

# Unrecognized esophageal fish bone impaction with delayed presentation of acute spastic central chest pain

## A case report

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### Abstract

**Rationale:** Esophageal chest pain is difficult to be identified, and the diagnosis requires a high index of clinical suspicion. Upon presentation, they are difficult to be differentiated from acute coronary syndrome (ACS) by symptomatology alone.

**Patient concerns:** We report a 71-year-old woman with multiple risk factors for coronary heart disease who presented with acute central spastic chest pain and was diagnosed as ACS in emergency department.

**Diagnoses:** Chest computed tomography revealed 1 radiopaque lesion over the upper-third of the esophagus. One fishbone with 3-pointed heads stuck in the esophagus was noted under esophagogastrosopic examination.

**Interventions:** The fishbone was extracted successfully via endoscopy under general anesthesia.

**Outcomes:** The woman was discharged uneventfully after 3 days' hospitalization.

**Lessons:** This case illustrates that, even in emergency, clinicians should always keep in mind the possibility of esophageal foreign body impaction when confronted with frank central chest pain without associated gastrointestinal symptoms. This holds true even in the scenario of multiple cardiovascular risk factors and absence of ingestion history.

**Abbreviations:** ACS = acute coronary syndrome, CT = computed tomography, ED = emergency department, EFBI = esophageal foreign body impaction, NCCP = noncardiac chest pain.

**Keywords:** acute coronary syndrome, chest pain, esophageal foreign body impaction

## 1. Introduction

Foreign-body ingestion is a common complaint among patients in the emergency department (ED). Typical presentations include dysphagia, odynophagia, hypersialorrhoea, low cervical strain, vomiting, chest pain, or even absence of symptoms.<sup>[1]</sup> Obscure history of foreign-body ingestion may result in delayed diagnosis, leading to esophageal perforation and related consequences including deep neck infection or abscess, mediastinitis, retro-

esophageal hematoma, or even aorto-esophageal fistula.<sup>[2]</sup> Esophageal foreign body impaction (EFBI) manifest as frank central spastic chest pain completely without any gastrointestinal symptom has only been reported very rarely. Herein, we report a patient with unrecognized esophageal fish bone impaction who days later after ingestion presented with acute spastic central chest pain.

## 2. Case presentation

A 71-year-old woman with a history of hypertension and ischemic heart disease presented with intermittent central chest pain 6 hours ago. The chest pain was reported to be crescendo, spastic, and central, rather than heaviness, or squeezes in quality, with each episode of strain lasting for 3 minutes, followed abruptly by clinical quiescence. The symptom could be relieved by direct massage of her anterior chest wall, and it radiated to the patient's upper back between bilateral scapulae.

In our ED, cardiovascular physical examinations of the patient were largely normal except for a grade II/III mid-systolic murmur over the left sternal border. Her body temperature was 37.5°C, and her blood pressure was 139/77 mmHg. A 12-lead electrocardiogram showed sinus rhythm of 79 beats per minute and early repolarization over leads V1 to V3. Chest roentgenogram and echocardiography were both unremarkable. Cardiac troponin I levels were normal, but the creatinine kinase levels were mildly elevated, which reached up to 439 U/L (normal range: 39–308 U/L).

Myocardial perfusion imaging revealed resting hypoperfusion in the basal inferior wall of the left ventricle. Under impression of acute coronary syndrome (ACS), oral bisoprolol, diltiazem, and

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Informed consent was obtained from the patient herself for the write-up of this case.

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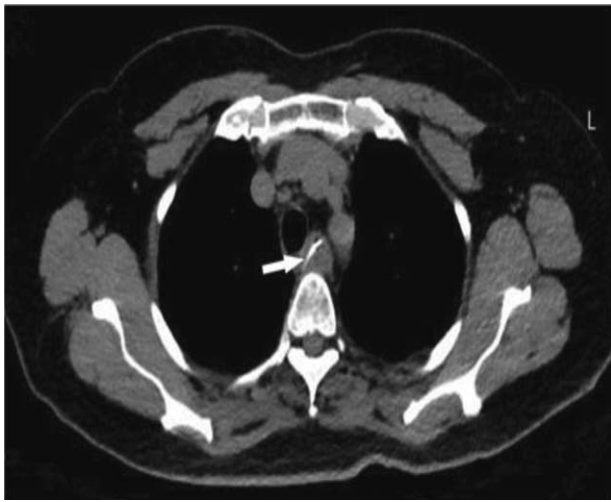
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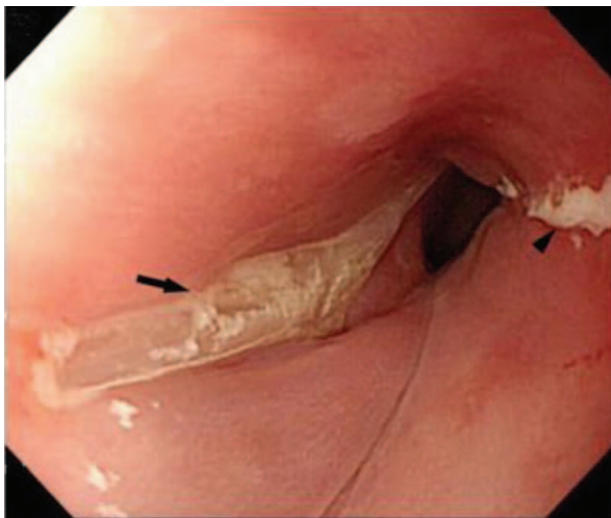
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**Figure 1.** Computed tomography of chest demonstrated 1 linear radiopaque lesion over the upper-third of esophagus (arrow), indicating foreign body impaction.

intravenous nitrite were administered, but they exhibited very limited effects on the patient's chest pain. Chest computed tomography (CT) was performed to exclude aortic dissection. The CT revealed 1 radiopaque lesion over the upper-third of the esophagus (Fig. 1). In deep inquiry, the patient uncertainly recalled she might have probably ingested some fishbone during dinner 2 days before admission.

Esophagogastroscopy under general anesthesia was performed and revealed 1 fishbone with 3-pointed heads, measuring approximately 3 cm in length, in proximity to the middle-third of the esophagus along with a consequent linear ulcer (Fig. 2). The fishbone was carefully extracted via endoscopy leaving mild and limited mucosal hemorrhage (Fig. 3). After endoscopic treatment, the patient's symptoms subsided within a day. She was discharged uneventfully after 3 days' hospitalization.



**Figure 2.** One fishbone with 3-pointed heads (arrow) was noted over the middle-third of esophagus, accompanied by a linear ulcer (arrow head) during esophagogastrosopic exam.



**Figure 3.** The extracted fishbone.

### 3. Discussion

Among patients presenting with chest pain to the ED, the incidence of noncardiac chest pain (NCCP) has been reported to be approximately 50%.<sup>[3]</sup> Esophageal chest pain (ECP) accounts for most NCCP.<sup>[4]</sup> The common causes of ECP include gastroesophageal reflux disease, esophageal dysmotility, esophageal hypersensitivity, and some psychiatric disorders. ECP brings a significant economic burden because it may result in frequent ED visits, psychological stress, and diminished quality of life.<sup>[5]</sup> EFBI is a rare but critical cause of ECP. EFBI requires timely diagnosis and appropriate treatment to remove the foreign body.<sup>[6]</sup>

In this report, the patient's spastic chest pain responded very poorly to nitrite and other medications for ACS, leading us to consider other potential reasons of acute chest pain. Although the most common symptoms of EFBI are neck pain, odynophagia, and dysphagia,<sup>[7]</sup> the fishbone-related esophageal injury and abnormal esophageal motility probably gave rise to the characteristic spastic chest pain in our patient. However, EFBI manifest as frank central chest pain without any gastrointestinal symptom has only been reported very rarely in the literature.

EFBI diagnosis can be elusive without typical gastrointestinal symptoms and relevant clinical history. During initial evaluation, chest X-ray may provide significant information but has limited sensitivity. A comprehensive physical examination of the oral cavity, oropharynx, and hypopharynx, assisted by a flexible laryngoscope, is a reasonable initial step guided by clinical scenario. CT of chest plays a critical role in diagnosis because of its non-invasiveness, with the sensitivity/specificity, and positive predictive value of 90% to 100% and 99%, respectively.<sup>[8]</sup> Additional advantages of CT include early detection of complications and delineation of adjacent structures. In the case of fish bone impaction, the 3-dimension resolution of CT image is important for visualizing the sharp, thin bone and for making a pre-operative plan.<sup>[9]</sup> Finally, even when diagnosis is confirmed, removal of a foreign body requires careful anesthetic preparations to prevent complications, especially in the case of fish bone

impaction. The endoscopic extraction should be performed carefully while the patient is sedated, preferably under intravenous general anesthesia, or possibly with endotracheal intubation.<sup>[10]</sup>

Collectively, our case demonstrated a hidden cause of acute spastic chest pain, which we initially diagnosed as ACS. This case reminded us of the significance of EFBI as a cause of acute spastic central chest pain even when the probability of ACS before confirmatory diagnosis is also high. Misdiagnosis can especially occur in a patient who cannot provide relevant clinical history. In such cases, CT may facilitate early diagnosis of EFBI to avoid catastrophic outcomes, but to conclude, a high level of alertness is still the most important factor in reaching the correct diagnosis.

### Author contributions

**Conceptualization:** Ching-Han Liu, Shih-Chung Huang, Chin-Sheng Lin.

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**Validation:** Chin-Sheng Lin, Wei-Shiang Lin.

**Writing – original draft:** Ching-Han Liu.

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