EXTRALUMINAL MIGRATORY UPPER CERVICAL ESOPHAGEAL FISHBONE

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ABSTRACT

Ingested foreign bodies which migrate extraluminally are rare occurrences. If untreated, they may result in life threatening complications. The patient presented with a history of swallowing a fishbone which migrated extraluminally. CT is invaluable tool in localizing the foreign body and inflammatory changes of the neighbouring soft tissue for external exploration. We also reviewed sensitivity and specificity of plain radiograph and computed tomography for impacted fishbone.

INTRODUCTION

Fish bones are the most common upper aerodigastric and esophageal foreign body found in adult. Usually these bones can pass through the GI tract, but lodgement can occur at the various areas. Potential complications including esophageal perforation, mediastinitis, cervical or mediastinal abcess, emphysema, esophago-tracheal fistula and sepsis are rare but catastrophic. Extraluminal migration to the parapharyngeal or prevertebral soft tissue requiring an external approach for removal is unusual. Suitable imaging modalities can assist the surgeon in this awkward problem for localization of the site of the migrated fish bone. We present a case of accidental ingestion of the fish bone with penetrating the cervical esophagus and complete extraluminal migration.

CASE REPORT

A 61-year-old women was presented with 1-day history of sudden onset of throat pain after eating fish head. She felt a sensation of foreign body impaction. Although she initially ate large rice bolus in attempt to dislodge a possible retained fish bone, the pain was gradually increased and was associated with odynophagia and dysphonia. She had no cough, fever or respiratory difficulties.

On physical examination, the patient was afebrile and hemodynamically stable. No tenderness, neck mass, cellulitis or lymphadenopathy at the neck can be demonstrated. The oropharynx shows mild enlargement of the tonsils.

Indirect laryngoscope did not found the fishbone or any pathology at the oropharynx, hypopharynx or larynx. The true vocal cord showed normal movement.

Lateral and AP neck radiograph, soft tissue technique were taken. These revealed a thin linear opaque foreign body in the prevertebral space at the level of seventh cervical vertebra associated with soft tissue widening. (Fig.1)

The patient was admitted for exammination under anesthesia. The direct laryngoscope and esophagoscope were performed. The pharynx, larynx and pyriform sinus are unremarkable. There was mild

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swelling at the posterior wall of the esophagus but no foreign body could be found. Repeated lateral and AP neck, soft tissue technique revealed retained and unchanged in position of the opaque foreign body as well as prevertebral soft tissue swelling. Second direct laryngoscope and esophagoscope were done in the next following day. Still seen was mild inflammation of the posterior wall of the esophagus but no foreign body could be found. Accidentally, minimal mucosal tear at the posterior esophageal wall was done during passing esophagoscope. The procedure was stopped. She developed febrile and tenderness at the thyroid region in the next two following days. Intravenous rehydration and antibiotics were obtained. In order to have a better localization of the foreign body, thin slice contrast axial MDCT scan was performed with coronal and sagittal recontruction. It revealed penetrating fish bone, 15 mm in length at the left prevertebral space adjacent to the posterior wall of the esophagus but external to the esophagus and outside the lumen at C7 level. Associated surrounding thin fluid collection was seen without demonstrable gas or abscess. (Fig.2) The patient was obtained external neck exploration under anesthesia. The fish bone, 1.5 cm in length was found within the left prevertebral soft tissue nearby the carotid artery. The thyroid gland, the left carotid artery and the left recurrent laryngeal nerve are preserved. The fish bone was removed. Recovery was uneventful. Fever, pain and odynophagia were disappeared. The patient was discharged with oral antibiotics.

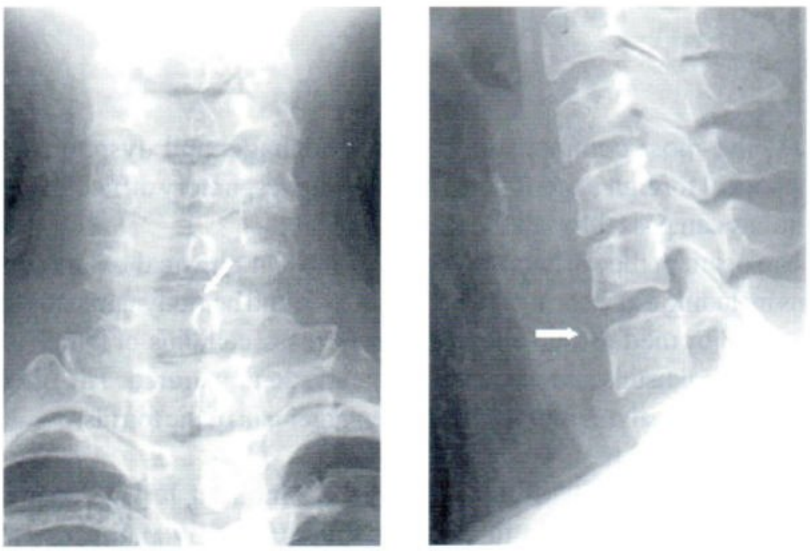

Fig.1 AP and lateral neck soft tissue technique demonstrating radio -opaque fish bone at the prevertebral soft tissue at the level of C7

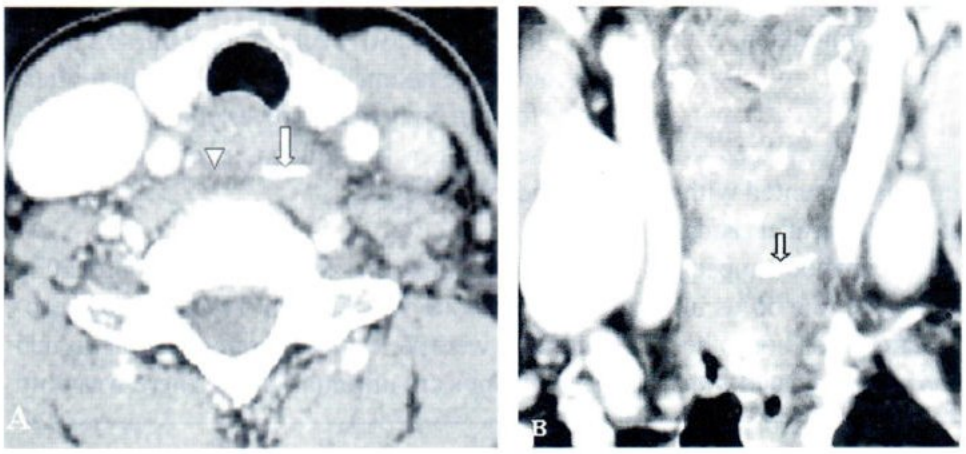

Fig.2 Axial **(A)** and coronal **(B)** computed tomography scan. The fish bone (arrow) is clearly seen outside the esophagus in the left prevertebral space associated with soft tissue edema.(arrowhead)

DISCUSSION (AND REVIEW ARTICLES)

Fish bones are the most common foreign bodies found in upper aerodigastric tracts in adult, comprising 31% of cases found to have retained foreign body. Symptoms including a sudden onset of discomfort while eating, with progressiveness of symptoms, otalgia and unable to swallow saliva are commonly found. The common sites of impaction are tonsils, esophagus, hypopharynx, posterior third of the tongue and vallecula in order of freguencies.[1] Physical examination will catch the majority of the fish bones in tonsils and posterior tongue. It needs emergency fiberoptic laryngoscope or flexible esophagoscope for diagnosis and retrieval in the rest.[2] However it requires a general anesthesia and there is some risk of perforation. To prevent the unnecessary interventions, imagings are commonly ordered to locate the foreign body.

In clinical practice, lateral neck radiography is recommended if mirror examination is difficult or fail to reveal a foreign body. However, Evan RM et al assessed that the sensitivity, specificity and positive value of radiography for impacted fish bone are 25.3%, 86% and 72.7% respectively.[3] Visualization is dependent on the degree of radio-opacity of various species of the bones, size of the bones, location of impaction, orientation of the bone, presence of air and soft tissue swelling around the suspected foreign body. Sea fish bones contain more calcium than fresh water fish bones. The larger fish obviously will have bigger bones. Location in the pyriform sinus and orientation of the bone parallel to the film diminish the visibility.[4,5,6,7] Barium swallowing with cotton pledgets is another imaging in case of negative plain radiography. The major problem is that it coats the esophagus and makes the subseguent esophagoscope or other examination very difficult.

The usefulness of computed tomography in the diagnosis of fishbone impaction in esophagus, presented in Japan (Oct 1997) clearly demonstrated impacted fishbones in all patients but plain X-ray failed to demonstrated in 56% of cases. CT can not only show existence and location of the fishbone but also visualization of the damage or secondarily induced inflammatory changes in the neighbouring structures, such as retropharyngeal abscess. CT can provide very useful information for the diagnosis of dreadful complications, such as mediastinitis, lung abscess, esophageal carotid artery fistula or esophageal aorta fistula.[8] Unenhanced CT with soft tissue and bone windows may replace the barium swallowing because of better detection of thin, small, minimally calcified foreign bodies. In addition, it is readily available, rapid and exposes the patient to less radiation than barium swallowing.[9]

Foreign bodies may be classified as intraluminal, impacted, penetrating or complete extraluminal. Extraluminal migration of foreign body is the most unusual. The cricopharyngeal sphincter region of the cervical esophagus is the common site of perforation.[10] Most penetrating foreign body is typically linear, sharp and pointed type which would logically cause less resistance on traveling through the soft tissue. More irregular shaped foreign bodies such as chicken or duck bones are less likely to migrate through the soft tissue. The previously reports revealed accidental ingestion of sharp metallic object and fishbone with complete extraluminal migration respectively.[11,12]

Our case was presented with extraluminal migration of the fishbone through the cricopharyngeal splinctor region of the cervical esophagus into the left prevertebral space associated with soft tissue edema. The mechanisms by which the foreign body appeared to be propelled through the soft tissue could be due to combination of esophageal peristalsis and ingestion of large bolus of food after impaction. After the fishbone was not found by twice direct laryngoscope and esophagoscope, plain radiography confirmed the presence of the retained fish bone. The CT scan of the neck with and without contrast was the investigation of choice to serve as a road map for localizing

the foreign body. Having confirmed that the foreign body is extraluminal, exploration and removal of the foreign body via the external approach was performed to avoid life threatening complication. She became afebrile and was discharged in the next two days.

Based on this case we would suggest that when a patient presents with a suspected ingested sharp foreign body in the neck, a three-stages approach is used. First, a detail history with a thorough examination of upper airway including indirect and transnasal fiber-optic pharyngolaryngoscopy are to be done. If the foreign body can not be demonstrated, lateral and PA neck radiography are indicated. Secondly, reexammination of the pharynx and esophagus under general anesthesia should be undertaken and the object removed if it is accessible. If the foreign body is not seen in the lumen, CT scan should be considered. Thirdly, external approach may be performed using CT as a road map.

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