

Extraluminal Migration of Foreign Body: A Report of Two Cases

GM Divya, A Shahul Hameed, K Ramachandran, KV Vinayak

ABSTRACT

Ingested foreign body is one of the most frequently encountered emergencies in otolaryngology practice. Many of these foreign bodies get lodged in the upper digestive tract and can be removed endoscopically. Few of these foreign bodies can perforate the upper digestive tract and an even smaller number of these can migrate extraluminally. Although, a migrating foreign body can remain quiescent, they can cause life-threatening suppurative or vascular complications; hence, location and removal is essential. Here we report two cases of extraluminal migration of foreign body which was removed by neck exploration.

Keywords: Foreign body, Upper digestive tract, Extraluminal migration, CT scan, Carotid sheath, Soft tissue neck, Metal wire, Fish bone.

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INTRODUCTION

Foreign bodies in the hypopharynx and cervical esophagus are a common complaint in otolaryngologic practice. A swallowed foreign body can become embedded in the tonsil, base of the tongue, pyriform fossae, or any area of the upper esophagus. They are usually removed easily by laryngoscopy, hypopharyngoscopy or esophagoscopy. However, in some cases, sharp foreign bodies can perforate the upper digestive tract and migrate into the soft tissue of the neck. In these instances, it would be impossible to see or remove these foreign bodies by direct laryngoscopy. These migrating foreign bodies can remain quiescent or can cause life-threatening suppurative or vascular complications. Computed tomography (CT) of the neck is of great assistance in diagnosing a migrating foreign body. This is a report of two cases of extraluminal migration of foreign body, one a metal wire penetrating the carotid sheath and the other a fish bone residing in the soft tissue of neck. Both the foreign bodies were removed by neck exploration after evaluation by CT scan.

CASE REPORTS

Case 1

A 63-year-old gentleman presented in our department with the complaint of accidental ingestion of fish bone 3 days back

and thereafter persistent foreign body sensation throat. He attempted to dislodge the fish bone by swallowing large quantities of food. On examination his general condition was satisfactory. Vital parameters were well maintained. Throat examination was normal. Indirect laryngoscopy did not reveal any pooling of saliva, foreign body, edema or any congestion. Neck movements were painless. There was no sign of trauma, swelling or tenderness and laryngeal crepitus was present. Systemic examination was essentially normal.

Suspecting a foreign body, an X-ray of the soft tissue neck lateral view was taken which showed a linear thin foreign body of 3 cm length at C5-C6 level with no prevertebral widening or air shadow or air fluid level. Endoscopic examination of the hypopharynx and esophagus revealed no foreign body. Repeat X-ray showed the same picture. After the endoscopic evaluation, foreign body sensation throat disappeared but started complaining of vague pain in the right side neck. In view of the persistent X-ray finding and pain in the right side neck, we doubted extraluminal migration of the foreign body. To know the exact location of the foreign body a contrast-enhanced CT scan neck was taken. It located a foreign body of 2.9 cm in the right side of the neck with adjacent minimal collection. The medial end was directed toward the lateral wall of the esophagus anterior to upper one third of C6 vertebra and the lateral end posterior to the right carotid sheath (Fig. 1).

In view of the extraluminal position of the foreign body and its relation to common carotid artery, an open neck exploration under GA was done after inserting a no. 14 Ryle's tube. A horizontal 7 cm incision was put at the level of cricoid

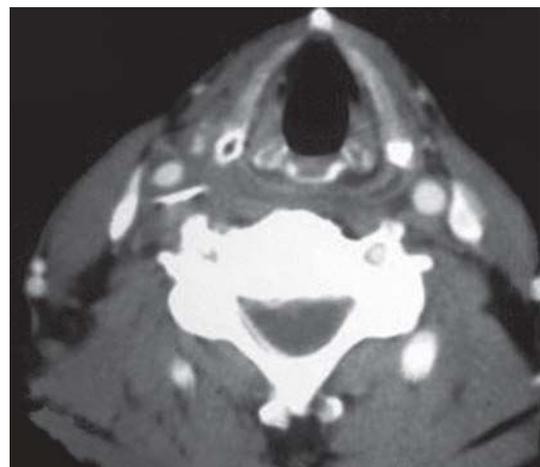


Fig. 1: CT scan showing a foreign body in the right side of the neck, the lateral end posterior to the right carotid sheath

cartilage in the right side neck. After retracting the sternocleidomastoid, carotid sheath was identified. The right middle thyroid vein was identified and ligated. An area of fibrosis with minimal fluid collection was seen between the apex of right pyriform fossa and carotid sheath. The same was carefully dissected and carotid sheath was retracted laterally. Surprisingly it was a black metal wire instead of fish bone and the foreign body was not situated exactly as where it is seen in the CT. The medial end was at the level of superior border of thyroid cartilage and the lateral end was found penetrating the carotid sheath and lying posterior to carotid artery (Fig. 2). The same was removed carefully and it was of 2.9 cm length. A 3 mm perforation was seen at the apex of the right pyriform fossa (Fig. 3) which was closed by using 3 0' Monocryl. The neck wound was closed in layers after putting a no. 12 suction drain which was removed on postoperative day 3. The patient was on Ryle's tube feeds for 5 days. Pharyngeal fistula was excluded by barium study and oral feeds were started. The patient's postoperative period was uneventful.

Case 2

A 45-year-old gentleman presented in our department with pain and pointed swelling in right side neck of 3 days duration. There was no history of foreign body sensation throat or difficulty or pain during swallowing. He gave a history of accidental ingestion of fish bone and thereafter foreign body sensation throat 15 days back, which was evaluated outside by rigid endoscopy and no foreign body was detected. The patient was absolutely free of symptoms after the endoscopy. On examination his general condition and vital parameters were well maintained. Neck examination revealed a pointed swelling of 1 cm with tenderness in the right side. Neck movements were painless. Laryngeal crepitus was present. Throat examination was normal. Indirect laryngoscopy did not reveal any pooling of saliva, foreign body, edema or any congestion.

A CT scan neck was taken and it showed a foreign body transversely located at the right sternocleidomastoid muscle with no evidence of abscess (Fig. 4).

Exploration of the neck was performed under local anesthesia. Horizontal neck incision was put above the swelling and the foreign body, a sharp, linear, serrated fish bone of 3.5 cm was gently pulled out of the right subcutaneous tissue of the neck (Fig. 5). Endoscopic evaluation of hypopharynx and esophagus was done and it was normal. The postoperative period was uneventful.

DISCUSSION

Impaction of foreign bodies in the upper aerodigestive tract has been reported since early in recorded history.¹ Foreign

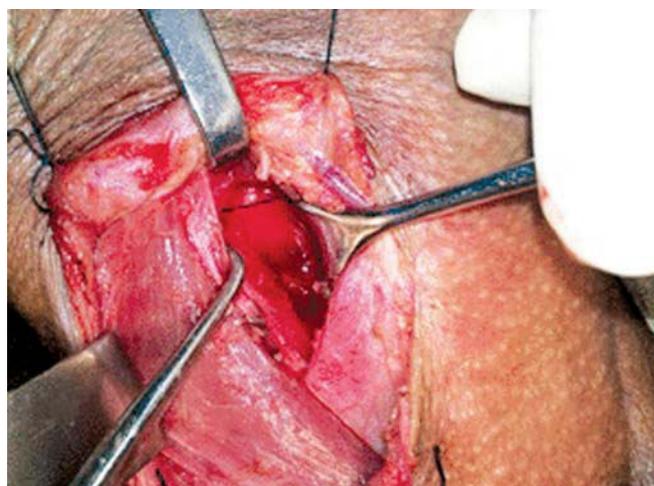


Fig. 2: Black metal wire seen puncturing carotid sheath and lying posterior to carotid artery

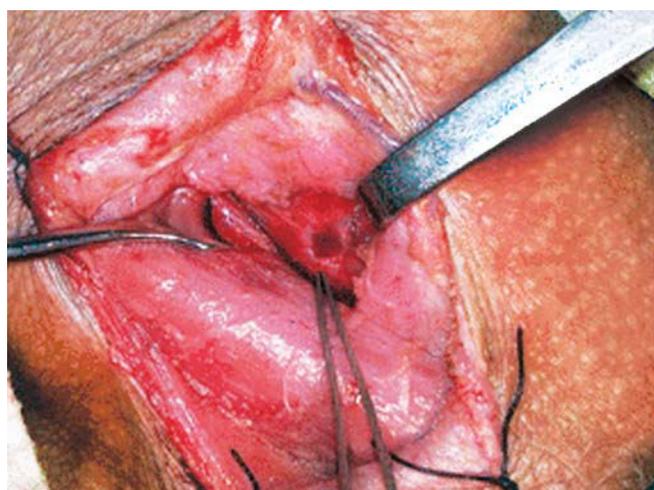


Fig. 3: Perforation at the apex of right pyriform fossa



Fig. 4: CT scan showing a foreign body transversely located at the right sternocleidomastoid muscle with no evidence of abscess

bodies can become lodged in the tonsil, base of the tongue, pyriform fossa, and cervical esophagus. Only rarely do foreign bodies penetrate the wall of the aerodigestive tract,



Fig. 5: Sharp linear serrated fish bone

and even more rarely do they migrate into the soft tissue and viscera of neck.² Remson et al in 1983 reported that out of 321 cases of penetrating esophageal foreign bodies, 43 of them migrated extraluminal.³ Foreign bodies that are sharper and those that are more horizontally oriented have a higher chance of penetrating the wall of the aerodigestive tract. When perforation occurs, it is facilitated by the strong contraction of the hypopharyngeal and cricoesophageal muscles as they propel a food bolus into the esophagus; this explains why higher rates of penetration occur in the hypopharynx and cervical esophagus. The mechanism of migration is thought to be due to movement of neck muscle and viscera during voluntary or involuntary movements of the head and neck structures.

Perforating and migrating foreign bodies can introduce bacteria into the soft tissue of the neck and cause suppurative complications, such as parapharyngeal or retropharyngeal abscess. Infection can spread into the mediastinum and lead to life-threatening mediastinitis. A foreign body might also penetrate adjacent visceral structures, such as the thyroid gland.⁴⁻⁶ Finally, these objects can also penetrate the major blood vessels in the neck and precipitate vascular complications, such as aorto-esophageal and innominate-esophageal fistulae and carotid rupture.

X-rays of lateral neck though useful, do not help determine if migration has occurred. Foreign body migration is suspected on the basis of suggestive history, a positive finding on lateral neck radiography, and a negative finding on rigid endoscopy. A CT scan can then be used to localize the foreign body and estimate the extent of damage done. A CT scan of the neck, utilizing extrafine cuts of 1 mm is the investigation of choice and is invaluable in confirming the presence of the foreign body. It offers better detection of thin, small and minimally calcified foreign bodies which is impossible to be identified by plain X-ray.⁷ It also serves as a 'road map' as it provides the surgeon with accurate size, type, orientation

of foreign body and its relationship to other vital structures in the neck such as hyoid bone, thyroid cartilage, cricoid bone, carotid artery and internal jugular vein.⁸ This information is very crucial especially when a neck exploration is planned. CT scans however are not without their drawbacks. It is sometimes impossible to tell if the foreign body is partially or completely extraluminal. A CT scan taken first without, and then with oral contrast can sometimes be useful. If the foreign body can be seen distinctly separate from the contrast in the lumen, it can be presumed to be completely extraluminal.⁹ The other problem is, as the soft tissues of the neck are mobile in relation to the bony and cartilaginous structures, at the time of surgery, the foreign body may not be situated exactly as where it is seen in the CT, as in our first case. Therefore the use of the C-arm to localize the foreign body in the neck intraoperatively is recommended.¹⁰

Having confirmed that the foreign body is extraluminal, exploration and removal of the foreign body via an external approach is recommended, to avoid life-threatening complications.¹¹

In our first case, history wise the foreign body was fish bone, but on neck exploration it was found to be a thin metal wire. The foreign body here was not situated exactly as where it is seen in the CT, the medial end was at the level of the superior border of thyroid cartilage instead toward the lateral wall of the esophagus. The position of the lateral end was same as that in the CT. In the second case, the foreign body was situated exactly as where it is seen in the CT. In both the cases the neck exploration was successful without the aid of C-arm.

CONCLUSION

These two case reports highlight the need of suspicion of extraluminal migration of foreign body when endoscopy fails to identify a foreign body and postoperative X-rays confirm it is still in the neck. Diagnosis of extraluminal migration and the exact location of foreign body can be established with CT scan of neck which provides a road map for surgical intervention. Systematic exploration of the neck via an external approach using the CT scan as a guide will decrease the chances of an unsuccessful exploration and will prevent the occurrence of life-threatening complications.

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ABOUT THE AUTHORS

GM Divya (Corresponding Author)

Assistant Professor, Department of Otorhinolaryngology Government Medical College, Kozhikode, Kerala, India, e-mail: omdgm@yahoo.co.in

A Shahul Hameed

Associate Professor, Department of ENT, Government Medical College, Kozhikode, Kerala, India

K Ramachandran

Professor, Department of ENT, Government Medical College Kozhikode, Kerala, India

KV Vinayak

Junior Resident, Department of ENT, Government Medical College Kozhikode, Kerala, India