



THE HIDDEN CULPRIT: CT DETECTION OF AN OESOPHAGEAL FISH BONE MISSED ON PLAIN RADIOGRAPHY

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ABSTRACT

Background: Fish bone ingestion is a common clinical problem encountered in emergency and otolaryngology practice. While most ingested fish bones pass spontaneously, some may become impacted in the upper aero digestive tract. Diagnosis can be challenging, particularly when the foreign body is radiolucent and not visualized on plain radiography. **Case Report:** We report a case of a 27year old male who presented with foreign body sensation, throat pain and odynophagia following fish consumption. Initial plain radiography failed to detect any foreign body. However, due to persistent symptoms, computed tomography (CT) of the neck was performed, which revealed a linear hyper dense structure lodged in the upper esophagus. The foreign body was successfully removed via rigid oesophagoscopy under general anaesthesia. **Conclusion:** This case highlights the limitations of plain radiography in detecting radiolucent foreign bodies and underscores the importance of CT imaging in suspected oesophageal fish bone impaction. Early diagnosis and prompt intervention are crucial to prevent complications.

KEYWORDS : Oesophageal Foreign Body; Fish Bone Ingestion; Computed Tomography; Oesophagoscopy

INTRODUCTION

Fish bone ingestion is a frequent emergency encountered in otolaryngology & casualty. They represent one of the most commonly ingested sharp foreign bodies, particularly in children [1]. Although many cases resolve spontaneously, impacted fish bones can lead to serious complications including mucosal injury, perforation, abscess formation & mediastinitis. In many cases they are found in the oesophagus, which include bolus food, fish bones [2, 3]. However, most patients may be unsure about whether or not they have impacted fish bones in their oesophagus, especially when they simply swallow ones hidden in their food. Plain radiography is often the first-line imaging modality, however its sensitivity in detecting fish bones is limited due to variability in radiopacity depending on the species of fish and bone composition. However, if the fish bones are not visible on video laryngoscopy, computed tomography (CT) and esophagoscopy should be considered. Also, there are still no established standard diagnostic tools or guidelines for treatment [4, 5]. Computed tomography (CT) has emerged as a more sensitive modality for identifying radiolucent foreign bodies and associated complications. We present a case of oesophageal fish bone impaction that was not detected on X-ray but was successfully identified on CT scan and managed with rigid oesophagoscopy.

A 27 year old male patient presented to the casualty in midnight with complaints of sudden onset throat pain and difficulty in swallowing following ingestion of a fish meal approximately 3 hours prior. The patient later had a sensation of a foreign body lodged in the throat, associated with odynophagia. There was no history of vomiting, hematemesis or respiratory distress. On clinical examination, the patient was stable with normal vital parameters. Oral cavity & oropharyngeal examination did not reveal any visible foreign body. Indirect laryngoscopy showed mild pooling of saliva in the pyriform sinus but no obvious foreign body which was later confirmed by video laryngoscopy as shown in figure-1.

Given the history suggestive of fish bone ingestion, a lateral neck X-ray was performed. The radiograph did not reveal any radio-opaque foreign body or soft tissue swelling as illustrated in figure-2a. Despite negative imaging, the patient continued to have persistent odynophagia, foreign body sensation raising suspicion of a missed radiolucent foreign body. Later on, a non-contrast CT scan of the neck was subsequently performed, which demonstrated a thin linear hyper dense structure embedded in the upper oesophagus at the level of the cricopharynx as illustrated in figure-2b. Minimal surrounding mucosal oedema was noted, without evidence of perforation or abscess formation.



Figure-1: Video Laryngoscopy Showing Normal Laryngeal Structures with no Evidence of a Foreign Body



Figure-2a: Hyper Dense Opacification Noted at the Level of Cricopharynx Suggestive of Fish Bone Impaction in CT Scan
Figure-2b: Plain Lateral Neck Radiograph Showing no Evidence of a Radiopaque Foreign Body

Case Report

Based on these findings, the patient was planned for rigid oesophagoscopy under general anaesthesia. Intra-operatively, a sharp fish bone measuring approximately 1cm was visualized impacted in the upper oesophageal mucosa. The bone was carefully grasped and removed using forceps without causing tear of mucosa. The surrounding mucosa showed mild erythema but no perforation. The patient had an uneventful postoperative recovery. He was kept nil per oral for 12 hours and subsequently started on a soft diet by Ryle's tube feed. Broad-spectrum antibiotics and proton pump inhibitors were administered. The patient was discharged on 3rd postoperative day and remained asymptomatic on follow-up. He was started oral feeds at the time of discharge.

DISCUSSION

Fish bone ingestion is one of the common emergency in ENT, particularly in Indian populations. The most common sites of impaction include the tonsils, base of tongue, vallecula, pyriform fossa & oesophagus. Among these, the upper oesophagus at the level of the cricopharynx is a frequent site due to anatomical narrowing.

Diagnosis is primarily based on clinical suspicion, supported by imaging. Plain radiography is widely used due to its availability and low cost. Diagnosing the presence of fish bone on plain X-ray films has a low sensitivity of 25–39% but a high specificity of 91% [6]. Computed Tomography (CT) on the other hand offers 100% sensitivity and 93% specificity [7]. Factors such as the size of the bone, the place of bone impaction as well as the radio density which changes with different fish species affect the visibility of the bone [8]. Computed tomography has significantly improved diagnostic accuracy, with sensitivity approaching 90–100%. CT not only detects the foreign body but also provides information about its exact location, orientation, and any associated complications such as perforation or abscess formation. In the present case, the fish bone was not visualized on X-ray, which could have led to a missed diagnosis if clinical suspicion was not maintained. Persistent symptoms prompted further evaluation with CT, which proved decisive. Occasionally, the patient may present late after ingestion with serious problems including GI perforation, infection or abscess in the deep neck or mediastinum, or aorta-oesophageal fistula, perforation, obstruction, and abscess formation of the gastrointestinal tract may occasionally lead to death [9–11]. In a prospective study by Woo SH et al, a total of 286 patients with fishbone impaction were examined to determine the most effective imaging modality for identifying the fishbone. It was noted that routine radiography identified 35.9% of simple bones, while CT identified 54.5% of the fish gill bones [12].

Management of oesophageal foreign bodies depends on the type, size, location & duration of impaction. Sharp objects such as fish bones require urgent removal due to the risk of perforation. Rigid oesophagoscopy remains the gold standard for removal, offering direct visualization and control. Delayed diagnosis can lead to severe complications including oesophageal perforation, retropharyngeal abscess, mediastinitis, and even fatal outcomes. Therefore, a high index of suspicion and appropriate imaging are crucial.

This case emphasizes the need for clinicians to consider CT imaging in patients with persistent symptoms despite negative X-ray findings. Early intervention ensures favourable outcomes and prevents complications.

CONCLUSION

Fish bone impaction in the oesophagus may be difficult to diagnose when plain radiography is negative. CT imaging plays a crucial role in identifying radiolucent foreign bodies and guiding management. Prompt diagnosis and early endoscopic removal are essential to avoid serious

complications. Clinicians should maintain a high index of suspicion in symptomatic patients and proceed to advanced imaging when necessary.

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