

Khairul Naimah Abdul Rashid¹, Khairul Bariah Noh²,
Abdul Mokhti Abdullah², Irfan Mohamad¹

Otrzymano: 06.05.2023
Zaakceptowano: 01.09.2023
Opublikowano: 05.12.2023

Migracja rybiej ości poza światłem przełyku do gruczołu tarczowego

Extraluminal migration of fish bone to the thyroid gland

¹ Department of Otorhinolaryngology – Head and Neck Surgery, Universiti Sains Malaysia Health Campus, Kubang Kerian, Kelantan, Malaysia

² Department of Otorhinolaryngology, Hospital Sultanah Bahiyah, Alor Setar, Kedah, Malaysia

Adres do korespondencji: Irfan Mohamad, Department of Otorhinolaryngology – Head and Neck Surgery, Universiti Sains Malaysia Health Campus, Kubang Kerian, Kelantan, Malaysia, e-mail: irfankb@usm.my

<https://doi.org/10.15557/PiMR.2023.0045>

ORCID iDs

1. Khairul Naimah Abdul Rashid <https://orcid.org/0000-0003-4847-8612>

2. Khairul Bariah Noh <https://orcid.org/0000-0002-7731-5807>

3. Abdul Mokhti Abdullah <https://orcid.org/0000-0003-0283-2030>

4. Irfan Mohamad <https://orcid.org/0000-0001-8572-0514>

Streszczenie

Migracja ciała obcego poza światłem przełyku występuje rzadko. Może ona jednak prowadzić do zagrażających życiu powikłań, gdyż ciało obce może przemieszczać się w dowolnym kierunku, uszkadzając ważne naczynia i struktury w okolicy szyi. Wynik leczenia zależy od szybkiego ustalenia rozpoznania i wczesnej interwencji. W pracy przedstawiono przypadek 52-letniej kobiety skarżącej się na ostry, kłujący ból w gardle dzień po połknięciu rybiej ości. W badaniu metodą laryngoskopii bezpośredniej i esofagoskopii nie udało się zlokalizować ciała obcego, a objawy utrzymywały się przez kolejne 3 dni. Tomografia komputerowa potwierdziła obecność ciała obcego zlokalizowanego między pochewką prawej tętnicy szyjnej a prawym płatem tarczycy. Kontynuowano eksplorację szyi i z powodzeniem usunięto rybią ość. Trudności w zlokalizowaniu ciała obcego wynikały z faktu, iż jego umiejscowienie różniło się od tego zobrazonego w początkowym badaniu metodą tomografii komputerowej.

Słowa kluczowe: ciało obce, górny odcinek przełyku, ość

Abstract

Extraluminal migration of a foreign body in the oesophagus is rare. It can result in life-threatening complications as it can migrate anywhere causing injury to vital vessels and structures in the neck region. The patient's outcome depends on prompt diagnosis and early intervention. We present a case of a 52-year-old female with a complaint of sharp pricking pain in her throat with a history of fish bone ingestion one-day prior. Direct laryngoscopy and oesophagoscopy failed to localise the foreign body and the symptoms persisted for 3 days. Computed tomography scan confirmed a foreign body located between the right carotid sheath and the right thyroid gland. We proceeded with neck exploration and successfully removed the foreign body. Multiple difficulties were encountered in localising the foreign body as its location differed from the one in the initial computed tomography scan.

Keywords: foreign body, upper oesophagus, fish bone

Highlight Box

Incidents of migrating ingested fish bone are very uncommon. Prompt diagnosis and management helps to avoid all complications of migrating fish bone into the complex spaces with multiple adjacent important structures in the neck region. This case report presents prompt diagnosis and surgical management that successfully prevented any complications.

INTRODUCTION

Foreign body (FB) ingestion, especially a fish bone, is one of common complaints seen in Otorhinolaryngology practice, which can occur in both children and adult age groups. Extraluminal FB migration is usually rare and more often occurs as a result of fish bone rather than chicken bone ingestion due to the presence of sharp edges. It can cause significant morbidity if not promptly addressed. Clinicians should consider the diagnosis of a migrating FB as one of the differential diagnoses in a patient with significant history of FB ingestion who experiences persistent sharp pricking pain with failure to identify the FB during oesophagoscopy.

CASE DESCRIPTION

A healthy 52-year-old female presented with continuous sharp pricking pain over the right side of the neck for 3 days. She had a history of accidental fish bone ingestion one day prior to symptom onset. Otherwise, she had no fever, neck swelling, difficulty breathing or swallowing, noisy breathing or voice changes. On examination, she did not appear septic, with no neck swelling and with normal flexible nasopharyngolaryngoscopy. She initially sought treatment at a private hospital where a plain radiograph confirmed an opaque FB located at the upper oesophagus. However, during direct laryngoscopy and oesophagoscopy under general anaesthesia, no FB was seen except for only oedematous cricopharyngeus area with ulceration. The procedure was abandoned and since the symptoms persisted the next day, she was subjected to computed tomography (CT) of the neck. CT scan showed features suggestive of a migrating FB in the right neck, located between the carotid sheath and the right thyroid gland with perforation of the oesophagus and surrounding inflammatory changes (Fig. 1).

Neck exploration under general anaesthesia was performed with skin incision made along the skin crease of the right neck two finger breadths below the mandible. Subplatysmal flap was raised both superiorly and inferiorly. The sternocleidomastoid muscle was retracted laterally and the dissection continued at the area of the paracarotid tunnel, however, still unable to localize the FB after fully exposing the paracarotid tunnel. The exploration was extended towards the right thyroid gland based on the presumption of further FB migration and the location of FB in preoperative CT posterior to the thyroid gland. Finally, the fish bone was found embedded entirely inside the right thyroid lobe, which was not a similar site shown in preoperative CT (Figs. 2, 3). Upon removal of FB, the surrounding structure including the thyroid gland and the carotid sheath was normal. She was then discharged well on day two post-surgery. During the follow-up visit up to one-month post-surgery, she was keeping well, had no neck swelling or pain, and no interscapular pain, and was able to tolerate oral food normally.

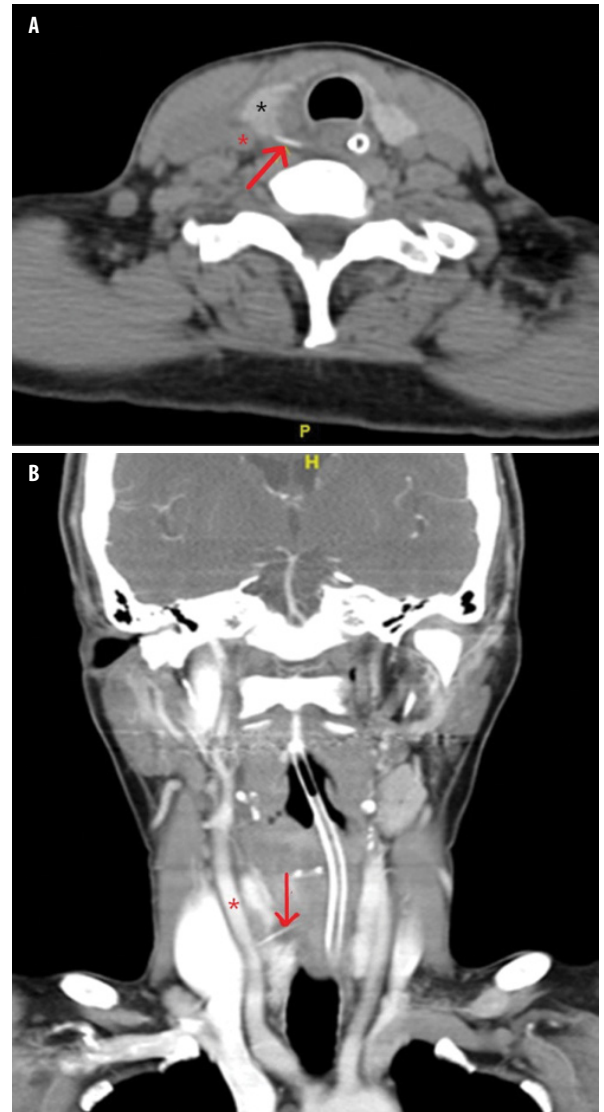


Fig. 1. Neck CT, soft tissue window, axial cut (A) showing extraluminal migration of a fish bone (arrow). On coronal cut (B) showing a close relationship between foreign body (arrow) and carotid vessel (red*) and right thyroid gland (black*)

DISCUSSION

Extraluminal migration of FB in the upper oesophagus is rare but when it does occur, it can lead to serious complications as it can migrate anywhere in the neck region, causing injury to its structures⁽¹⁾. Commonly ingested food particles that cause extraluminal FB migration usually will have a sharp edge and are horizontally placed that can pierce through oesophageal mucosa as per this case scenario⁽²⁾. Migration of a FB extraluminally may be contributed by voluntary neck movements, oesophageal peristalsis and tissue reaction that propels the FB through the soft tissue of the neck⁽²⁾. As the food boluses pass downward into the oesophagus, they create a contraction force at the hypopharynx and upper oesophageal muscle that will cause FB penetration into the oesophageal wall⁽²⁾.

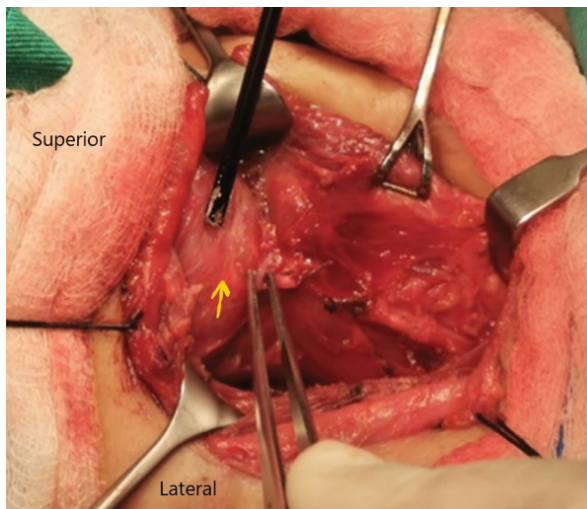


Fig. 2. The fish bone in between forceps tip entirely embedded in right thyroid gland (arrow)



Fig. 3. A 2 cm long fish bone with sharp edge removed

In the case of FB that lodges in the upper oesophagus, especially in the cricopharyngeus area, flexible or rigid 70-degree laryngoscopy may show mucosal oedema or the pooling of saliva at the pyriform fossa that may suggest a penetrated FB. Not all types of fish bone will present clinically significant radiopacity in the plain radiograph. Only 9 out of 15 types of fish bone demonstrated opacity in plain radiograph, which helped in the diagnosis of FB (Tab. 1)⁽³⁾. Radiolucent types of fish bone need a CT scan to aid the diagnosis.

Persistent symptoms after negative findings of FB during oesophagoscopy gave us a high index of suspicion of a migrating FB. Thus, a CT scan was indicated to confirm

Degree of opacity	Opaque even when embedded	Opaque in airway	Radiolucent
Types of Fish	Seabass Catfish Pangas Tuna Snapper Hardtail scad	Grouper Herring Croaker	Black pomfret Yellow stripe scad Yellowtail scad Ponyfish Mackerel Short mackerel

Tab. 1. Opacity of fish bone in plain radiograph by Irfan Mohamad et al.

the presence and location of FB prior to neck exploration. Johari et al. reported a case of extraluminal migration of a fish bone even further, which was coursing from the right thyroid lobe and piercing the right common carotid artery, which was removed uneventfully via neck exploration⁽⁴⁾.

We performed neck exploration and FB removal after the CT scan was done. Apparently, we failed to locate the FB in the targeted area. We postulated that the FB migrated further due to neck movement and manipulation during neck exploration. Exploration extended further towards the direction of the right thyroid gland due to its close proximity with the FB in the preoperative CT. The FB was found fully embedded in the right thyroid gland and successfully removed. No sign of inflammation was seen after FB removal as neck dissection was done promptly. If the surgery was delayed and preoperatively patient had uncontrolled diabetes mellitus the outcome of surgery might have differed. Intraoperative real-time radiological imaging is also one of the available methods in localising embedded FB in soft tissue head and neck regions during surgery. Kang et al. reported a case of a micro-screw in the intrinsic tongue muscle that had been dropped into the sublingual space during a lower alveolar bone graft procedure, which was successfully traced in the three-dimension location using intraoperative real-time radiological imaging⁽⁵⁾. However, no previous cases using intraoperative real-time radiological imaging in localising FB fish bone were reported. We suggest using this method in any centre having this modality as it allows for more controlled and targeted surgical dissection, minimized complications and reduced operative time.

Prompt surgical removal ensures good outcome in such cases. If we further delay the surgery, it might result in dreadful complications such as vascular injury, deep neck abscess, mediastinitis and aorto-esophageal fistula. Seven-point three percent of major complications occurred in oesophageal FB and the risk of complications increases 14 times when the FB is impacted for more than 24 hours⁽⁶⁾. Although in our case the FB was removed more than 24 hours after initial ingestion, no major complications such as injury to vessels, neck abscess, oesophageal perforation or mediastinitis occurred^(1,6-10).

CONCLUSION

Physicians should have a high index of suspicion for extraluminal FB migration when encountering patients with a history of FB ingestion who report persistent sharp pricking pain over the neck, despite negative findings during laryngoscopy and rigid oesophagoscopy. CT scan is mandatory in detecting FB and preoperative mapping of the FB site. Neck exploration should commence as soon as possible in the extraluminal migration of FB to avoid any major life-threatening complications.

Conflict of interest

All authors have no conflict of interest in this case study.

Acknowledgements

Authors would like to thank all personnel involved in managing this case.

Author contributions

Original concept of study: KNAR, KBN, AMA. Collection, recording and/or compilation of data: KNAR, KBN, AMA. Analysis and interpretation of data: KNAR. Writing of manuscript: KNAR. Critical review of manuscript: KNAR, IM. Final approval of manuscript: IM.

Piśmiennictwo

1. Akulwar AV, Dwivedi G, Dwivedi D: Migrating extraluminal foreign body hypopharynx. *Med J Armed Forces India* 2010; 66: 196–197.
2. Divya GM, Hameed S, Ramachandran K et al.: Extraluminal migration of foreign body: a report of two cases. *Int J Head Neck Surg* 2013; 4: 98–101.
3. Irfan M, Ahmad Helmy AK, Wan Shah Jihan WD: Radio-opacity of commonly consumed bony fish in Kelantan, Malaysia. *Med J Malaysia* 2012; 67: 491–493.
4. Johari HH, Khaw BL, Yusof Z et al.: Migrating fish bone piercing the common carotid artery, thyroid gland and causing deep neck abscess. *World J Clin Cases* 2016; 4: 375–379.
5. Kang YH, Byun JH, Choi MJ et al.: Successful localization of intraoral foreign body with C-arm fluoroscopy. *Maxillofac Plast Reconstr Surg* 2014; 36: 219–223.
6. Loh KS, Tan LKS, Smith JD et al.: Complications of foreign bodies in the esophagus. *Otolaryngol Head Neck Surg* 2000; 123: 613–616.
7. Chung SM, Kim HS, Park EH: Migrating pharyngeal foreign bodies: a series of four cases of saw-toothed fish bones. *Eur Arch Otorhinolaryngol* 2008; 265: 1125–1129.
8. Shergill GS, Nayak DR, Dora A et al.: Migrating foreign bodies in the upper aerodigestive tract: a surgical challenge. *BMJ Case Rep* 2015; 2015: bcr2015210326.
9. Pai K, Pillai S, Bhandarkar A et al.: Migrating ingested foreign body of the upper aerodigestive tract with resultant septic shock: case report and literature review. *Sultan Qaboos Univ Med J* 2013; 13: 606–610.
10. Joshi AA, Bradoo RA: A foreign body in the pharynx migrating through the internal jugular vein. *Am J Otolaryngol* 2003; 24: 89–91.