

# Fish Bone Migration- Culprit Leading to Retro-Paraoesophageal Abscess, Mediastinitis and Vocal Cord Palsy

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## ABSTRACT

Fish bone ingestion and impaction are known to everyone. However, such benign incidences have been reported to be associated with multiple potentially life threatening complications. Anatomical features of the oesophagus forms the basis for such incidences. We report here an elderly diabetic gentleman with an unusual left retro-paraoesophageal abscess complicated with oesophageal perforation, mediastinitis and vocal cord paresis which were fundamentally caused by a migrated fish bone into the lower part of the neck requiring therapeutic external neck exploration. Management of this case and its complications are described here comprehensively.

**KEYWORDS:** neck, oesophageal perforation, foreign bodies, mediastinitis, vocal cord paralysis

## INTRODUCTION

Cases of foreign body lodged in pharynx and oesophagus are rather common scenarios in otorhinolaryngology clinics. Fish bones being highest on the list followed by chicken bones and other inert objects such as coins or dentures. Incidences involving the oesophagus are lesser than in pharynx. The foreign body is usually lodged at the level of cricopharyngeus which functions as the upper oesophageal sphincter. Foreign body such as fish bones have been reported to migrate through the oesophageal wall causing abscess in the paraoesophageal region involving adjacent structures such as aorta, thyroid gland and neck muscles.<sup>1-3</sup> There are not many cases of foreign body associated with oesophageal perforation, paraoesophageal abscess and vocal cord paresis reported in literature.

## CASE SUMMARY

A 68 years old Indian gentleman presented with non-resolving fever, dysphagia, odynophagia and sore throat of 8 days duration. He developed hoarseness

on the sixth day of illness but there were no back pain, chest pain or palpitation. There was neither respiratory compromise nor neck swelling. His oral intake progressively worsened. His diabetes was well controlled with oral hypoglycemic agents and insulin while his hyperlipidemia was managed on statin.

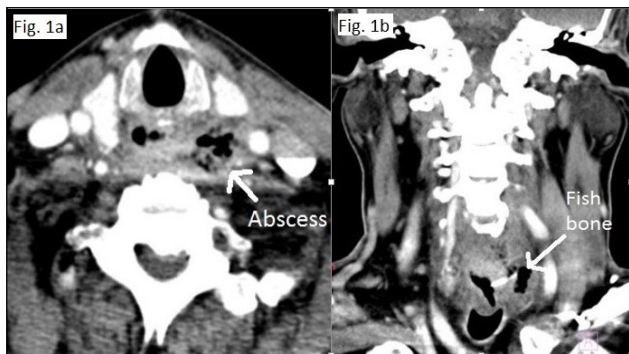
Shortly before his symptoms appeared, he experienced a sensation of a fish bone stuck at the lower part of his neck after eating fish 8 days ago. He was then admitted to a private hospital where he received intravenous ceftriaxone for 3 days but his symptoms did not improve and was subsequently referred to our centre for further management. His white blood cell count was 10.8 while the other blood parameters were unremarkable. Computed Tomography (CT) scan revealed left retro-paraoesophageal abscess measuring 10cm x 3.8cm x 2.7cm with air pockets extending down to T4 level compressing the trachea and causing mediastinitis (Figure 1a). A 1.5cm x 0.1cm foreign body was lodged horizontally at left paraoesophageal region at C5-C6 vertebrae level (Figure 1b). Indirect laryngoscope revealed right vocal cord paresis.

He underwent oesophagogastroduodenoscopy (OGDS), revealing a small left sided oesophageal perforation at the level of 18cm from the upper central incisor. There was pus and slough noted at the perforation but no foreign body was visualized. Neck exploration

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surgery was done under general anaesthesia. 20 ml pus was drained and the foreign body - a fish bone, was removed from the left paraoesophageal area (Figures 2a, 2b & 3). Tracheostomy was done in anticipation of airway compromise in view of the pre-existing right vocal cord paresis and surgical manipulation on left side of the neck close to the left recurrent laryngeal nerve. He was started on intravenous tazobactam-piperacillin. Post-operative flexible laryngoscope revealed bilateral vocal cord paresis. He was on strict nasogastric tube feeding for 3 weeks until gastrograffin study revealed completely resolved oesophageal perforation. His vocal cords regained normal mobility after 3 months and the tracheostomy was successfully decannulated.

## DISCUSSION



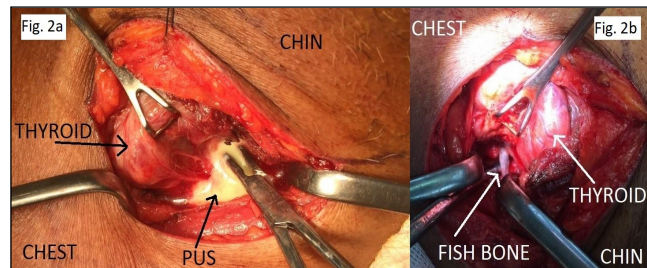
**Figure 1:** (a) CT neck axial view reveal abscess (arrow) at retro-paraoesophageal region. (b) CT neck coronal view reveal fish bone (arrow) encased by abscess.

Oesophagus has 4 anatomical narrowing which are at the level of cricopharynx, arch of aorta, right bronchus and diaphragm at which foreign bodies are prone to impaction. Fish bone with food boluses generally gets through gastrointestinal tract during gastrointestinal peristalsis. However, some fish bone do get impacted in the oesophagus. The reasons foreign bodies get impacted are sharp ends, serrated edges and large fragments. Odynophagia and dysphagia are the typical initial presentation followed by systemic symptoms such as fever, swellings and cardiorespiratory compromise. Interscapular pain is a red flag sign indicating possible oesophageal perforation.

Impacted fish bones in pharynx and oesophagus are usually diagnosed by oropharynx examination, laryngoscopy and oesophagoscopy. Not all fish bones are seen on X-ray and therefore CT scans are done in some cases especially in those cases with persistent symptoms but yet no fish bone is seen

with other investigation modalities. Removal of it is either via oral or external approach.

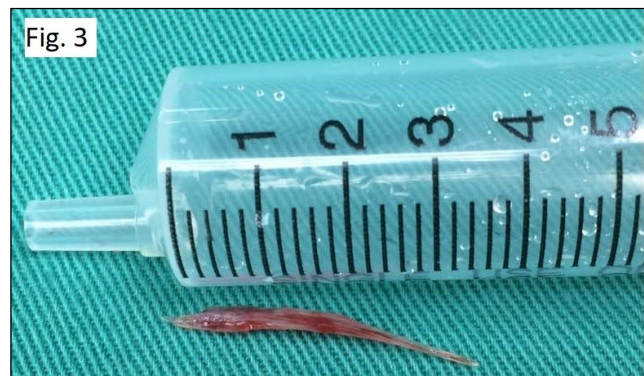
The fish bone in our patient was found to be impacted horizontally in the left paraoesophageal



**Figure 2:** (a) Pus drained from left paraoesophageal area. (b) Neck exploration surgery to locate the fish bone at left paraoesophageal region.

region enabling us to postulate that it was initially impacted at the cricopharynx horizontally but peristaltic movement caused it to puncture through and migrated outside the oesophagus.

The right vocal cord paresis is probably attributed to direct extension of the disease to the right



**Figure 3:** The fish bone with a 10 ml syringe as a scale.

tracheoesophageal groove affecting the right recurrent laryngeal nerve. Left vocal cord paresis is probably secondary to tissue manipulation and exploration of the disease over the left paraoesophageal region. Very limited number of vocal cord paresis secondary to fish bone impacted cases have been reported in the literature. The reported mechanisms are recurrent laryngeal nerve neuropathy caused by inflammation, abscess or direct injury to the recurrent laryngeal nerve by the fish bone.<sup>4,5</sup> The vocal cords of these patient recovered completely within 1-2 months.<sup>4,5</sup>

Perforation occurs in 1% to 4% of patients and the impacted fish bone in oesophagus must be removed as soon as possible.<sup>6</sup> Failure to do so will lead to abscess formation surrounding the fish bone. This potentially drains into mediastinum via deep neck

spaces causing mediastinitis or becomes fulminant neck abscess involving neck muscles, vessels and glands.<sup>1-3</sup> Mortality rate of acute mediastinitis ranges between 14% and 42%.<sup>7</sup>

## CONCLUSION

Fish bone impaction leading to oesophageal perforation can yield debilitating complications. It is crucial to recognize the signs early. Individuals with persistent symptoms, especially those who have significant history of fish bone impaction should be referred to otorhinolaryngology department and investigated as soon as possible. History of fish bone ingestion should be elicited in neck and oesophageal abscess cases.

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