Case Report

Migration of Foreign Bodies from the Upper Digestive Tract: A Case Series

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Fish bones are considered to be sharp foreign bodies and can penetrate the digestive tract. These penetrations are rarely observed but can pose serious complications when they happen. We present two-case studies where ingested fish bones were found to have migrated from the upper digestive tract to the retropharyngeal area. Initial examinations and endoscopies of the neck returned negative results. The subsequent computed tomography scans documented the locations of the fish bones. Surgical neck explorations were performed via a lateral neck incision and the fish bones were successfully removed from the patients.

Keywords: *Foreign body, Migration, Neck*

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The accidental ingestion of foreign bodies is a common problem that is handled by the emergency departments in hospitals and in otolaryngology outpatient clinics. Foreign bodies entering the upper digestive tract can cause mild to serious complications ranging from tenderness or an irritation of the pharynx, infections, abscesses, esophageal perforations, and may even cause mediastinitis with an unfortunate outcome of death[1-4]. Fish bones constitute more than 85% of all ingested foreign bodies[5]. The penetration of the foreign bodies extra-luminally from the upper digestive tract and their migration to surrounding structures is a rare condition. The ingestion of foreign body has caused gastrointestinal perforation in less than one percent of investigated patients[6] because foreign body tend to be naturally excreted from the body[7-9].

The common sites for fish bones afflicting injuries are at the base of the tongue, the palatine tonsils, the vallecula, and the upper oesophagus[10]. Most foreign bodies can be found by a thorough history taking and physical examination. The history obtained from children or mentally impaired patients may be unreliable. The possibility that foreign body may be ingested should always be kept in mind, though the foreign body can be located by physical examinations in most cases. The physicians may need to use diagnostic tools such as radiography, barium ingestion coupled with radiography, computed tomography (CT) or endoscopy if history taking and physical examinations are inconclusive in achieving locating a foreign body. An imaging tool such as plain radiography or a CT scan of the neck is an essential tool for confirming the presence of the foreign bodies and locating them accurately. Negative rigid or flexible endoscopies that show ulcerative lesions with surrounding oedematous mucosa may also indicate a possibility of foreign body migration.

The removal of an oropharyngeal foreign body is usually done in an office setting under local anesthesia. Most of these cases can be easily treated without major complications. However, a minor portion of the cases need general anesthesia, such as the case of huge foreign body or sharp foreign bodies that have penetrated out of the digestive tract lumen. There have been a few reports of the migration of the foreign bodies from the upper digestive tract. We report two such unusual cases with a review of the literature.

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Ethical approval

This case-series study received the approval from the Ethics Committee for Human Research, Khon Kaen University: project No. HE581262.

Case Report

Case 1

A 63-year-old man was referred to our university hospital for his persisting throat complaints from a local hospital. Referral letter and history taking revealed his seven months suffering since accidentally swallowing fish bone. He experienced a sensation of foreign body and stabbing throat pain immediately after the meal. His self-attempts to remove the fish bone failed before consulting a general practitioner who prescribed him antibiotics. However, the symptoms remained. A month after the man visited a local hospital for lingering odynophagia and was treated for bacterial pharyngitis for two weeks without success.

A re-examination of his throat by the same hospital physician divulged swollen right posterior pharyngeal area. Further investigations with a CT scan of the neck displayed a tubular shaped calcified lesion approximately 1.4 centimeters long at the right side of the prevertebral space, posterior to the right pyriform sinus (Fig. 1). He underwent laryngoscopy and esophagoscopy under general anesthesia, but nothing was found in the upper digestive tract. The physician from the local hospital then decided to refer this case to our university hospital.

The man was clinically stable with a body temperature (BT) of 37.6°C, a pulse rate (PR) of 68 bpm, a respiration rate (RR) of 20 tpm and a blood pressure (BP) of 154/97 mmHg with no underlying disease. He was admitted as an in-patient for further management. We examined his throat by using the fiber optic laryngoscope and found a white-colored plaque at the right posterior pharyngeal wall. The fiber optic laryngoscopy did not find the fish bone. We decided to explore his neck under general anesthesia.

To make sure that there were no foreign bodies in the upper digestive tract, we conducted laryngoscopy and esophagoscopy examinations before surgery. The foreign body was not seen in the lumen. We explored the neck by a lateral neck incision on the right side of the neck in case of a requirement to extend the examination inferiorly by dissecting the structure in the posterior direction to the retropharyngeal area. At the first attempt, we were unable to find the foreign body. Three days later, a second neck exploration was performed. The fish bone lodged in the right paravertebral muscle was successfully located. The foreign body was removed and the wound was closed with a drainage retained in the surgical base. He was hospitalized for one week before being discharged without further complications. At a follow-up examination conducted two weeks later, the surgical wound was found to have healed completely.

Case 2

A 49-year-old man was referred to the Khon Kaen University hospital with a complaint of a fish bone lodged in his throat for one week. After he had eaten a fish, he felt an immediate neck pain that persisted throughout the day. He attempted to remove the fish bone by himself by swallowing large quantities of food, but the foreign body sensation did not go away. He went to the local hospital and underwent direct laryngoscopy and esophagoscopy procedures. No foreign bodies were found in the hollow organ. The patient was sent for a further investigation with a CT scan of the neck that revealed a 1.5-centimeter fish bone-like foreign body at the right prevertebral muscle at the laryngeal level (Fig. 2).

At our hospital, the patient exhibited signs of malaise and high temperature. He was unable to eat due to the odynophagia. The vital signs were BT 38.0°C, PR 90 beats per minute, RR 20 times per minute, and BP 156/78 mmHg. Routine physical examination revealed a tender point at the right side of his neck around the cricoid level. A flexible fiberoptic endoscopy was performed. The tongue base, vallecular, epiglottis, posterior pharyngeal wall, larynx, and vocal cords all appeared normal.

The patient underwent a neck exploration under general anesthesia. A lateral neck incision was made. We found a fish bone at the post-cricoid level in the pre-vertebral muscle with approximately 2 cc of pus. After the operation, an intravenous antibiotic was given. The fever was gone by the third day. The patient was then discharged without further complications.

Discussion

The lodging of fish bones in the upper aerodigestive tract is a commonly encountered problem. A thorough oral examination, reflex mirrors, and fiber optic laryngoscopies are routine procedures used for identifying and removing foreign bodies. In cases with negative findings, lateral neck radiographies and rigid or flexible esophagoscopies are the most common procedures for identifying suspected oesophageal impaction[11].

The examiner must keep in mind the possibility of foreign body perforating the surrounding structures from the digestive tract. A history of ingesting the foreign bodies and the persistent pain experienced even after adequate treatment with antibiotics is the most

Fig. 1 The sagittal CT scan of the neck showing the migrated fish bone (arrow) in a prevertebral space.

Fig. 2 The axial CT scan of the neck showing the migrated fish bone in the paravertebral muscle.

common complaint.

Plain radiography is the first investigation for diagnosing the presence of fish bones due to its non-invasiveness and the simplicity in running the investigation. Plain radiography is available in most hospitals. In the past, plain radiography allowed for a poor visualization of fish bones or other foreign bodies in soft tissues. However, it provides a poorer sensitivity and specificity in comparison with other techniques such as CT[4,12] or endoscopy. Recently, new techniques have been developed for radiography with advanced digital technology, which yield a better visualization and a better precision[13]. The use of digital radiography as a diagnostic tool for identifying fish bones that are lodged in the throat may help to decrease unnecessary endoscopy and CT procedures.

The CT scan is the most frequently used investigation of choice. When the office-based examination or fiber-optic endoscopy fails to identify a foreign body, a CT scan is useful for determining the exact location of the foreign body and its relationship to the vital structures in the neck, and it allows the surgeon to locate the foreign body during an exploration of the neck[14].

The manipulation of the rigid endoscopy procedure under general anesthesia may further compress the fish bone from the esophageal lumen and speed up its extrapharyngeal migration. Although rigid endoscopy is a widely used technique for removal of foreign bodies in the airway and oesophagus, with a very high success rate and a very low complication rate, it is also a cause of death in patients[15]. Clear visual fields and delicate manipulation are key points for a successful rigid endoscopy. Before pushing the endoscope forward, the saliva should be sucked out and the mucosa checked carefully to avoid missing submucosal foreign bodies or compressing them further[11].

Leaving foreign bodies in the neck can result in acute complications such as deep neck infection, mediastinitis or vascular complications, which can all increase morbidity or even mortality. A fever also suggests the possibility of complications caused by infections. In the second case, the patient exhibited signs of a fever and an abscess was found around the foreign body.

Conclusion

We present a case series of foreign bodies migrating from the upper digestive tract. Our case series would help to increase the awareness of these conditions. In the event that a conventional endoscopy procedure is unable to find the foreign body, the CT scan is useful for ruling out the penetrating foreign bodies.

What is already known on this topic ?

The lodging of fish bones in the upper aerodigestive tract is a commonly encountered problem.

A thorough oral examination, reflex mirrors, and fiber optic laryngoscopies are common procedures used for identifying and removing foreign bodies.

What this study adds ?

The examiner must keep in mind the possibility of foreign body perforations from the digestive tract.

The CT scan is useful for ruling out the penetrating foreign bodies.

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Potential conflicts of interest

None.

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สิ่งแปลกปลอมทะลุออกจากทางเดินอาหารส่วนบน-การศึกษาในผู้ป่วยหลายราย

ภาธร ภิรมย์ไชย, วิสูตร รีชัยพิชิตกุล

ก้างปลาเป็นสิ่งแปลกปลอมที่มีปลายแหลมและสามารถทะลุทางเดินอาหารออกมาได้ ภาวะนี้พบได้น้อยแต่สามารถทำให้เกิดความพิการหรือถึงแก่ชีวิตได้หากเกิดขึ้น ผู้นิพนธ์นำเสนอผู้ป่วยสองรายที่รับประทานก้างปลาแล้วติดในลำคอ ต่อมาพบว่าก้างปลาทะลุออกนอกทางเดินอาหารส่วนบนไปติดอยู่ที่ส่วนหลังนอกคอหอย แพทย์ตรวจร่างกายทางหู คอ จมูกและส่องกล้องในทางเดินอาหารไม่พบสิ่งแปลกปลอม จึงเป็นที่มาในการส่งเอกซเรย์คอมพิวเตอร์และพบก้างปลาอยู่นอกทางเดินอาหารส่วนบน ผู้ป่วยทั้งสองรายได้รับการผ่าตัดเปิดด้านข้างลำคอ แพทย์สามารถนำก้างปลาออกมาได้สำเร็จในผู้ป่วยทั้งสองรายโดยไม่มีภาวะแทรกซ้อน