

Removal of sub-mucosal foreign body (metal wire) from the pharynx using image intensifier

C. BHATT, M.S. (ORL), D.L.O. (ENG.), F.R.C.S.I., N. VISHNU SWAROOP REDDY, M.S. (ORL), D.L.O. (ENG.), F.R.C.S. (ED.), F.R.C.S.I., T. N. REDDY, D.L.O., F.R.C.S.

Abstract

It is well known how difficult it is to localize a foreign body in the sub-mucosal tissues. This is a report of a male who swallowed a metal wire which lodged in the pharyngeal sub-mucosal tissue. The foreign body was localized using an image intensifier and removed successfully.

Key words: Foreign Bodies; Pharynx; Technology, Radiological

Case report

A 62-year-old male presented to the department of Otolaryngology, with a history of swelling on the left side of his throat. He had been eating boneless meat four days previously and felt something sharp in his throat, but had no difficulty in swallowing. Clinical examination did not reveal any foreign body in the pharynx but mild pharyngitis. He was advised to take a course of antibiotics. He returned to the department seven days later with a sharp pain in his throat. Clinical examination failed to reveal a foreign body in the pharynx.

Lateral soft tissue X-ray of the neck showed a hair-thin radio-opaque foreign body about three centimetres in length lying in a vertical position at the level of the second and third cervical vertebrae (Figure 1). Examination under general anaesthesia failed to reveal any foreign body in the pharynx. As the foreign body was at the level of the left tonsil, a tonsillectomy was performed. A section of the tonsil revealed no foreign body. The patient was given a course of antibiotics. A computed tomography (CT) scan of the neck was carried out that revealed a foreign body above the level of the hyoid bone in the sub-mucosal tissues of the lateral pharyngeal wall (Figures 2 and 3).

Another attempt was made to identify the foreign body under general anaesthesia. Palpation and linear mucosal incisions of the left tonsillar fossa and lateral pharyngeal wall failed to localize the foreign body. A week later another attempt at removal of the foreign body was carried out with the use of an image intensifier. The foreign body was identified by using a marker (Figures 4 and 5). The foreign body, which was a hair thin metal wire, was removed in two pieces (Figure 6). The patient's recovery was uneventful. He received a 1.47 Gray/cm² radiation dose.

Discussion

An accidentally ingested sharp foreign body usually lodges in the pharynx. It can enter the bronchus if inhaled or the oesophagus if swallowed. Removal of a sharp foreign body

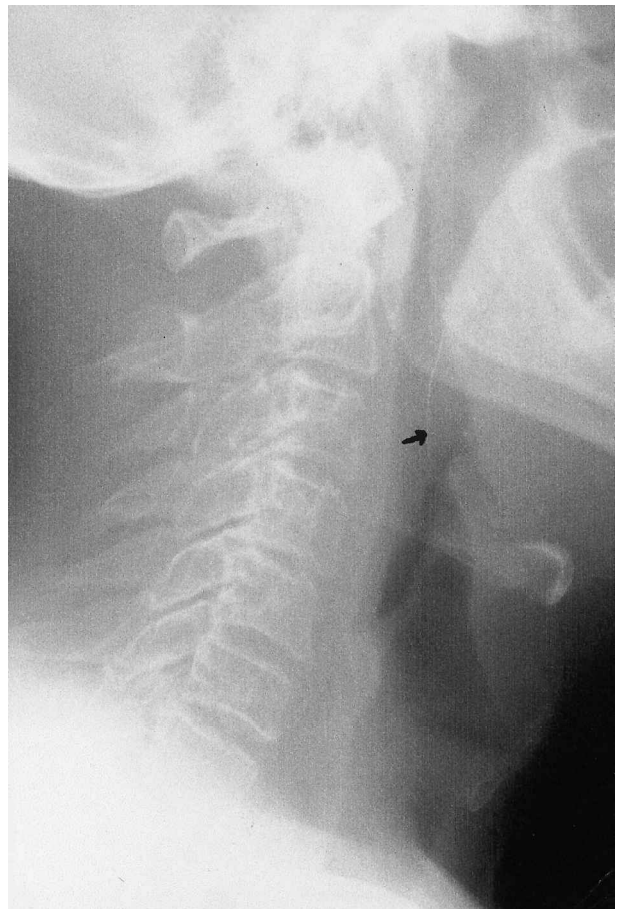


FIG. 1
X-ray soft tissue neck lateral view showing foreign body (arrow).

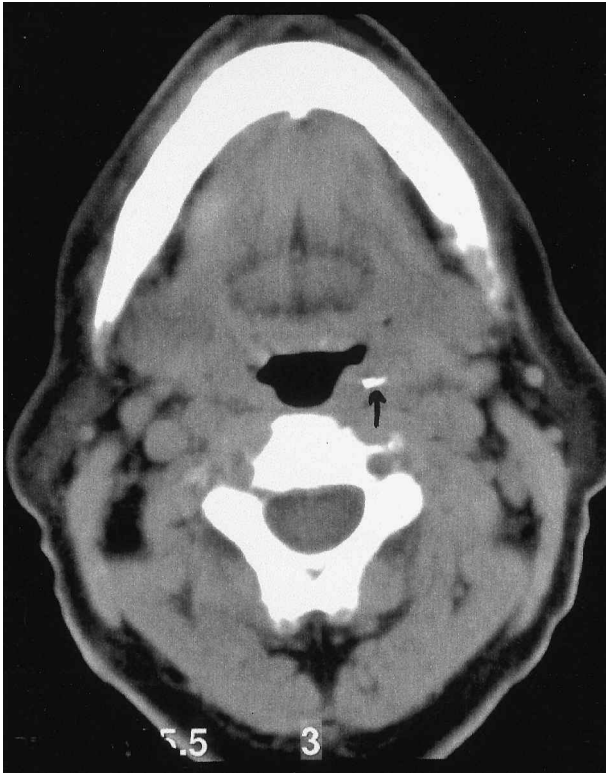


FIG. 2

CT scan showing upper end of the metal wire (arrow).

from the upper aerodigestive tract is not easy, even if it is visible endoscopically.^{1,2} It requires special endoscopic forceps or occasionally an oesophagotomy. When a radio-



FIG. 3

CT scan showing lower end of the metal wire (arrow).

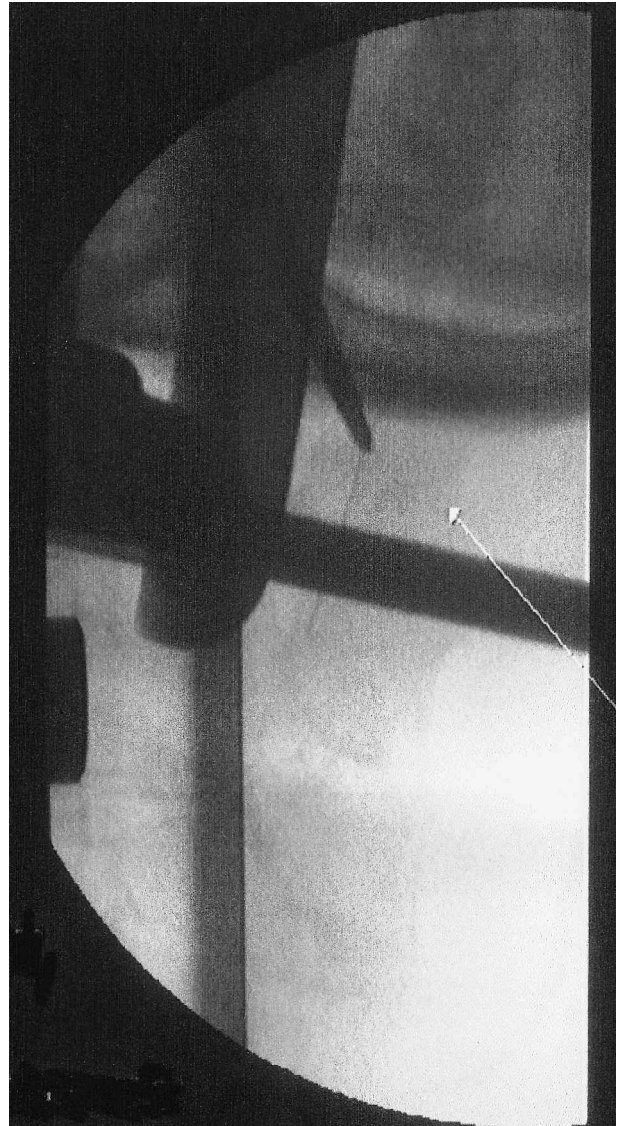


FIG. 4

Image intensifier X-ray showing metal wire at the tip of guide needle.

opaque foreign body lodges in submucosal tissue it is not difficult to locate it by X-ray or CT scan. In an anaesthetized patient instrumentation (endoscope) can distort the anatomy which makes it difficult to locate a foreign body. Although it was easily visualized on the X-ray and CT scan, it was not seen by direct examination, palpation or linear incisions. There were two reasons for this. One, it was lying sub-mucosally and, secondly, it was behind and below the posterior pillar of the left tonsil. A metallic foreign body can be detected intra-operatively using ultrasound, a modified metal detector³ or an image intensifier.⁴ Ultrasound is not available in the theatre. The metal detector has to be modified to fit into the pharynx. Use of an image intensifier is well established in orthopaedic, trauma, urology, general surgery and intra-arterial angiography.⁴ It has been used to locate a foreign body under the skin, a broken tooth fragment and wire.⁵⁻⁸ An image intensifier with fluoroscopy has been used for locating an endobronchial foreign body.⁹ In this case the image intensifier helped to locate the foreign body and guide the needle helping to make an incision at a precise

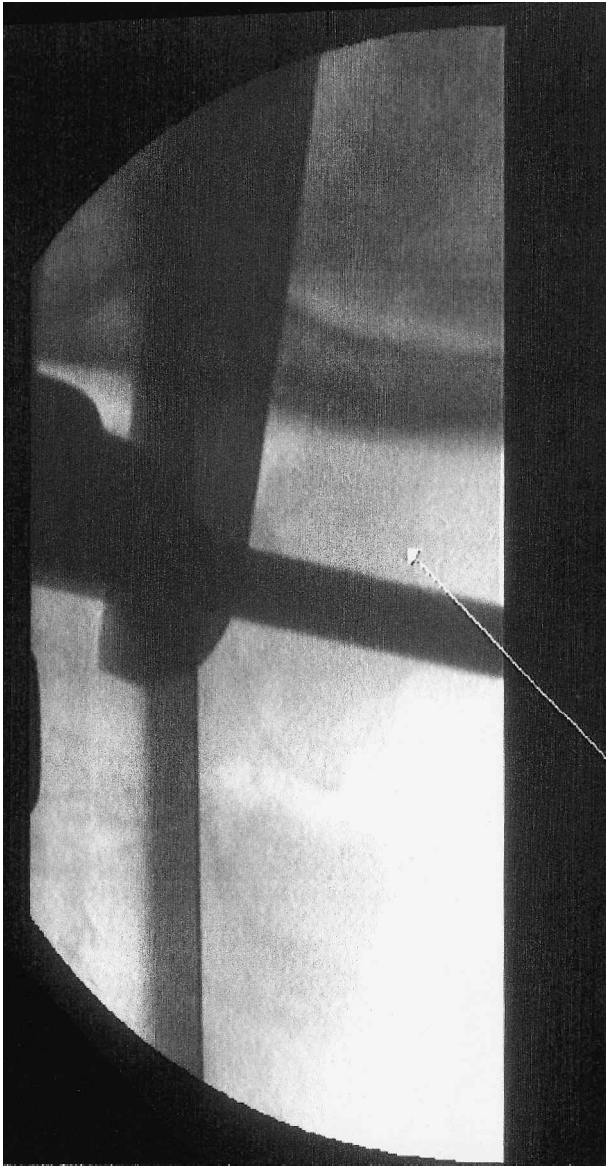


FIG. 5

Image intensifier X-ray after removal of foreign body.

location in the pharynx. An image intensifier is usually available in theatre. This is a very useful and under-utilized technique in otolaryngology.

Conclusion

The authors recommend the image intensifier, as a useful tool for localizing radio-opaque foreign bodies embedded in tissues.

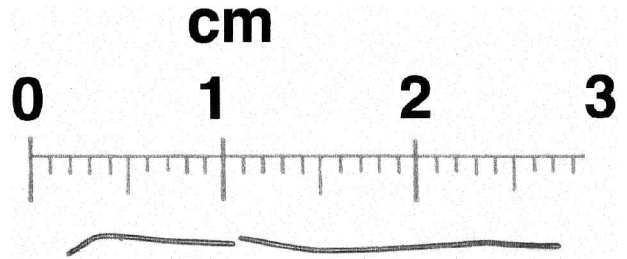


FIG. 6

Removed metal wire in two pieces.

- This is a case report describing removal of a sub-mucosal metallic foreign body
- The foreign body was difficult to localize but was, ultimately, removed after localization by an image intensifier

References

- 1 Holinger L. Management of sharp and penetrating foreign bodies of the upper aerodigestive tract. *Ann Otol Rhinol Laryngol* 1990;**99**:684–8
- 2 Anand TS, Kumar D, Kumar S, Wadhwa V. Embedded sharp metallic spring in esophagus. *Int J Pediatr Otorhinolaryngol* 2001;**59**:217–9
- 3 Veselko M, Trobec R. Intraoperative localization of retained metallic fragments in missile wounds. *J Trauma* 2000;**49**:1052–8
- 4 Sri-Pathmanathan R. The mobile X-ray image intensifier unit in maxillofacial surgery. *Br J Oral Maxillofac Surg* 1990;**28**:203–6
- 5 Adeniran A, Hobby JA, Bently B. Removal of minute foreign bodies. *Emerg Med J* 1995;**12**:298–9
- 6 Gans BJ, Kallal RH, Helgerson AC, Verona SR. The image intensifier in oral and maxillofacial surgery. *J Oral Maxillofac Surg* 1982;**40**:726–9
- 7 Ariyan S. A simple stereotactic method to isolate and remove foreign bodies. *Arch Surg* 1977;**112**:857–9
- 8 Mark MW, Smith DJ. Removing broken needles and other foreign objects. *Postgrad Med* 1989;**85**:234–6
- 9 Rohde FC, Celis ME, Fernandez S. The removal of an endobronchial foreign body with fiberoptic bronchoscope and image intensifier. *Chest* 1977;**72**:265

Address for correspondence:

Mr C. Bhatt,
Department of Otolaryngology and Head and Neck Surgery,
Staffordshire General Hospital,
Weston Road,
Stafford ST16 3SA, UK.

Fax: 44 1785 230774

E-mail: rina@ankit.freeseerve.co.uk

Mr C. Bhatt takes responsibility for the integrity of the content of the paper.

Competing interests: None declared