated a metallic scarf pin migrating into her thoracic aorta. This report highlights the diagnostic and therapeutic challenges associated with this condition and emphasizes the need for public awareness and preventive strategies.

CASE REPORT

A 13-year-old female patient presented asymptomatically to the clinic five days after accidentally aspirating a metallic scarf pin while adjusting her headscarf. She exhibited no respiratory distress or hemodynamic instability upon examination. Her physical findings and systemic evaluations were unremarkable, with normal hemoglobin levels and coagulation parameters. Initial imaging with a posteroanterior chest X-ray revealed a radiopaque foreign body approximately 4 cm in length, located in the left lung field (Figure 1). No signs of pneumothorax, hemothorax, or mediastinal shift were observed. Rigid bronchoscopy was attempted for retrieval but was unsuccessful, suggesting migration or deeper penetration of the pin. Computed tomography (CT) with a contrast agent confirmed that the pin

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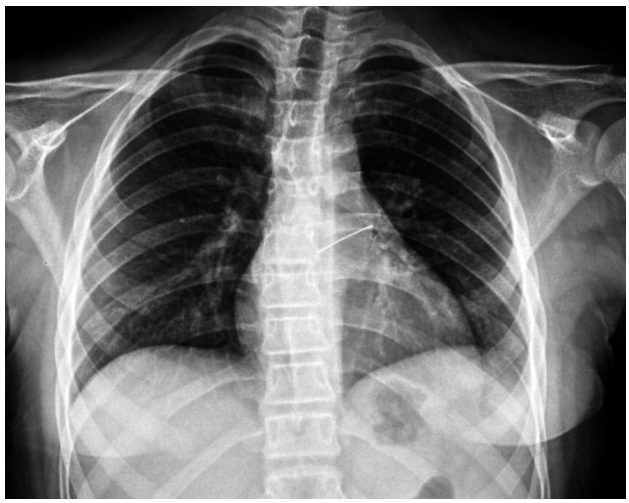

Figure 1. Posteroanterior chest X-ray showing the aspirated pin.

migrated into the left bronchus and penetrated the thoracic aorta (Figure 2).

The patient was referred for surgical intervention, and a decision was made to proceed with open thoracic surgery. A left posterolateral thoracotomy was performed through the fourth intercostal space. Lung retraction revealed periaortic tissue stiffness, likely due to minor leakage from the aorta. The injured aortic segment was identified, and heparin (100 U/kg) was administered. The proximal and distal injured segments were clamped and repaired with 2/0 monofilament non-absorbable pledgeted sutures. After a thorough search, the pin was located in the lung, with its rounded head extending into the bronchial lumen (Figure 3). Forceful traction was required for removal, and resultant bronchial and pulmonary injuries were repaired with 3/0 polypropylene sutures. Prophylactic cefazolin was administered perioperatively. The postoperative course was uneventful. A written informed consent was obtained from the parents and/or legal guardians of the patient.

DISCUSSION

Scarf pin aspiration, also known as "hijab syndrome," is a culturally driven health concern affecting young Muslim women.[3] The practice

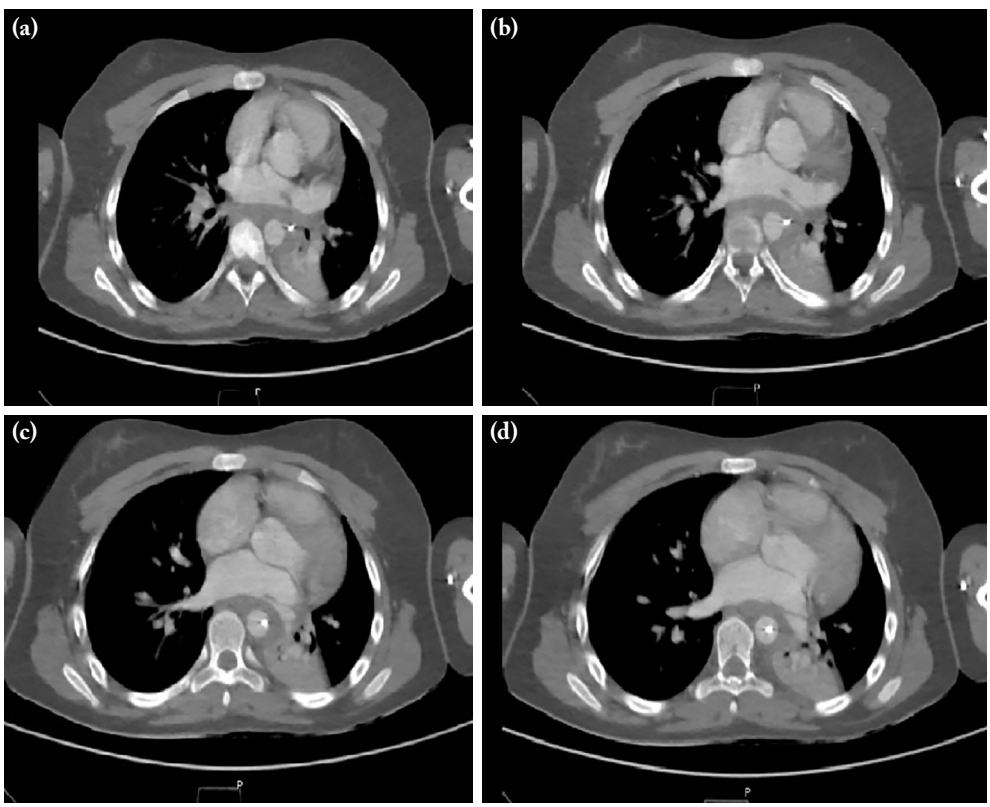

Figure 2. Computed tomography of thorax revealed the scarf pin penetrated the thoracic aorta.

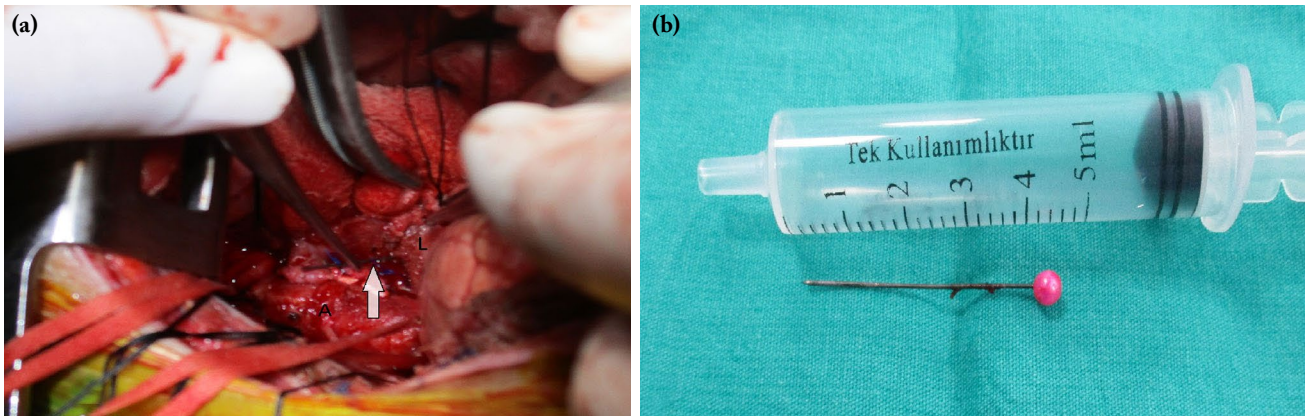

Figure 3. Extraction of the pin, **(a)** the pin was extracted via thoracotomy, **(b)** the scarf pin with its plastic head. White arrow indicates the pin.
A: Aorta; L: lung.

of holding pins in the mouth, often during scarf adjustment, predisposes individuals to accidental aspiration. This condition is most prevalent in regions with high Muslim populations, and the majority of cases involve young females, with a significant number of incidents occurring in adolescents aged 12 to 18 years.[4]

The sharp design of scarf pins increases their propensity to migrate and penetrate surrounding tissues, including vascular structures.[5] The clinical presentation varies widely, ranging from asymptomatic cases to severe complications such as pneumothorax, mediastinitis, or cardiac tamponade.[2] Advanced imaging, particularly contrast-enhanced CT, plays a critical role in identifying the location of aspirated pins and assessing associated complications. Standard chest X-rays often fail to detect pins that migrate into soft tissues or vascular structures.

Management typically involves rigid bronchoscopy, which has a high success rate for most cases of scarf pin aspiration.[1] However, surgical intervention becomes necessary in complex cases involving deep penetration or vascular injury. In a limited number of selected cases, endovascular repair or endoscopic systems have been utilized, thereby avoiding the necessity for invasive surgical procedures.[6]

This case required open thoracotomy due to the pin's migration to the left bronchus and subsequent penetration into the thoracic aorta. Minimally invasive approaches were deemed inappropriate due to the high risk of hemorrhage and the anatomical complexity.

Preventive strategies are crucial in addressing this condition. Public education campaigns should target at-risk populations, emphasizing the dangers of holding pins in the mouth and promoting safer alternatives, such as magnetic or pre-fastened scarf pins. Healthcare providers must also be trained to recognize and manage these cases effectively, particularly in high-prevalence regions.

In conclusion, scarf pin aspiration, though preventable, remains a significant health hazard in regions where headscarves are commonly worn. This case highlights the rare but severe complication of thoracic aortic penetration, underscoring the importance of advanced imaging and surgical expertise. Effective prevention strategies, including public education and the development of safer scarf pin designs, are critical in reducing incidence and associated morbidity. Increased awareness among healthcare providers is essential for early detection and management of this unique clinical entity.

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