Challenging Removal of Embedded Fishbone in Tongue: Multimodal Technique, Surgical Approach and Consideration of Migration

Case Report

Fathiyah Idris[1], Foong Seong Kin[1], Faizah Binti Mohd Zaki[2], Marina Mat Baki[1]

[1]Department of Otorhinolaryngology-Head and Neck Surgery, University Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia
[2]Department of Radiology, Pusat Perubatan University Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Abstract

Fishbone ingestion is a common occurrence and patients present with various symptoms, posing challenges to the attending physicians. Here, we present two unique cases of patients with an unexpected rapidly migrating fishbone in the tongue. The first patient was operated transorally because of a foreign body embedded in the genioglossus muscle. In the second patient, CT scan located a fishbone embedded in the left hyoglossus muscle; however, the fishbone had to be relocated intraoperatively using bedside ultrasound guidance and was eventually found embedded within the mylohyoid muscle. The fishbone was successfully removed via transcervical approach following a failed transoral approach.

Keywords: Foreign bodies, tongue, floor of mouth, foreign-body migration, surgery, computed tomography, case report

ORCID ID of the authors:
F.I. 0000-0002-3797-4496;
F.S.K. 0000-0002-1846-5151;
F.B.M.Z. 0000-0002-7142-3794;
M.M.B. 0000-0002-9282-874X.

Cite this article as: *Idris F, Seong Kin F, Mohd Zaki FB, Mat Baki M. Challenging Removal of Embedded Fishbone in Tongue: Multimodal Technique, Surgical Approach and Consideration of Migration. Turk Arch Otorhinolaryngol 2022; 60(1): 59-62.*

Corresponding Author:
Marina Mat Baki; marinamatbaki@ppukm.ukm.edu.my

Received Date: 17.06.2021
Accepted Date: 19.09.2021

Content of this journal is licensed under a Creative Commons Attribution 4.0 International License.
Available online at www.turkarchotolaryngol.net

DOI: 10.4274/tao.2021.2021-6-5

Introduction

In fishbone ingestion cases, most patients present with foreign body sensation in throat, odynophagia, and dysphagia. Embedded fishbone or extraluminal migration should be suspected when patients experience persistent symptoms despite normal clinical findings.

Case Presentation

Case 1: A 72-year-old male presented with persistent foreign body sensation in the throat for five days following fishbone ingestion. He had visited an outpatient clinic several times due to unresolved symptoms before visiting our center. He had been treated with multiple courses of oral antibiotics as oropharyngeal examination findings were normal. He was then referred to our center following a neck computed tomography (CT) scan that revealed a 30.7×1.8 mm linear opaque foreign body embedded in the genioglossus muscle (Figure 1). Otherwise, he was afebrile, and the flexible nasopharyngolaryngoscopy examination

was unremarkable. His white blood cell (WBC), hemoglobin (Hb) and platelet counts were 5.5×10^9/L, 15.8 g/dL and 247×10^9/L, respectively. He underwent examination under anesthesia (EUA) and transorally floor of mouth (FOM) exploration. The tongue was retracted and maintained superiorly with a stay suture. An incision was made at the midline ventral surface of the tongue. The genioglossus muscle was identified, and a blunt dissection was made at the avascular plane of the midline. The fishbone was found embedded in the muscle approximately three cm deep horizontally, crossing the midline and subsequently removed (Figure 2). Postoperatively, intravenous dexamethasone, cefuroxime and metronidazole were initiated. The patient recovered well and was discharged with oral antibiotics on postoperative day three. A two-week follow-up showed good recovery with good FOM (floor of the mouth) wound healing.

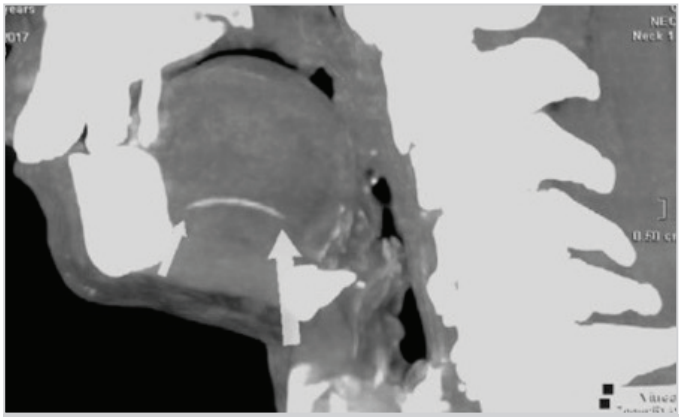

Figure 1. Sagittal computed tomography scan of the neck showing the anterior (small arrow) and posterior ends (large arrow) of the fishbone embedded in the genioglossus muscle

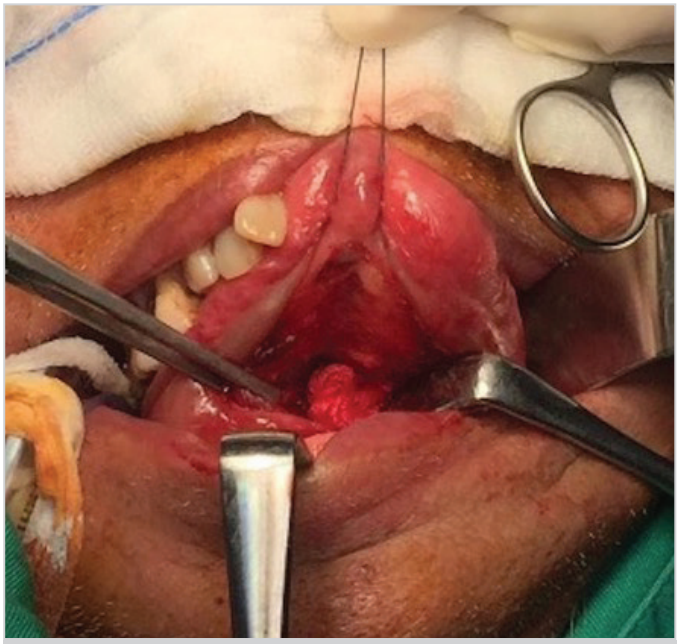

Figure 2. An incision at the midline of the floor of the mouth slightly extended onto the ventral surface of the tongue. The tongue was sutured with silk and retracted superiorly

Case 2: A 41-year-old male presented with a two-week history of persistent odynophagia and dysphagia following fishbone ingestion. Before visiting our center, the patient had sought treatment at another hospital on the day of incidence. He had undergone EUA and tongue exploration twice via a dorsal midline incision, as a CT scan had shown a foreign body embedded in the tongue (Figure 3); but the fishbone could not be localized intraoperatively. The patient's symptoms improved and was sent home after three days of hospitalization with oral antibiotics. The patient presented to our center with a persistent pain on the left side of the tongue for one week following his discharge. Oral examination revealed edema at the FOM and the left base of the tongue. No fishbone or sloughy mucosa was found. Repeat neck CT scan revealed a dense tubular structure in the left hyoglossus muscle measuring 1.7 cm (Figures 4a and 4b). Initially, the fishbone could not be localized during transoral FOM exploration under general anesthesia. Intraoperative ultrasound was then employed, and the foreign body was identified approximately 1.4 cm anterior to the submandibular gland (Figure 5). The transoral approach was then converted to a transcervical approach. The left submandibular space was explored until the fishbone was finally located in the mylohyoid muscle and subsequently removed (Figure 6). Postoperative recovery was uneventful

Figure 3. Sagittal computed tomography scan of the neck (first CT scan) showing a fishbone embedded in the tongue (white arrow)
CT: Computed tomography

and similar medications as Case 1 were administered. He was sent home with oral antibiotics after resuming normal oral intake three days later. A two-week follow-up showed complete resolution of the symptoms, and both the intraoral and cervical wounds healed satisfactorily.

Discussion

Although fishbone ingestion is common, serious sequelae such as deep neck abscess, injury to the common carotid artery, and thyroid gland can occur if not managed properly (1). In few isolated cases, as reported in the literature, the fishbone migrated in the aerodigestive tract and eventually pierced through the skin without complications (2).

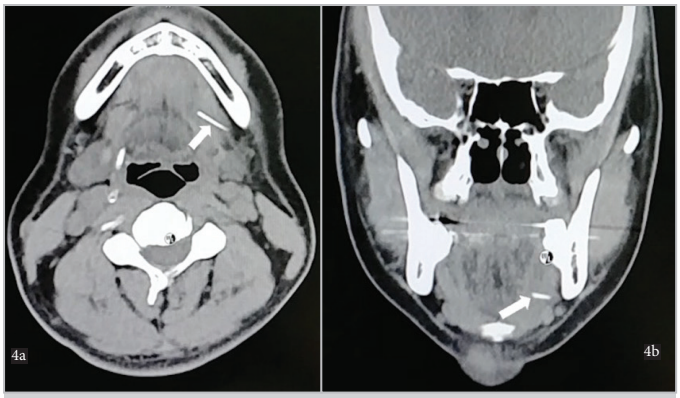

Figure 4. (a) Axial and (b) coronal computed tomography scan of the neck (second CT scan) showing a dense tubular structure in the left hyoglossus muscle (white arrow)
CT: Computed tomography

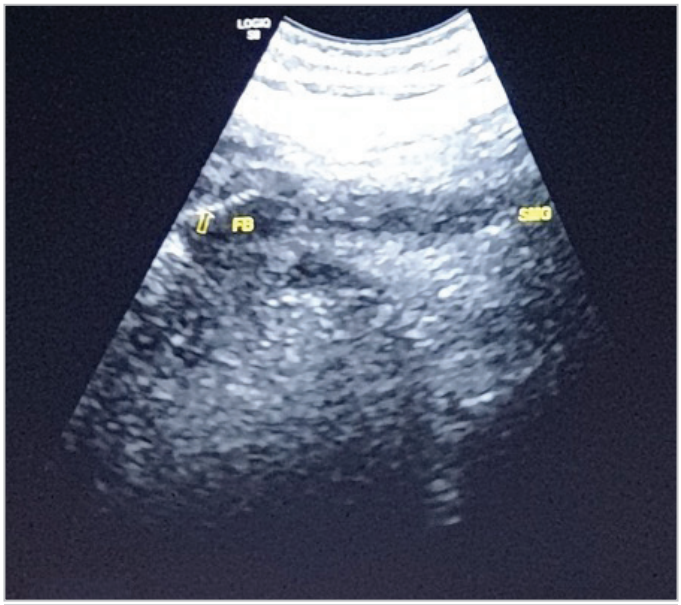

Figure 5. Linear echogenic foreign body (yellow arrow) in the left submandibular space, approximately 1.4 cm anterior to the submandibular gland (labeled as SMG) and embedded in the left mylohyoid muscle

Lateral neck radiography enables early detection, is cost-effective, and provides 90.6% diagnostic accuracy in the presence of both radiopaque density and air column lucency. Increased prevertebral thickness of more than 20 mm at the C6 level is indicated as an alarming finding (3).

CT scan provides accurate anatomical mapping of the fishbone and reveals surrounding changes or structures (4). Additionally, it is helpful in identifying the penetration site, planning for the surgical approach, and determining the direction of exploration.

Ultrasound offers the advantage of soft tissue foreign body detection and an increased ability in identifying radiolucent foreign bodies (5). It is recommended in detecting the location of a migrating fishbone as reported in the case of a rapid migration within 48 hours (2). Intraoperative ultrasound provides a dynamic assessment of fishbone location during operation. The migration is assisted by the physiologic movement of the neck muscles, horizontal

Figure 6. Linear fishbone embedded in the left mylohyoid bone (white arrow) was successfully removed

location, and the sharp and slender shape of the fishbone (2). The ingested fishbones in our cases were more feasible for extraluminal migration as both were horizontally oriented.

For intraluminal foreign bodies, retrieval using an endoscopic approach is less invasive, with rigid instrumentation success rate ranging from 94% to 100%, whereas that of flexible esophagoscopy is between 76% and 98.5% (6). However, open surgery is the best option for migrated foreign bodies (6).

A transoral incision either at the ventral surface of the tongue, the FOM, or lateral border of the tongue are among the common approaches to retrieve the embedded fishbone in the tongue (7-9). Its anatomical location and muscle fiber orientation determine the appropriate surgical approach (2, 7). In Case 1, the best access to the genioglossus muscle was over a transoral median ventral FOM incision, which is an avascular site. However, this surgical technique was unsuccessful in Case 2, as the foreign body had migrated laterally to the genioglossus muscle and was embedded in the mylohyoid muscle. Therefore, the transcervical approach followed by submandibular space exploration provided shorter and better access for bone retrieval. The submandibular gland is a good landmark as the hyoglossus and the mylohyoid muscles are located medially. Our transcervical approach for removing the fishbone embedded in the tongue is a novel surgical technique. Other transcervical access techniques were documented for retrieving a fishbone embedded in distal neck structures such as the thyroid gland, the hypopharynx, and the esophagus (1, 10).

Conclusion

A case of fishbone ingestion with atypical presentation and unexpected migration demands proper management planning and optimum utilization of resources. Both transoral and transcervical approaches with ultrasound assistance should be considered following the failure of fishbone retrieval via endoscopic approach.

Informed Consent: Obtained.

Peer-review: Externally peer-reviewed.

Author Contributions

Surgical and Medical Practices: F.I., F.S.K., F.B.M.Z., M.M.B., Concept: F.I., F.S.K., F.B.M.Z., M.M.B., Design: F.I., F.S.K., F.B.M.Z., M.M.B., Data Collection and/or Processing: F.I., F.S.K., F.B.M.Z., M.M.B., Analysis and/or Interpretation: F.I., F.S.K., F.B.M.Z., M.M.B., Literature Search: F.I., F.S.K., F.B.M.Z., M.M.B., Writing: F.I., F.S.K., F.B.M.Z., M.M.B.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

Main Points

- Regardless of normal clinical examination findings, computed tomography scanning is strongly recommended for assessing extraluminal migration in patients with persistent symptoms following fishbone ingestion.
- Intraoperative ultrasound provides a dynamic assessment of the fishbone location and is highly useful in cases of suspected migrating fishbones.
- If endoscopic approach fails, open surgery is the best option, and the use of either a transoral or transcervical approach greatly depends on the site of the foreign body.

References

1. Johari HH, Khaw BL, Yusof Z, Mohamad I. Migrating fish bone piercing the common carotid artery, thyroid gland and causing deep neck abscess. World J Clin Cases 2016; 4: 375-9. [Crossref]
2. Jamal S, Irfan M, Nazim N. Spontaneous extrusion of migrated fishbone in the neck after 48 hours of ingestion. Bangladesh J Med Sci 2011; 10: 129-32. [Crossref]
3. Luo CM, Lee YC. Diagnostic accuracy of lateral neck radiography for esophageal foreign bodies in adults. AJR Am J Roentgenol 2020; 215: 465-71. [Crossref]
4. Lue AJ, Fang WD, Manolidis S. Use of plain radiography and computed tomography to identify fish bone foreign bodies. Otolaryngol Head Neck Surg 2000; 123: 435-8. [Crossref]
5. Aras MH, Miloglu O, Barutcugil C, Kantarci M, Ozcan E, Harorli A. Comparison of the sensitivity for detecting foreign bodies among conventional plain radiography, computed tomography and ultrasonography. Dentomaxillofac Radiol 2010; 39: 72-8. [Crossref]
6. Shreshtha D, Sikka K, Singh CA, Thakar A. Foreign body esophagus: when endoscopic removal fails... Indian J Otolaryngol Head Neck Surg 2013; 65: 380-2. [Crossref]
7. Nariai Y, Yanai C, Kondo S, Ishibashi H, Egawa M, Kitagaki H, et al. A fish bone in the tongue: a report of a case. Asian J Oral Maxillofac Surg 2010; 22: 30-2. [Crossref]
8. Hsu CL, Chen CW. A prolonged buried fish bone mimicking Ludwig angina. Am J Otolaryngol 2011; 32: 75-6. [Crossref]
9. Chidzonga MM. Interesting case: fish bone in the anterior tongue--report of two cases. Br J Oral Maxillofac Surg 2005; 43: 409. [Crossref]
10. Kaneko I, Muroi M, Arai Y, Chikamatsu K. Two cases of foreign bodies in the hypopharynx and esophagus removed by transcervical approach. Practica Oto-Rhino-Laryngologica Suppl 2017; 151: 58-9. [Crossref]