

Case Report

Penetrating aero-digestive fish bone injury

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Abstract

The aim of the report is to re-emphasize how dangerous fish bone impaction in the esophagus could be and that a combination of pointing sign with radiographic features improves the specificity of the diagnosis. A 45-year-old male civil servant presented with 4 days history of fish bone impaction in the throat while taking meal containing fish with accidental ingestion of fish bone. This was associated with odynophagia, dysphagia, drooling of saliva, failed attempted dislodgement with swallowed boluses and positive pointing sign. Neck X-ray showed prevertebral widening and radio-opaque tracheoesophageal penetrating foreign body. He had endoscopy under general anesthesia with retrieval of the fish bone. Laryngo- esophagoscopy showed a laceration in the esophageal mucosal, which penetrated into the laryngeal inlet. This case report re-emphasizes the danger of attempting to dislodge such sharp foreign bodies with boluses of food.

Key words: Aero-digestive, fish bone, injury

Introduction

People frequently swallow foreign bodies and these usually pass through the gastrointestinal tract without complication.^[1] Esophageal penetration resulting from foreign body ingestion is uncommon, with the incidence reported to be between 1% and 4%.^[2] A wide variety of objects are retained in the esophagus, but fish bones are the most common (60%) and chicken bones the second most common (16%).^[2] Fish bone perforation of the esophagus can result in life-threatening complications if the diagnosis is delayed.^[3] Foreign bodies in the upper digestive tract whether blunt or sharp should be considered as an emergency to reduce the associated complications. If foreign bodies are not removed on the time, it can cause intramural perforation, subacute mediastinitis, aorto-esophageal fistula, tracheoesophageal fistula and long-term residual injury to the esophagus.^[3]

Prompt recognition and retrieval of ingested fish bones can reduce the morbidity and mortality. The purpose of the study is to re-emphasize how dangerous fish bone impaction could be and that a combination of pointing sign with radiographic features improves the specificity of the diagnosis.

Case Report

A 45-year-old male civil servant presented at the ear, nose and throat clinic of the University of Ilorin Teaching Hospital, Ilorin with 4 days history of fish bone impaction in the throat. He was taking food containing fish when he accidentally swallowed a fish bone with associated odynophagia, dysphagia to solids initially then to liquids with drooling of saliva. He did not have dyspnea, cough, neck swelling and fever, otological or nasal symptoms. Following the initial impaction, attempts were made to dislodge the fishbone with ingestion of large bolus of meal with no success. Past medical history was not significant and he had no intercurrent medical illness. He takes alcohol occasionally but do not smoke cigarettes.

Examination revealed an acutely ill looking middle aged man who was not pale, anicteric and afebrile. He had drooling of saliva with mild trismus while throat examination revealed hyperemic left peritonsillar region.

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There was severe tenderness on the left side of the neck, but there was no swelling. An assessment of fish bone in the throat was made. Plain soft-tissue neck radiograph revealed a transversely lying radio-opaque object of calcifying density measuring about 3.4 cm adjacent 5th and 6th cervical vertebra.

The object transversed the prevertebral soft-tissue into the laryngeal air column [Figures 1 and 2]. Patient had laryngo-esophagoscopy under general anesthesia, which showed laceration in the esophageal mucosal (and penetrating into the laryngeal inlet) measuring about 1-1.5 cm, bleeding, at about 15 cm from the incisors that was likely the entry point. The fish bone measuring about 3.40 cm [Figure 3] was subsequently retrieved. A repeat rigid endoscopy was done to re-inspect the site of injury after the foreign body was removed to ensure there is no second foreign body and also to check for remnants of such foreign body. A size 18FR nasogastric tube was put in place to rest the esophagus, to prevent mediastinitis and also allow healing to take place. After 48 h, a para-tube feeding i.e., per oral feeding with the nasogastric tube *in-situ* is commenced with close monitoring to check for leakage and persistence of the tracheoesophageal fistula. The nasogastric tube was removed after 4th post-operative day and patient discharged home 48 h thereafter on oral medication. He has been on follow-up in the clinic with no complaint thereafter.

Discussion

Accidental ingestion of fish bones is the most common throat foreign body complaint in adults in south eastern Nigeria.^[4] The fish bones typically lodge in the tonsils or the base of the tongue.^[3] Other sites of impaction include the vallecula, pyriform fossa, epiglottis, cricopharyngeus and esophagus.^[4] However, tracheoesophageal perforations resulting from fish bone ingestion is uncommon. The mechanism of fish bone impaction associated with tracheoesophageal perforation is thought to be initial impaction and then a combination of local inflammation of the esophageal wall and direct pressure from attempted dislodgement by the use of boluses of food as in this reported case.^[3] The most common site of foreign body impaction in the esophagus is the cervical esophagus at the level of the cricopharyngeus, followed by the thoracic esophagus at the level of the aortic arch.^[3] Perforation of the esophagus by a foreign body usually results in a dramatic clinical picture characterized by odynophagia, dysphagia with a positive pointing sign as in this reported case however there was no respiratory distress, vascular injury or fever.^[2]

Foreign body penetrating the esophagus may result in hematoma formation if there is associated intramural vascular injury.^[3] Migration of a foreign body to tissues outside the esophagus is rare; however in our report, the foreign body was found to penetrate the esophageal segment

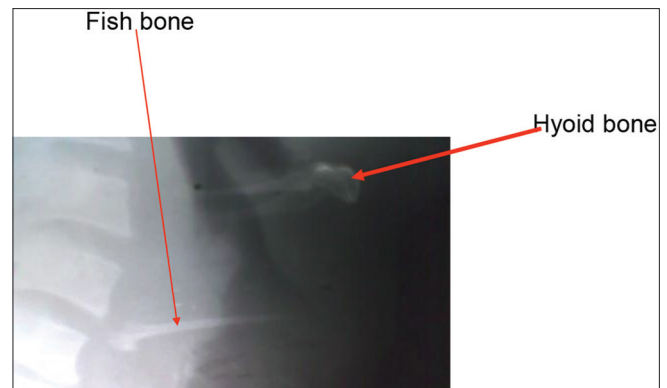


Figure 1: X-ray of the soft-tissue neck with fish bone

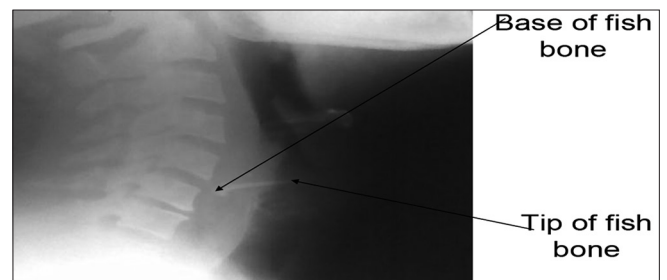


Figure 2: X-ray showing penetration of fish bone into trachea



Figure 3: Size of the fish bone after removal

into the tracheal region, this may have resulted from attempts at dislodging the fish bone with food boluses, which further pushed the foreign body deeper into the tissue.^[5]

A fish bone is sometimes not evident on plain radiographs because of its radiolucency. This investigative procedure if combined with the clinical findings of pointing sign in the patients will increase the specificity.^[6] Lue *et al.* reported sensitivity and specificity of 39% and 72%, respectively, for their plain radiographs,^[5] but when a bone is seen on X-ray; it was 91% specific with an overall predictive value of 66%.^[6] Fish bones may be radiolucent or radiopaque, sometimes even the latter variants are of insufficient radiosensitivity to be clearly visible on a radiograph.^[5] If the radiograph provides definite evidence of a fish bone as in this case report, rigid esophagoscopy under general anesthesia

is performed for further evaluation. However with the radiographical features of the foreign body projecting into the airway, endotracheal intubation or esophagoscopy can further push the foreign body downwards, even into the airway. Thus, tracheostomy was considered in this case. However, a careful and gentle intubation was done using a slim size 5 mm ID endotracheal tube taking into cognizance the position of the foreign body. The endoscopic findings showed a laceration of about the size of the base of the fish bone; and bleeding at this site. A re-inspection of the site of injury was done after the foreign body was removed to ensure there is no second foreign body and also to check for remnants of such foreign body. A size 18FR nasogastric tube was put in place to rest the esophagus, to prevent mediastinitis and also allow healing to take place. After 48 h a para-tube feeding was allowed with close monitoring to check for leakage and persistence of the tracheoesophageal fistula. Migration is assumed to have occurred when the foreign body is documented radiographically with negative endoscopy.^[5] Delayed or non-diagnosis of these foreign bodies in the aerodigestive tract can result into migration of the foreign body or life-threatening conditions such as abscess collection, mediastinitis and death could result as found in previous studies.^[5]

Conclusion

Fish bone foreign body impaction in the esophagus is common; however impacted fish bone penetrating the esophagolaryngeal wall is still a rare phenomenon, thus

the need to prevent complication such as mediastinitis with the use of nasogastric tube is essential. This case report re-emphasizes the danger of fish bone impaction and underscores the possible danger of attempting to dislodge such sharp foreign bodies with boluses of food, which could pre-dispose to more dangerous outcome and possibly death if not well-handled.

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