

# Fish Bone Impaction in Upper Digestive Tract with Life Threatening Complications: A Case Series

SP CIBHI<sup>1</sup>, A MURUGAN<sup>2</sup>, RAMANJANEYULU KANTU<sup>3</sup>, KV RAJAN<sup>4</sup>

## ABSTRACT

Unintentional fish bone ingestion is a common perception in emergency surgery department especially in coastal areas. Authors present a case series of three patients with ingested fish bones, successfully removed from the upper digestive tract in two patients who presented immediately after ingestion. Another patient who had similar history with late presentation, had various complications and was managed conservatively. Computed Tomography (CT) scan is an important diagnostic tool in locating the foreign body and its associated complications. Contrast Enhanced Computed Tomography (CECT) carries a vital role in identifying the associated vascular injury in patients with delayed presentation with hematemesis or malena, which can be missed in plain CT. Most of the foreign bodies following ingestion pass spontaneously through the oesophagus without any complications, whereas sharp foreign body like fish bones may get stuck in the oesophagus or penetrate the oesophageal wall causing life threatening complications such as aorto-oesophageal fistula, trachea-oesophageal fistula mediastinitis, mediastinal abscess and pneumothorax. Hence, early endoscopy and intervention is the key to treatment of foreign body ingestion in upper digestive tract.

**Keywords:** Aorto-oesophageal fistula, Foreign body ingestion, Oesphagoscopy, Rigid oesphagoscopy, Upper gastrointestinal bleed

## INTRODUCTION

Accidental ingestion of fish bone during a meal is a common presentation to the emergency department. Most often the bone passes through the Gastrointestinal (GI) tract uneventfully without any issue, but may lead to various complications when seldom impaction occurs at various sites with physiological narrowing [1]. The rates of complications increase when the foreign body removal is delayed by more than 24 hours [2]. The associated risk factors are delay in presentation, type of bone and size (>3 cm). Most of them are asymptomatic at presentation, few may present with life threatening complications like oesophageal perforation, aorto-oesophageal fistula and mediastinitis [3]. Authors present a case series of fish bone impaction in oesophagus, managed by endoscopic removal and conservative method.

## CASE SERIES

### Case 1

A 40-year-old female with alleged history of fish bone ingestion and with no co-morbidities, presented to the general surgery department within 24 hours of ingestion. She was also complaining of throat pain aggravated while swallowing, since the time of ingestion. Physical examination was unremarkable. X-ray neck lateral view showed no evidence of foreign body. The patient underwent flexible oesophagoscopy, which showed transversely impacted fish bone at upper oesophagus [Table/Fig-1a] with no active bleeding. Using a spiked biopsy forceps fish bone was manipulated vertically and retrieved [Table/Fig-1b,c] without any further damage to oesophagus. Postprocedure patient

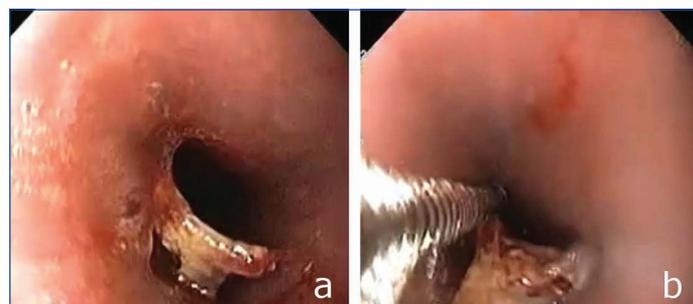


**[Table/Fig-1]:** a) Transversely lodged fish bone in mid oesophagus; b) Fish bone retrieval using biopsy forceps; c) Retrieved fish bone.

tolerated oral feeds on the same day of procedure and was discharged with the advice to seek medical attention, in case of any chest discomfort, difficulty in swallowing, hematemesis or malena.

### Case 2

A seven-year-old male child with alleged history of fish bone ingestion presented to the General Surgery department within 24 hours of ingestion. He had complaints of difficulty in swallowing, which was aggravated on having solid food, associated with foreign body sensation in throat and pain while speaking since the time of his ingestion. General physical examination was unremarkable. X-ray soft tissue neck showed no evidence of foreign body. Patient underwent flexible oesophagoscopy, which showed fish bone impaction with minimal bleeding at middle third of oesophagus [Table/Fig-2a]. Biopsy forceps were used to remove the foreign body [Table/Fig-2b]. Postprocedure the patient was started on oral diet and discharged with the advice to seek medical attention, in case of any chest discomfort, difficulty in swallowing, hematemesis or malena.



**[Table/Fig-2]:** a) Fish bone lodged in upper oesophagus; b) Fish bone retrieval using biopsy forceps.

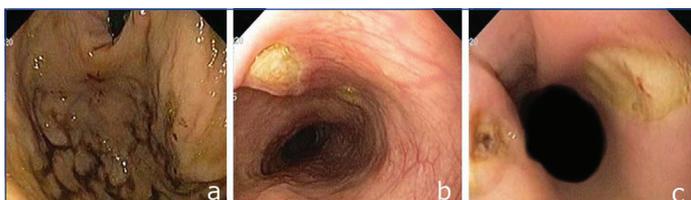
### Case 3

A 48-year-old male with alleged history of trauma and no co-morbidities presented to casualty, six hours after the time of injury during current COVID-19 pandemic. He gave history of giddiness followed by slip and fall, sustaining injury to head. General physical

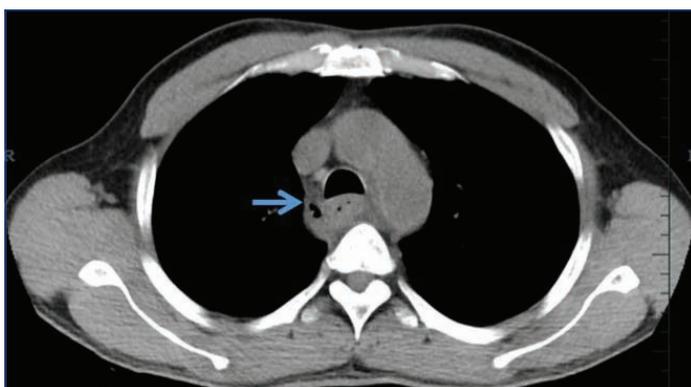
examination revealed severe pallor, pulse rate 110 beats/min, Blood pressure 90/60 mmHg, Glasgow Coma Scale (GCS)-15/15, primary and secondary survey were unremarkable. Patient was initially resuscitated with fluids, stabilised and preceded with CT Brain, Extended-Focused Assessment with Sonography for Trauma (E-FAST) and CT chest for COVID-19 screening. CT scan revealed no features of blunt injury abdomen/chest/brain injury. Further questioning from patient attendant revealed history of fish bone ingestion one week back with one episode of haematemesis (200 mL) and malena. Laboratory examinations showed haemoglobin of 6.2 gm. Patient was planned for emergency endoscopy after blood transfusion and stabilisation, patient was kept Nil Per Oral (NPO), nasogastric tube was inserted and resuscitated with four units of blood (Packed cell) and i.v. (Intravenous) fluids and was started on Injection Pantoprazole. Endoscopy revealed multiple partial thickness oesophageal tears at 28 cm and 33 cm from incisors [Table/Fig-3a,b], with no active bleeding and fish bone lodged within huge clot occupying the fundus and body of the stomach [Table/Fig-3c]. Attempted irrigation and suction failed to dislodge and remove the bone. Post-procedure patient continued with nasogastric tube aspiration and i.v. pantoprazole injection. Non-Contrast Computed Tomography (NCCT) chest, showed pneumo-mediastinum with rent in the mid-segment of oesophageal wall with minimal mediastinitis [Table/Fig-5]. Patient was started on i.v. higher antibiotics (Inj. Meropenem 1 gm three times daily) and conservative management was continued. Patient had one more episode of malena for which he underwent repeat endoscopy, revealed oesophageal tears covered with mucus plug with no signs of active bleed and there was no evident clots/fish bone in the stomach and duodenum [Table/Fig-4a-c]. Patient required one more unit of blood transfusion and was continued on conservative management with i.v. antibiotics and parenteral nutrition for a period of two weeks. After an asymptomatic period of two weeks, repeat endoscopy showed,



[Table/Fig-3]: a) Multiple partial thickness tears at mid oesophagus; b) Closer view of oesophageal tear; c) Fish bone lodged in huge clot occupying fundus and body of stomach.



[Table/Fig-4]: a) Repeat endoscopy showing hematin stained mucosa over fundus; b) Repeat endoscopy showing mucus plug covered oesophageal tear; c) Mucus plug covered over another site of oesophageal tear.



[Table/Fig-5]: CT chest showing Pneumo-mediastinum.

healed oesophageal tears and patient was started on liquid diet followed by soft diet and was discharged with oral tab. Pantoprazole was prescribed for two weeks. Patient was advised to follow-up after two weeks and to seek immediate medical attention in case of chest discomfort, difficulty in swallowing, breathlessness, hematemesis or malena. However, patient did not turn up for follow-up.

## DISCUSSION

Fish bones are the most common accidental foreign body ingestion accounting for 84% of oesophageal foreign body [4]. Most of the foreign body passes through the GI tract without any complications. However, some may impact in the oesophagus, mostly at the level of the cricopharyngeus muscle in the cervical oesophagus and aortic arch in the thoracic oesophagus [5].

As noted in present case series, Case 1 and 2 presented within 24 hours of ingestion. Initial workup by plain radiography hardly demonstrated fish bone with the reported sensitivity of foreign body is only upto 32% in plain radiography. CT scan is the highly sensitive imaging modality for detecting foreign bodies in the GI tract with a reported sensitivity and specificity of 90-100% and 93.7-100% [6]. In addition, CT is also a useful tool in identifying associated complications such as inflammatory masses, abscess formations, perforations, haemorrhage and vascular injury [7]. Emergency flexible endoscopy has a significant role in both diagnostic as well as therapeutic purpose. In present series, two patients with early presentation, underwent fish bone removal by means of biopsy forceps safely. Role of rigid oesophagoscopy is limited only for impaction of foreign body in the upper oesophagus, more over risk of perforation and need for general anaesthesia is a disadvantage, when compared with flexible endoscopy [8].

Although uncommon, late presentation of fish bone ingestion may lead to complications such as oesophageal perforation in 1-4% of patients and even mediastinitis or abscess formation, trachea-oesophageal fistula, pneumo-mediastinum, pneumothorax, pericarditis or cardiac tamponade [9]. In rare instance, fish bone perforation of the thoracic oesophagus can injure the surrounding vascular structures producing mediastinal haemorrhage and pseudoaneurysm, with concurrent penetration through oesophagus and adjacent arterial wall may trigger formation of aorto-oesophageal or subclavian arterio-oesophageal fistula [10].

The history of foreign body ingestion with fever and dysphagia are the most common symptoms. In some cases, history of Chiari triad (sentinel hematemesis, post sternum pain and massive bleeding after an asymptomatic intermittent period) may also be present [11], as seen in present case. However, oesophageal penetration associated with vascular injury is dangerous with risks associated if not managed surgically. The goals of surgery include control of bleeding, aortic repair, drainage of mediastinal infection, repair of oesophageal defect by primary closure with flap cover in a first stage or reconstruction of the digestive tract in a second stage procedure once the infection subsides, where primary closure is not feasible. In addition, Thoracic Endovascular Aortic Repair (TEVAR) minimal access surgery is an alternative, safe and definitive treatment for Aorto-oesophageal fistula [12].

In Case 3, there was delayed presentation with upper GI bleed and hypovolemic shock, however endoscopic intervention was not possible initially, owing to embedded fish bone within the clots in stomach and there was no evidence of active bleeding in the oesophageal wall. CT scan did not reveal any evidence of fish bone in the oesophagus surgical intervention would have been a failed attempt, since repeat endoscopy did not show any evident foreign body both in oesophagus and stomach. Even though patient had massive upper GI bleeding, he was managed conservatively with blood transfusion. Probable source of bleed could be injury to vascular structures (aorta, aortic arch or subclavian vessels) adjacent to oesophagus, which was reported by Kelly SL et al., [13].

Patient also had early onset mediastinitis, which was managed by intravenous higher antibiotics and NPO.

## CONCLUSION(S)

Fish bone ingestion is usually asymptomatic but, in a few cases, can lead to major complications. A high index of suspicion is needed to detect and address the complications at an earlier stage.

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### PARTICULARS OF CONTRIBUTORS:

1. Resident, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry, India.
2. Assistant Professor, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry, India.
3. Assistant Professor, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry, India.
4. Professor, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. A Murugan,  
Mahatma Gandhi Medical College and Research Institute,  
Pillyarkuppam, Pondicherry, India.  
E-mail: dr.murugan18@gmail.com

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