

Abscess formation following accidental ingestion of fish bone with migration to the submandibular gland: a case report

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Introduction

Deep neck space infection is associated with significant morbidity and mortality, with the submandibular space being a common site of infection. Causes include odontogenic infections, submandibular sialadenitis, lymphadenitis, trauma, or surgery. This case report describes an uncommon cause of fish bone migration to the submandibular gland with consequent abscess formation. Apart from fish bones, a variety of foreign bodies in salivary glands has been described in previous case reports, including toothbrush bristles, slivers of fingernails, wood splinters, hairs or blades of grass.¹

Case report

A 38-year-old woman with good past health accidentally ingested a fish bone in September 2020. She subsequently developed a sore throat, right neck pain and swelling. She attended the emergency department at Queen Mary Hospital 2 days later due to progressive symptoms. On admission, she had a fever of 38.1°C with blood pressure 161/80 mm Hg and pulse 113 beats per minute. Physical examination

revealed a palpable tender right upper neck swelling. The right floor of mouth was oedematous and tender on palpation. At the opening of the Wharton's duct, no foreign body was palpable, and no pus was evident. Flexible laryngoscopy of the pharynx and larynx was normal. An urgent computer tomography with contrast revealed a 14-mm linear foreign body at the right submandibular gland with surrounding right submandibular abscess (Fig 1).

Emergency exploration under general anaesthesia was performed. First, transoral exploration was performed through an incision at the right posterolateral floor of mouth to retrieve the foreign body and drain the pus. In view of negative transoral exploration, transcervical exploration was performed. An abscess cavity was revealed at the medial surface of the right submandibular gland and pus was drained. Right submandibular sialoadenectomy was performed and subsequently a 14-mm fish bone was found impacted at the medial surface of the right submandibular gland (Fig 2). A 15Fr silicon drain was inserted to the wound bed. The patient was monitored in the intensive care unit postoperatively and was extubated the day following surgery. Intravenous amoxicillin-clavulanate (1.2 grams every 8 hours) was prescribed. Culture of pus was negative. Fever and neck swelling subsided and the drain was removed on postoperative day 3. The patient was discharged on postoperative day 5 with diet well tolerated. At 2-week follow-up, the neck and oral wound were well healed. The hypoglossal nerve, lingual nerve and facial nerve function was intact.

Discussion

A fish bone can usually be retrieved easily via endoscopy when lodged in the oral cavity, pharynx, or oesophagus. Nonetheless, some patients with a negative endoscopic finding may present later with neck swelling and fever that may indicate a deep neck space infection or migration of the foreign body to the neck. Extraluminal migration of foreign body to the common carotid artery, internal jugular

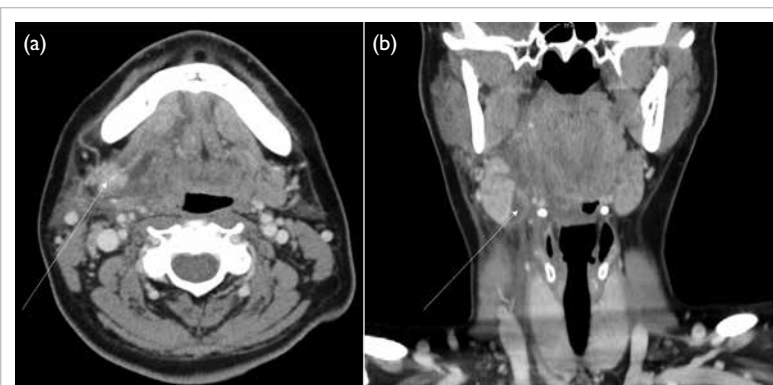


FIG 1. (a) Axial contrast computer tomography of the neck. The white arrow indicates the 14 mm linear opacity at the right submandibular gland with surrounding submandibular abscess. (b) Coronal contrast computer tomography of the neck showing right submandibular abscess (white arrow)



FIG 2. Specimen of right submandibular gland and fish bone. The length of the fish bone was 14 mm

vein, subcutaneous neck, the thyroid gland, and the cervical spine has been reported in previous case reports.²

Migration of fish bone to the submandibular gland is uncommon. There have been two hypotheses for such an event: direct trauma and retrograde migration. Some theories suggest that continuous flow of saliva from ducts into the oral cavity, the duct orifice being mobile and able to twist in all directions, and small diameter of duct at the orifice render retrograde migration rare.¹ In a previous study of sialoendoscopic assessment of patients with suspected obstruction in the ductal system of salivary glands, 3.9% had sialoliths related to fish bone, with the left submandibular gland being the dominant site (92.3%). Compared with the submandibular gland, foreign body at the parotid glands is much less common.³

Foreign body at the submandibular gland can have a variety of consequences. A patient with acute right submandibular sialadenitis due to an impacted fish bone has been reported who presented with tender submandibular swelling.⁴ The patient had no recall of foreign body ingestion. Plain radiograph of the neck revealed a radiopaque foreign body. The infection eventually required antibiotic treatment and submandibular gland excision, with identification of a fish bone at the excised gland. Another patient presented with chronic sialadenitis. A fish bone-induced sialolith was successfully removed with sialoendoscopy.⁵ A third patient presented with deep neck space infection with abscess formation, as in our patient.

Different techniques have been applied to remove foreign body from the submandibular gland.⁶ For sialoendoscopy, a higher success rate has been observed with foreign bodies in the distal duct while those located in the more proximal part and secondary branches of the Wharton's duct have

been difficult to remove. Surgery may be required if endoscopic treatment is not suitable, either using a transoral approach or transcervical approach with submandibular gland sialadenectomy. In this case report, a transcervical approach was eventually adopted.

Conclusion

The mainstay of treatment for submandibular abscess is airway protection, antibiotic treatment, and surgical drainage. Timely diagnosis and treatment are key to success. Despite being a rare cause, submandibular gland foreign body complicated by abscess formation should be considered as a differential diagnosis in patients with submandibular swelling who report swallowing of a fish bone.

Author contributions

Concept or design: RKY Tsang.

Acquisition of data: NHY Sun.

Analysis or interpretation of data: ATL Lau.

Drafting of the manuscript: ATL Lau.

Critical revision of the manuscript for important intellectual content: RKY Tsang.

All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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Ethics approval

The study was conducted in accordance with guidelines of the Hong Kong West Cluster Research Ethics Committee (IRB Ref No.: UW21-094). Informed consent was obtained from the patient.

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