

Subclavian-oesophageal Fistula as a Complication of Foreign Body Ingestion: A Case Report

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Abstract

Foreign bodies in the upper aerodigestive tract are very common. In the local community, the commonest foreign body encountered in the oesophagus is the fish bone. Impaction in the thoracic oesophagus can lead to perforation and the subsequent formation of an arterial-oesophageal fistula. Such fistulae are inevitably aorto-oesophageal in nature. A subclavian-oesophageal fistula is described in this patient.

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Introduction

Ingested foreign bodies are a common condition in the practice of Otolaryngology. In particular, there is no doubt a greater tendency in the local community to consume fish without it being de-boned. It is also well known that a sharp foreign body lodged in the oesophagus can cause perforation. There have been sporadic case reports of foreign bodies causing perforation of the thoracic oesophagus with the subsequent development of an aorto-oesophageal fistula. However, there has not been any report of a subclavian-oesophageal fistula secondary to an oesophageal foreign body. The following is a description of a patient who developed a subclavian-oesophageal fistula attributed to an impacted fish bone.

Case Report

A 48-year-old Indian male was referred from the Accident & Emergency Department to the Otolaryngology outpatient clinic complaining of vague, nonspecific chest pain. He attributed the cause of the symptoms to a fish bone that he might have swallowed the day before. Physical examination did not reveal any foreign bodies in the oral cavity, oropharynx, hypopharynx or larynx. Palpation and gentle rocking of the trachea did not reveal any tenderness or discomfort. The lungs were clear and no abnormalities were detected in the cardiovascular system. The lateral neck X-ray was clear and the electrocardiogram showed changes suggestive of

an old inferior infarct with no evidence of acute ischaemia. In view of the chest pain he was scheduled for a barium swallow the next day but for reasons unknown, he had re-arranged this to a week later. He subsequently presented again six days later with haemetemesis. He had apparently no pain for five days after the initial consultation. By now, the chest pain had reappeared and radiated to the back. Physical examination at the Accident & Emergency revealed a blood pressure of 100/60 mmHg. The chest, heart and abdomen were normal. The electrocardiogram remained unaltered. A barium swallow indicated a mucosal defect at the level of the aortic arch and computerised tomographic scanning with contrast showed a leak at the aortic arch. No foreign body was apparent from the imaging studies. An emergency thoracotomy was planned but he had massive haemetemesis while being wheeled into the operating theatre. After stabilising him, a left thoracotomy was performed without using extracorporeal circulation. No foreign body or fistula was found in the area of the aortic arch corresponding to the radiological findings. There was massive bleeding in the operative field. He collapsed three times intraoperatively. Resuscitation attempts failed to prevent a fatal outcome. Post-mortem findings revealed a 2 cm linear laceration in the thoracic oesophagus at the level of the aortic arch with a fistula connecting the oesophagus to the left subclavian artery (Figs.1 & 2). No foreign bodies were found.

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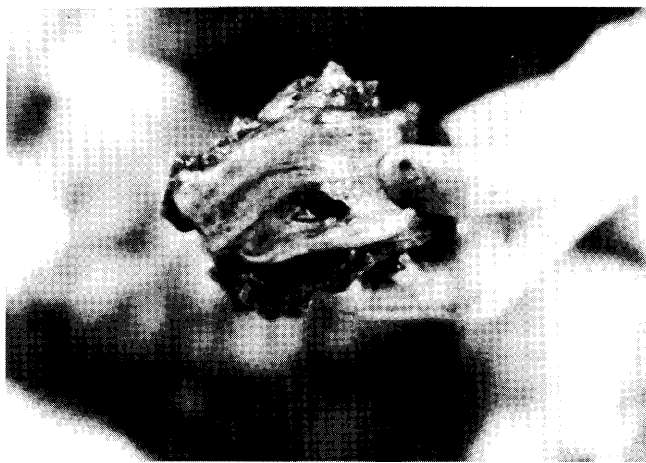


Fig. 1. Linear tear in the oesophagus.

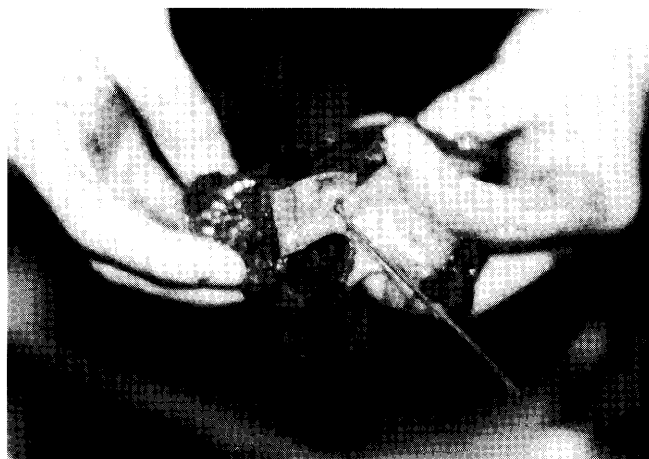


Fig. 2. Opening of the fistula located at the proximal end of the left subclavian artery close to its origin from the aorta.

Discussion

The unique feature of this case report is the presence of a subclavian-oesophageal fistula. Fish bone as a source of oesophageal foreign body is common in the local community.¹ The commonest site of impaction is the cricopharynx, followed by the level of the aortic arch. The sites correspond well to the known levels of oesophageal constrictions. In the first few days after a foreign body impaction, there is probably a minimal reaction within the oesophageal wall. However, progressive inflammatory reaction in the oesophagus coupled with a penetrating foreign body will eventually lead to necrosis of the wall and erosion of a neighbouring structure. It is also noted that the oesophagus lacks a layer of serosa but instead has a thin layer of adventitia.

Aorto-oesophageal fistula secondary to a foreign body is uncommon. From 1818 to 1992, 103 cases have been recorded in the literature. In the review by Sloop and Thompson,² all of the arterial-oesophageal fistulae caused

by fish bones were aorto-oesophageal in nature. Subclavian-oesophageal fistula secondary to a foreign body has not been described. In this case the fistula passed via a linear tear in the posterior wall of the oesophagus to the proximal end of the left subclavian artery close to its origin from the arch of the aorta. Taha et al³ reported a case of oesophago-broncho-aortic fistula complicating an impacted denture eroding the mid oesophagus. From such reports it is conceivable that the shape, size and site of the foreign body will lead it to unpredictable areas when perforations occur. One reason as to why a subclavian-oesophageal fistula developed in this patient could possibly be attributed to the shape of the fish bone, although this was not verified since no foreign bodies were found in the post-mortem.

The prognosis for such a fistula is probably similar to the commoner aorto-oesophageal type which nonetheless is consistently poor.^{2,4} Survival from surgical intervention is rarely successful. Li⁵ in his series reported 17 patients with such fistulae, of which there was only 1 survivor. Six were treated by surgery of which one survived. All 11 other patients treated conservatively died. The cause of death inevitably had been massive haemorrhage. Sloop and Thomson² reviewed 81 cases over 144 years and found no survivors. Ctercteko and Mok⁶ reported the first survival in 1978 from an aorto-oesophageal fistula that was operated on. This had been treated by cross clamping the aorta, a method employed unsuccessfully by other surgeons in the reported series. Ctercteko and Mok however stated that in their patient the fistula was a "fibrous" type in contrast to a "false aneurysm" type which is probably the commoner form of fistula and which should be treated by reconstruction using a by-passing technique. Perhaps a shift towards using by-passing techniques, providing a bloodless operating field may see an improvement in the mortality rates of arterial oesophageal fistulae.

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