

A DELAYED UNUSUAL PRESENTATION OF A PENETRATING FOREIGN BODY

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ABSTRACT

Complications resulting from the penetrating percutaneous foreign bodies almost always arise in the early post injury period. Delayed presentations of previous asymptomatic foreign bodies are rare.

In this case report, symptoms of tracheal irritation arose seven years following the initial penetrating shrapnel injury to the neck. Computed tomography scans enabled localisation of the foreign body at the tracheal wall and carotid sheath interface. The usefulness of this radiologic modality in the evaluation of the penetrating soft tissue injury is highlighted. A review of the phenomenon of the migrating and asymptomatic foreign body follows.

Keywords: Complication, foreign bodies, penetrating, trachea, X-ray computed

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INTRODUCTION

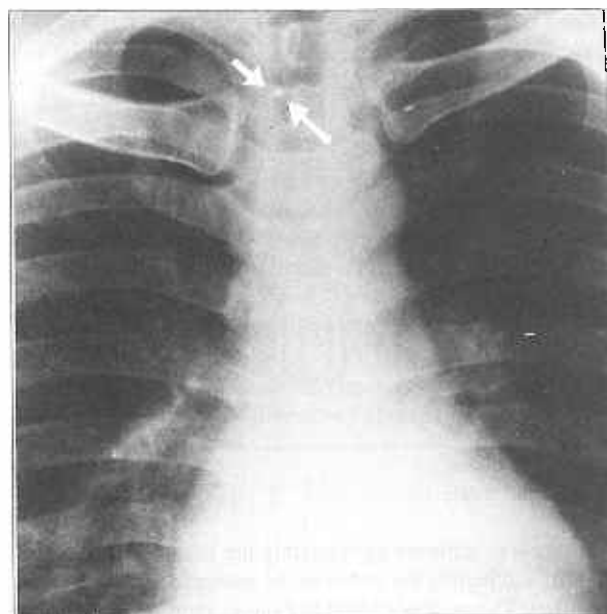
Penetrating percutaneous foreign bodies can result in complications as varied as infection^(1,2), intravascular foreign body emboli⁽³⁾, mediastinal vascular injury⁽⁴⁾, pericardial effusions⁽⁵⁾, and intracardiac foreign body⁽⁶⁾. All these complications tend to present immediately or in the early post injury period. It is rare for any complications to surface beyond this time frame. This report describes an unusual complication due to a penetrating shrapnel injury sustained ten years earlier and highlights the role of computed tomography in its elucidation.

CASE REPORT

A 33-year-old male welder was referred by his general practitioner to the Otolaryngology Unit of the University Hospital, Kuala Lumpur with a provisional diagnosis of a tracheal foreign body. Ten years previously at his work place, while flattening scrap metal, there was an accident resulting in loose bits of flying shrapnel which punctured his anterior cervical skin. He was informed by his then medical attendant that there was a radiopaque foreign object in his cervical soft tissue which was best ignored as he was asymptomatic. He remained so till three years ago when he developed intermittent dry cough which did not respond to a variety of antitussive medications. This worsened over the last three months associated with a persistent pain over the suprasternal notch and right sternoclavicular joint area. He complained of inability to do manual work due to the pain and needed regular analgesics. He was a chronic smoker of 15 years duration and was otherwise well. General and ENT examination did not reveal any abnormality except for mild localised tenderness over the right aspect of the suprasternal notch.

Chest X-ray was normal except for a small radiopaque object overlying the lateral end of the right tracheal air space at the level of the superior border of the clavicle (Fig 1). A fiberoptic bronchoscopy under local anaesthesia was normal except for a small localised area of erythema at approximately the midpoint of the trachea on the right anterolateral aspect. A computed tomography scan of the thoracic inlet identified the

Fig 1 - Chest radiograph demonstrating radio-opaque foreign body overlying tracheal shadow.



radiopaque foreign object at the level of the suprasternal notch wedged between the right tracheal wall and common carotid artery. (Fig 2 and 3).

As his symptoms persisted despite a trial period of six weeks abstinence from smoking, neck exploration was performed through a collar incision. A half centimetre metal piece was found embedded in granulation tissue adherent to the right carotid sheath and tracheal wall. This was cautiously excised maintaining the integrity of the carotid sheath. His symptom relief was remarkable and he was back to work within a month with no further need for analgesics. He remained well and asymptomatic at three months follow-up.

DISCUSSION

Chevalier Jackson recognised that metallic foreign objects produced little inflammatory response, particularly so within the air passages⁽⁷⁾. This explains the occasional finding of asymptomatic foreign bodies in the lung tissue for durations of 30 or 45 years^(8,9). However, it is an established surgical principle that the presence of foreign material will predispose to development of infection and tissue granulations. Lodgement of foreign objects in the neck is known to lead to retropharyngeal cellulitis or abscess^(1,2). This also applies to metallic objects⁽¹⁰⁾. Within the closed tissue spaces of the neck, it is unusual that

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Fig 2 - Computed tomography sagittal section showing anatomical location of foreign body (arrow).



Fig 3 - A computed tomography transverse section at the level of the suprasternal notch. Note foreign body at centre of radiating artefacts due to reflecting metallic surface. It is lodged at the junction of the right anterolateral tracheal wall and right carotid artery.



infection did not supervene over the entire ten-year period and it is perhaps partly due to the relative inertness of metallic foreign bodies.

In this case report the chest radiograph confirmed presence of a foreign body overlying the tracheal air shadow but its exact anatomical location was only defined on computed tomography. Taken together with the bronchoscopic findings and non improvement with abstinence from smoking, this information substantiated a suspicion that the foreign body was the primary cause of tracheal irritation leading to his symptoms, thus justifying neck exploration. His complete relief of symptoms after removal of the foreign object confirmed that it was indeed the cause.

It is common knowledge that injected particles like polytetrafluoroethylene or charcoal will migrate to regional nodes and distant places⁽¹¹⁾. Migrating metallic shrapnel pieces causing complications after long periods of being asymptomatic have also been reported⁽⁶⁾. Although the initial position of the foreign body is not known, it is conceivable that this patient was asymptomatic for seven years till migration of the metallic shrapnel to the tracheal wall and carotid sheath interface. Its lodgement in the external tracheal wall accounted for the localised mucosal irritation as evidenced by the bronchoscopic findings. He was fortunate in that the foreign body did not erode into the carotid sheath resulting in an aneurysm or even more serious complication of life threatening haemorrhage.

To conclude, computed tomography is an excellent radiologic modality to be considered for use in the accurate localisation of problematic foreign bodies in the soft tissues.

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