CASE REPORT

Migrating foreign bodies in the upper aerodigestive tract: a surgical challenge

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SUMMARY

Migrating foreign bodies in the aerodigestive tract are uncommon but can pose serious complications. Long-standing migrating foreign bodies can exist manifesting chronic and unusual symptoms such as chronic cough, recurrent episodes of dyspnoea and fever. Adverse body reactions to foreign objects such as adhesions can cause difficulty in their diagnosis, localisation and removal. A thorough clinical and radiographical approach is of immense value in such cases. We report two difficult cases of migrated foreign bodies: a 2-year-old child with a long-standing foreign body that migrated to the upper mediastinum, and an adult patient with a fish bone that migrated to the oropharyngeal muscles. Presentations of these cases were not alike, with chronic unusual recurrent symptoms in one and typical acute symptoms in the other. The diagnosis and precise localisation of both foreign bodies was challenging, and an open approach was employed to remove them.

BACKGROUND

Foreign bodies in the aerodigestive tract are commonly confronted in otolaryngology practice, but the migration of these bodies in this region is rare. Movement of foreign bodies can cause numerous complications such as suppuration in the neck, major vessel injuries, mediastinitis, etc. Management of migrated foreign bodies is challenging. We present two cases where migration of foreign bodies in the head and neck region caused enormous diagnostic dilemmas and treatment challenges.

CASE PRESENTATION

Case 1

A 2-year-old boy presented to the Department of ENT and Head and Neck Surgery of our Hospital, with a 6-month history of an intermittent cough with occasional expectoration, a cold, and noisy breathing. The cough was episodic in nature with 3–4 days' duration followed by an asymptomatic 7-day interval. There were no aggravating factors and the symptoms were reportedly relieved with medications. The parents also reported two earlier episodes of postcough, non-projectile vomiting 2 days prior to their visit to the hospital. There were no associated symptoms of rapid breathing, dysphagia, odynophagia, hiccups or excessive crying during feeding. The patient was examined and a provisional diagnosis of lower respiratory pathology was given.

Case 2

A 55-year-old woman presented, 4 days after having ingested a fish bone, with a dull pain in the right side of her neck. The pain was aggravated on swallowing. A conventional throat examination did not reveal any signs of a foreign body in the right tonsillar fossa. Further exploration of the area with a 90 Hopkins rod did not show any evidence of a foreign body in the oropharynx or hypopharynx.

INVESTIGATIONS

Case 1

A routine chest radiograph was carried out for initial assessment. A plain chest radiograph showed a metallic foreign body in the upper mediastinum (figure 1). Considering the large size of the object and the long duration it had been there, a CT was advised to affirm the location of the object and its relation to important structures such as major vessels and nerves in the upper mediastinum. The CT scan showed that the foreign body was 4×4 cm in maximum dimensions at the level of clavicle in the oesophagus, and close to the prevertebral area (figure 2).

Case 2

Considering the history of fish bone ingestion, a plain radiograph was not advised, as it would probably not locate a hypomineralised structure such as a fish bone. Consequently, a CT scan of the neck was carried out for further evaluation, which showed a linear radiodense 2.4×1.4 cm foreign body in the

Figure 1 Plain radiograph of the chest showing metallic foreign body in upper mediastinum.

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Figure 2 CT scan image of the neck and thorax (sagittal view) showing 4×4 cm foreign body in prevertebral area at upper oesophageal level.

visceral space posterior to the posterolateral wall of the hypopharynx on the right side extending from the level of the inferior cornua of hyoid bone to the superior margin of thyroid cartilage with surrounding hypodense soft tissue (figure 3).

TREATMENT

Case 1

The child was posted for hypopharyngoscopy and was found to have a stricture in the oesophagus about 12 cm from the incisors. A bulge was also noted in the anterior wall of the oesophagus. The scope could not be negotiated further and additional efforts were leading to apnoea. It was concluded that the foreign body was causing compression over the trachea. The process was abandoned and the patient was referred to the paediatric surgery department. Oesophagoscopy was performed. The scope was passed up to the cardio-oesophageal junction,

Figure 3 CT scan image of the neck (coronal view) showing linear radiodense foreign body in posterolateral wall of hypopharynx.

but no foreign body was found; however, an area in the anterior wall showed a few reddish spots, suggestive of mucosal erosion. It was further assumed that the foreign body had migrated from the area.

C-arm-guided oesophagoscopy was performed. The foreign body was evident on the images at the level where the mucosal erosions were. A flexible bronchoscopy was carried out up to the carina, but again, no evidence of a foreign body was found. The foreign body was eventually found while horizontally manoeuvring the scope. Thus an intramural foreign body was diagnosed and removal via an open approach was planned.

Surgical removal of the foreign body was attempted by a cervical incision but the latter was not accessible. So a thoracotomy was performed and the foreign body was found abutting the oesophagus by means of abundant adhesions around it. The adhesions were released and the foreign body (rusted hair clip) was retrieved (figure 4).

Case 2

A decision of direct laryngoscopy for removal of the foreign body was taken. On direct laryngoscopy, no foreign body was found in the oropharynx or hypopharynx. The patient was subjected to a transcervical open approach and foreign body removal. The lateral pharyngeal wall was approached through a transcervical incision on the right side of the neck, but no foreign body could be located in the parapharyngeal and retropharyngeal area. Further, the posterolateral wall of the pharynx was palpated and the foreign body (fish bone) was localised in the pharyngeal muscle (figure 5) and successfully removed. Localisation of the foreign body was challenging, however, the postoperative period was uneventful.

OUTCOME AND FOLLOW-UP

Case 1

Although the treatment was hectic, the foreign body was removed successfully and the patient attained relief from all the presenting symptoms.

Case 2

Although the precise intraoperative localisation was difficult, the foreign body was located and removed, and the healing was uneventful.

DISCUSSION

Foreign body ingestion cases are routinely encountered in otolaryngology clinics. The majority of them lodge intraluminally.¹

Figure 4 Foreign body (rusted hair pin) removed from upper mediastinum.

Figure 5 Intraoperative image showing removal of intramural foreign body (fish bone).

A few sharp foreign bodies can migrate extraluminally if ignored and can cause devastating complications such as abscesses, major vessel injuries, mediastinitis, etc.² We have reported two exceptional cases of migrated foreign bodies with dissimilar presentations. The first patient was a 2-year-old child whose parents were totally unaware of any foreign object ingestion. The child presented with chronic non-specific symptoms including recurrent episodes of chronic cough, wheeze, noisy breathing and vomiting, for the past 6 months, mimicking recurrent lower respiratory tract infection. The second case was of a 55-year-old woman with a presenting symptom of fish bone ingestion and typical consequential symptoms including throat pain, pain on swallowing and dysphagia.

A long-standing foreign body can present with unusual and misleading symptoms when compared with a case of a shorter duration of an ingested foreign body. A known case of foreign body ingestion and of a shorter timespan presents with more predictable features. Long duration cases with unusual symptoms should always be viewed with a high index of suspicion. Recurrent episodes of cough, unexplained chronic fever, anorexia and wheeze in the paediatric group necessitate a thorough clinicoradiological examination to rule out the presence of an ingested foreign body.³ In such cases, rapid diagnosis and precise localisation of the foreign body becomes mandatory. In the majority of cases, a plain X-ray in multiple views suffices for the accurate diagnosis and localisation, but sharp, radiolucent objects such as fish bones and long-standing foreign bodies require better radiological evaluation, for example, CT scan, due to the possibility of migration.^{4 5} An endoscopic approach is the prime modality in diagnosis, localisation and removal of foreign bodies in the upper aerodigestive tract. It is preferred in cases of blunt non-penetrating foreign bodies with a short history of ingestion; however, long-standing and migrated foreign bodies require an external approach for removal.⁴ Moreover, endoscopy is also performed post foreign body removal, especially in paediatric patients, to exclude the existence of multiple foreign objects.

In our first case, the long-standing foreign body migrated extraluminally in the mediastinum and an external approach was employed for its removal, as the endoscopic approach

failed. Abundant adhesions were present around the foreign body, which made its removal all the more difficult. Our second patient presented with a known history of fish bone ingestion and acute specific symptoms of pain in the right side of the neck with aggravation of pain on swallowing. In this case, the fish bone had migrated intramurally into the pharyngeal muscles. We opted for an external approach to remove the foreign body because in this case, too, endoscopic removal had been unsuccessful. The intraoperative localisation of the foreign body was demanding but successfully accomplished.

Learning points

- ▶ Chronic, recurrent, non-specific symptoms including cough, dyspnoea, anorexia and vomiting, in a paediatric patient, can exist due to a long-standing unnoticed foreign body in the upper aerodigestive tract. Such cases should be witnessed with a high index of suspicion, and early reference to tertiary care centre becomes mandatory.
- ▶ Patients with a known history of foreign body ingestion and a shorter timespan present with typical and predicted symptoms such as pain, aggravation of pain on swallowing and dysphagia.
- ▶ A thorough preoperative radiological investigation assists in precise localisation of migrated foreign bodies.
- ▶ Removal of long-standing migrated foreign bodies that have established adhesions with the surrounding tissues requires early intervention and prompt treatment.
- ▶ An endoscopic approach is preferred for blunt non-penetrating foreign bodies with short history of ingestion. Nevertheless, surgeons should be prepared for an external approach in cases of sharp and penetrating foreign bodies or with a prolonged history of foreign body ingestion.

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