

Obstructive Sialadenitis Caused by Migrated Fish Bone into the Submandibular Gland

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ABSTRACT

Background

Fish bones are the most frequent foreign bodies to lodge in the upper digestive tract. They often embed in the pharyngeal mucosa due to their sharp tips and causing pain. Patient typically attempt various home remedies to alleviate the pain or dislodge fish bones, only seeking medical attention if symptoms persisted or lead to complications such as difficulty in swallowing, abscess formation or respiratory distress. The presence of fish bones may be overlooked because of the complex anatomy of the pharynx, potentially allowing secondary infection to develop.

Case presentation

A 35-year-old with no comorbidities presented with a chief complaint of one-day duration of painful left neck swelling which is progressively increased in size. He had visited ENT department earlier for alleged fish bone ingestion; full examination and laryngoendoscopy done were negative. A neck x-ray revealed no abnormalities. Intervention: CECT neck was conducted to rule out deep neck space infection, with suspicion of migrated foreign body. He then underwent left submandibulectomy and a fish bone was extracted from the left submandibular gland. Outcome: The patient was well at follow up and discharged after the left neck swelling and throat pain were completely resolved.

Conclusion

The presentation of fish bones impaction varies in respect to the site of lodgement and often overlooked. If they are not removed, it will lead to complications as mentioned earlier. CECT of the neck is a useful imaging modality to assess deep-seated neck infection, provide guidance for further management. In this case, we chose an open approach with left submandibulectomy to remove the fish bone which is located deep in the submandibular gland. Post operatively, the patient showed good outcomes and immediate symptoms relief.

Keywords

Migratory foreign body; Fish bone migration; submandibular sialadenitis; Deep neck infection; CT imaging.

INTRODUCTION

Fish bones constitute more than 85% of foreign bodies that pass through the upper aerodigestive tract and are common in adults¹. They often located in various sites of impaction, such as the tonsillar fossa, vallecula, base of tongue, posterior pharyngeal wall, post-cricoid, and pyriform fossa². Prompt identification and removal of this impacted fish bones can be achieved via history taking, laryngoscopy and x-ray, resulting full recovery, however delayed detection and removal can lead to serious complications. They can pass unnoticed and migrate, causing symptoms that mimic other conditions such as sialadenitis or abscess². The presence of migrated fish bones cannot be neglected even if the initial examination, laryngoendoscopy and x-rays are negative³. Extraluminal migration of a fish bone in submandibular gland is a rare entity². We would like to draw the reader's attention to the diagnostic pitfall of migrated fish bone in acute submandibular sialadenitis, when initial evaluation is negative.

Case presentation

A 35-year-old male presented with a one-day duration of left throat pain after fish bone ingestion. He attempted to push the fish bone down by swallowing rice and bread, but the symptoms

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persisted. Full Ear, Nose, Throat examination, flexible nasopharyngoscopy, and neck radiograph were done with normal findings. He was subsequently discharged with oral amoxicillin-clavulanic acid, analgesics and was given one-week follow-up.

At day 2 post ingestion, he returned to the clinic with the new complaint of painful left neck swelling and persistent sore throat. The left floor of mouth was edematous and tender on palpation. No pus and palpable foreign body at the Wharton duct opening. There was left sided neck swelling arising at the left submandibular region measuring 3 x 3 cm. It was firm, tender and warm upon touch. There were no overlying skin changes, no visible punctum and non-fluctuant. On further history, he perceived a sharp foreign body sensation at the floor of mouth and tried to remove it forcibly by using his fingers but failed. The patient had a low-grade fever and mildly tachycardic with normal blood pressure and no respiratory distress upon second visit. Full blood counts were sent and demonstrated leucocytosis with neutrophils predominance, consistent with an acute inflammatory response. He was admitted for intravenous antibiotics and contrast-enhanced computed tomography (CECT) neck was done to rule out the deep neck space abscess, migrated foreign body, acute submandibular sialadenitis and obstructive sialolithiasis. It revealed a thin linear hyper density seen within the left submandibular gland (approximately 2.5 cm in length). The surrounding left submandibular gland was edematous, no collection was noted [Figure 1]. He underwent emergency left submandibulectomy and removal of foreign body under general anaesthesia

After local anaesthesia was infiltrated, a 3 cm horizontal incision was made over the skin marking, two-finger breadths below the left submandibular gland, and subplatysmal flap was raised superiorly and inferiorly to preserve the marginal mandibular nerve. The surgical wound then explored; facial vessels were ligated to expose the gland until reached the submandibular ganglion and preserving the lingual nerve. It was ligated and release from submandibular gland. The exposed submandibular gland and duct was palpated aiming to locate the fish bone [Figure 2A]. We noticed that the fish bone embedded inside the submandibular gland after total excision was done. The retrieved fish bone was measured to be around 2.5 cm in length [Figure 2B]. The incision was approximated by subcuticular closure, healed by primary intention. He completed a

course of intravenous antibiotics postoperatively for one-week duration and discharged well. During two-week of follow-up, the left neck swelling had lessened and remained asymptomatic. The ultrasound neck was performed and showed unremarkable findings. Patient then was discharged as he had achieved good progress.

DISCUSSION

Migratory foreign bodies in the submandibular gland, particularly fish bones (reported in 6 of 28 cases, are rare². They show equal gender predilection with 1:1 male to female ratio has been recorded². The left submandibular gland is more commonly affected (75%) than the right side (25%)².

Fish bones lodged in the oral cavity, pharynx, or esophagus can often be retrieved through direct visualization or endoscopy⁴. However, deep migration into the submandibular glands, which is frequently overlooked can trigger inflammation and infection⁴. Sharp fish bone has a potential to impale mucosa and migrate beyond their primary site⁵. Few sites of complications have been recorded in the literature such as common carotid artery, jugular veins, sternomastoid muscle and thyroid^{5,6}.

Localizing a fish bone in the submandibular gland is challenging due to the unusual site of migration. This is because the punctum duct is small, functions as a one-way valve with continuous salivary efflux, prevents fish bone influx⁶. However, in our patient, repetitive digital manipulation opposed this mechanism, allowing migration to the submandibular gland. Therefore, ultrasonography and CECT scan can be conducted for identification of embedded fish bone in submandibular gland, prior to surgical exploration^{1,6}.

As in our case, we identified the fish bone's location immediately after CECT neck. This suspicion arose when the patient presented on the second visit with sudden onset painful neck swelling, fever and tachycardia despite negative findings on initial assessment. Hence, CECT of the neck was performed to rule out deep neck space collection or migrated fish bone.

In cases of fish bones in the submandibular gland, they may cause obstructive sialadenitis characterized by acute or chronic inflammation^{7,8}. Fish bones are among the most common reported foreign bodies causing deep neck space infections⁸. Onset within 1 day to 2 months, with most cases following an acute or subacute course,

highlighting the need for prompt diagnosis⁸.

The treatment for removing foreign body from the submandibular gland includes non-invasive sialadenoscopy or surgery. However, 5 cases have reported the spontaneous discharge after conservative management⁶. Sialadenoscopy success rates depend on the foreign body location-the more distal, the better-as proximal lesions are difficult to remove⁷. Complications such as duct stricture or neurovascular damage can be avoided. Although this technique is preferable to surgery, not all centers can afford the required expertise or instruments costs².

Therefore, surgery via transcervical or transoral approaches is suitable when sialadenoscopy is unavailable or endoscopy removal is impossible⁷. In this case report, we chose submandibulectomy

due to the fish bone's embedded location within the submandibular gland, limited instrument availability and lack of expertise in our centre.

CONCLUSION

The incidence of migratory fish bone in the submandibular gland is rare, with only handful of cases reported in the literature. However, negative findings on laryngoendoscopy and plain radiography may create false reassurance and delay diagnosis. Hence, CECT imaging should be used to establish the correct diagnosis and guide further treatment. Submandibulectomy remains practical in a difficult case with limited access to advanced instruments such as sialadenoscopy and expertise, ensuring appropriate management of this condition.

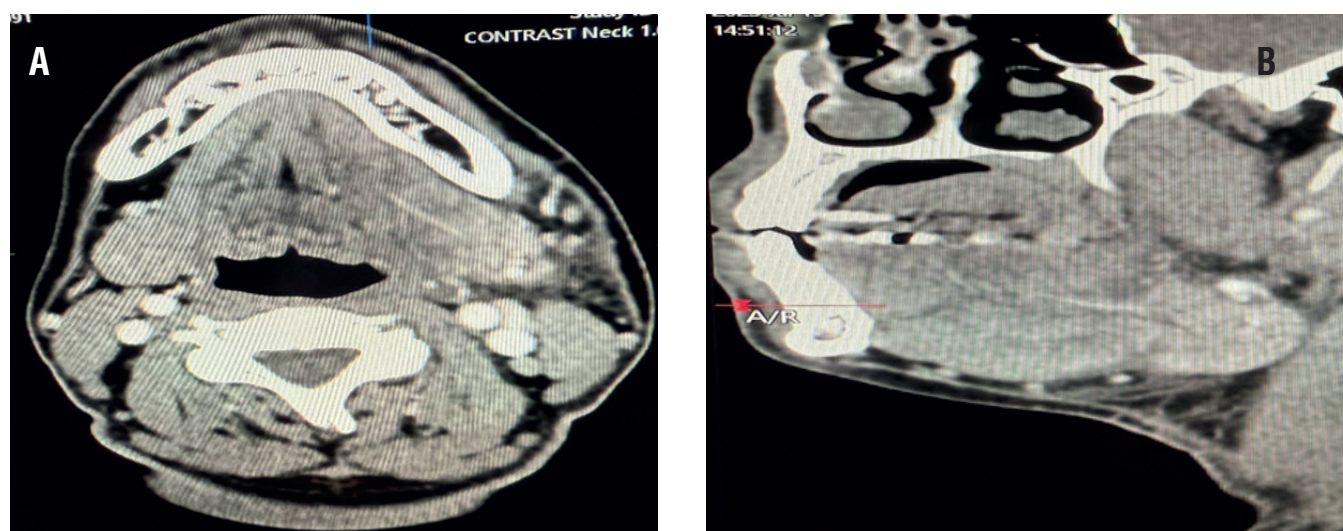


Fig. 1. Preoperative contrasted computed tomography showed an axial view (A) of a 25mm long linear hyperdense lesion (arrow) suggesting foreign body in the left submandibular gland with inflammatory reaction compared with the right submandibular gland (arrowhead). The hyperdense lesion can be seen in sagittal view (B) embedded at the proximal part of the left submandibular gland.

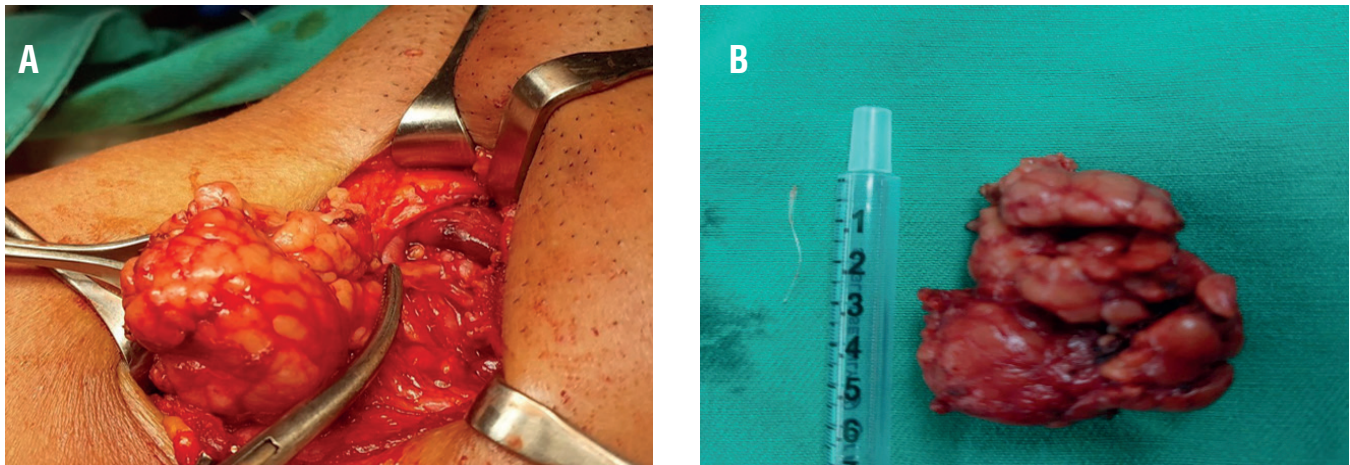


Fig. 2. Arrow showed the foreign body was grasped by the forceps from the left submandibular gland (A). Comparison of the size of fish bone (arrowhead) with the left submandibular gland and 1cc syringe (B).

REFERENCES

1. Lee TH, Park SW, Ryu S, Cho KJ, Won SJ, Park JJ. Two cases of extraluminal migration of fishbones into the thyroid gland and submandibular gland. *Ear Nose Throat J.* 2025;**104**(2):NP63-7. doi: 10.1177/01455613221098787
2. Dar WQ, Nisar J, Ain Batool QU, Qazi SM. Foreign bodies of submandibular gland and Wharton's duct: a review of literature. *Int J Otorhinolaryngol Head Neck Surg.* 2020;**6**(4):803. doi: 10.18203/issn.2454-5929.ijohns20201305
3. Biswas NN, Roy D, Rahman MSU, Reza MT, Alam MS, Podder R. An unusual etiology of submandibular sialadenitis, migration of an ingested fish bone to the submandibular gland: a case report. *Faridpur Med Coll J.* 2021;**16**(1):55-7. doi: 10.3329/fmcj.v16i1.55740
4. Madala SR, Chekka PK, Pandiri J. A rare case of sialolithiasis with an uncommon foreign body nidus. *Indian J Otolaryngol Head Neck Surg.* 2025;**77**(7):2633-5. doi: 10.1007/s12070-025-05521-5
5. Bhardwaj V, Gautam V, Verma H, Bhutada MD. Lost and found: foreign body in submandibular gland. *BMJ Case Rep.* 2023;**16**(11):e257564. doi: 10.1136/bcr-2023-257564
6. Yoshida H, Yamamoto S, Matsuda S, Ozaki K, Yoshimura H. A case of acute submandibular sialadenitis caused by a fish bone that strayed into the submandibular gland duct. *Oral Sci Int.* 2024;**21**(2):308-13. doi: 10.1002/osi2.1217
7. Lau ATL, Tsang RKY, Sun NHY. Abscess formation following accidental ingestion of fish bone with migration to the submandibular gland: a case report. *Hong Kong Med J.* 2022;**28**(6):485-7. doi: 10.12809/hkmj219492
8. Kimura H, Iwata E, Iwanaga J, Kobayashi C, Kunisada Y, Yoshioka N, et al. Deep neck infections caused by foreign bodies: literature review. *J Stomatol Oral Maxillofac Surg.* 2025. doi: 10.1016/j.jormas.2025.102669