CASE REPORT

It's a cod! Finding Nemo (impacted fishbone) in the emergency department

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SUMMARY

A 23-year-old woman presented to the emergency department (ED) with a sensation of a 'fish bone' stuck in her throat after eating cod. On physical examination, while she reported an uncomfortable sensation in her throat, no airway compromise was evident. Clinical examination, including ear, nose and throat (ENT) and oropharyngeal assessment, was unremarkable. A linear opacity consistent with a fishbone was visualised on a soft tissue lateral neck X-ray anterior to the vertebral body of C4–6. One attempt to visualise the fishbone on direct laryngoscopy failed in the ED. The fishbone was later removed the next day via direct visualisation with a flexible endoscope in the operating theatre by the ENT surgical team. The patient's recovery was uneventful.

BACKGROUND

Impacted fishbones is a common presentation to the emergency department (ED) and presents a number of challenges to the emergency medicine (EM) physician. For example, for these patients, what is the most appropriate initial imaging modality, and what is its sensitivity and specificity for the detection of impacted fishbones?

Definitive assessment and management of these patients involve direct visualisation and removal of the foreign body. Traditionally, patients were referred to the ear, nose and throat (ENT) specialist for removal of the foreign body under direct flexible endoscopy. However, this is invasive and requires access to ENT services, which is limited to many centres out-of-hours and as a result often leads to a delay in patient disposition and treatment.

CASE PRESENTATION

The patient had eaten cod earlier during the day. The patient denied any shortness of breath or stridor. The patient had no medical or surgical history. On physical examination, while she reported an uncomfortable sensation in her throat, no airway compromise was evident. Clinical examination, including ENT and oropharyngeal assessment, was unremarkable.

INVESTIGATIONS

A soft tissue lateral neck X-ray demonstrated a linear opacity measuring approximately 3 cm in length within the soft tissues of the neck, anterior to the vertebral body of C4–6 (figure 1).

DIFFERENTIAL DIAGNOSIS

- ▶ Globus pharyngis
- ▶ Pharyngeal abrasion
- ▶ Angioedema (early)

OUTCOME AND FOLLOW-UP

The fishbone was not visible on direct visualisation of the oropharynx. An attempt was made to directly visualise the fishbone in the retropharynx using direct laryngoscopy. The procedure was performed in the resuscitation room with necessary patient monitoring by a senior EM physician with anaesthetic training. Anaesthetic drugs and airway equipment were immediately available if required to deal with potential risks such as aspiration and laryngospasm.

Verbal consent was obtained from the patient. The patient's oropharynx and proximal hypopharynx were first anaesthetised with Co-Phenylcaine Forte Spray. The patient was placed supine in the sniffing position. While the patient tolerated the procedure well, the fishbone was not visualised above the cricopharyngeus muscle and the procedure was abandoned.

The patient was subsequently brought to the operating theatre the next day by the ENT surgical team, whereby the foreign body was identified and removed from the upper oesophagus via direct visualisation with a flexible endoscope. The patient's recovery was uneventful.

DISCUSSION

This case demonstrates the clinical dilemmas facing the EM physician in the assessment and subsequent management of a patient who presented to the ED with a suspected impacted fishbone in her throat.

Patients with impacted fishbones frequently present to the ED with persistent sharp pain. Sites at which fishbones are typically found, in decreasing frequency, include the base of the tongue, tonsils, posterior pharyngeal wall, aryepiglottic fold and upper oesophagus.¹ In rare circumstances, impacted fishbones can cause significant complications such as gastrointestinal tract perforations.^{2–4}

The role of radiology and imaging in the assessment of possible fishbone impaction remains controversial.⁵ If the foreign body can be directly visualised and removed with complete resolution of symptoms, then there is no indication for routine radiological imaging. While the fishbones from cod are radiopaque, this is not the case for all fish species.⁶ The sensitivity of lateral neck radiographs in the detection of fishbones has been reported to be

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Figure 1 Soft tissue lateral neck X-ray demonstrating a linear opacity measuring approximately 3 cm in length within the soft tissues of the neck, anterior to the vertebral body of C4–6.

as low as 25%–32%.⁵ Multidetector CT has been shown to have sensitivity and specificity >90% in the detection of impacted fishbones, with the added ability to demonstrate associated complications.^{7,8} However, a 2006 BestBets review concluded that while CT is more effective than plain radiography at identifying and excluding oesophageal fishbones and chicken bones, plain radiographs should continue to be used as the first-line radiological investigation as they are specific enough (as well as being readily available) for positive results to warrant endoscopy.⁹ CT of the neck and mediastinum should be reserved for those patients with persistent symptoms or who complain of symptoms below the pharynx and negative X-ray imaging.¹⁰

As the majority of retrieved fishbones are retrieved within the oropharynx,¹ the clinical assessment of the patient should initially involve a direct view into the oropharynx with the patient sitting up with their mouth open and their tongue protruding with the assistance of a tongue depressor if required. Visible fishbones can be removed directly with a Magill forceps.

In our case, there was no foreign body observed on direct visualisation and the soft tissue lateral neck X-ray indicated that the fishbone was located deep in the retropharynx. A further look into the retropharynx was facilitated by direct laryngoscopy using topical local anaesthetic. This was performed by a senior EM physician with anaesthetic training in the resuscitation room with necessary patient monitoring, anaesthetic drugs and airway equipment. Arens *et al*¹⁰ described a similar technique in the ED using procedural sedation (midazolam and fentanyl) and video laryngoscopy (C-Mac) with successful extraction of the foreign body.

In our case, it became apparent immediately on clinical inspection that the foreign body was not visible above the

cricopharyngeus muscle and the procedure was abandoned in favour of deferred endoscopy.

We would advocate for direct laryngoscopy of the oropharynx, with procedural sedation if required, by experienced EM physicians with advanced airway skills in monitored areas within EDs with robust standard operating protocols for procedural sedation and airway management. For the patient, there are many potential benefits of direct visualisation in the ED by the appropriately trained EM physician namely early resolution of symptoms and discharge and avoidance of unnecessary imaging.

Learning points

- ▶ The majority of impacted fishbones are retrieved within the oropharynx.
- ▶ While the sensitivity of lateral neck radiographs in the detection of fishbones is low, they should continue to be used as the first-line radiological investigation as they are specific enough for positive results to warrant endoscopy and are readily available 24/7.
- ▶ Multidetector CT has been shown to have high sensitivity and specificity to identify impacted fishbones and associated complications.
- ▶ In the emergency department, an inspection of the retropharynx may be facilitated by direct laryngoscopy, using procedural sedation if required, by experienced emergency physicians with advanced airway skills.

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