

PERFORATION OF ESOPHAGUS BY A WIRE BRISTLE AND ITS REMOVAL¹

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ON October 5, 1951 the patient, a 19-year-old student at Northwestern University, while eating a sweet roll at a public restaurant, experienced the sensation of a foreign body passing downward in his throat. Subsequently, he continuously felt this sensation of a foreign body in the lower part of his neck. Three days later at the Northwestern University Student Health Service in Evanston, clinical and x-ray examination revealed a foreign body in the esophagus located just above the clavicle. At that time consideration of a possible perforation of the esophagus was given because of the location of the foreign body. It appeared to be 4 or 5 centimeters long and was the shape of a thin needle or wire. The individual was immediately sent to the Evanston Hospital where esophagoscopy was performed. Using the Jesberg esophagoscope, an area of bloodiness and ecchymosis was found on the left posterolateral wall of the esophagus just above the clavicle. This was considered to be the point of exit of the foreign body inasmuch as the foreign body itself could not be found. At this time the patient was afebrile and exhibited no local or systemic signs of an infection so it was deemed safe to wait until the next morning for another attempt to find and remove the foreign body.

As planned then, on October 9, a short John Roberts esophagoscope was passed with ease into the esophagus, with the patient under general anesthesia. A thorough search failed to demonstrate the foreign body, but again the small hemorrhagic spot on the posterior wall of the esophagus, about the level of the 7th cervical vertebra, could be clearly seen. It was our impression that the foreign

body had made its exit from the esophagus at this point, and that it could be best removed by cervical mediastinotomy.

With the esophagoscope in place, left cervical mediastinotomy was performed (fig. 1). The incision was made medial to the left sterno-mastoid muscle, parallel to its inner border, with the patient's chin held in the midline. The skin and subcutaneous tissue were divided and all bleeding points secured. The cervical fascial layers were separated, after division of the platysma. The omohyoid muscle was encountered in the mid-portion of the field, and after its edges were delineated, it could either be reflected upward or downward, depending upon the portion of the cervical region to be explored. The sterno-mastoid muscle and the structure of the carotid sheath—that is, the common carotid artery, internal jugular vein and the vagus nerve—were retracted laterally, the omohyoid was retracted superiorly, and the thyroid medially.

It is not always necessary to divide major structures in exposing to varying degrees this region of the neck. Depending upon the width of the exposure, branches of the middle thyroid vein, or even the inferior thyroid artery, may have to be secured. In this instance, it was possible for the endoscopist to lead us to the particular level of the esophagus through which the foreign body had perforated. At this point, the sharp end of the foreign body could be palpated with the examining finger. A small curved forceps was then guided to this point, the sharp end of the object grasped, allowing for a very simple extraction.

Drainage was instituted by the placement of Penrose drains into the region of the cervical mediastinum, into which the foreign body had extended. There was very little evidence of inflammation in

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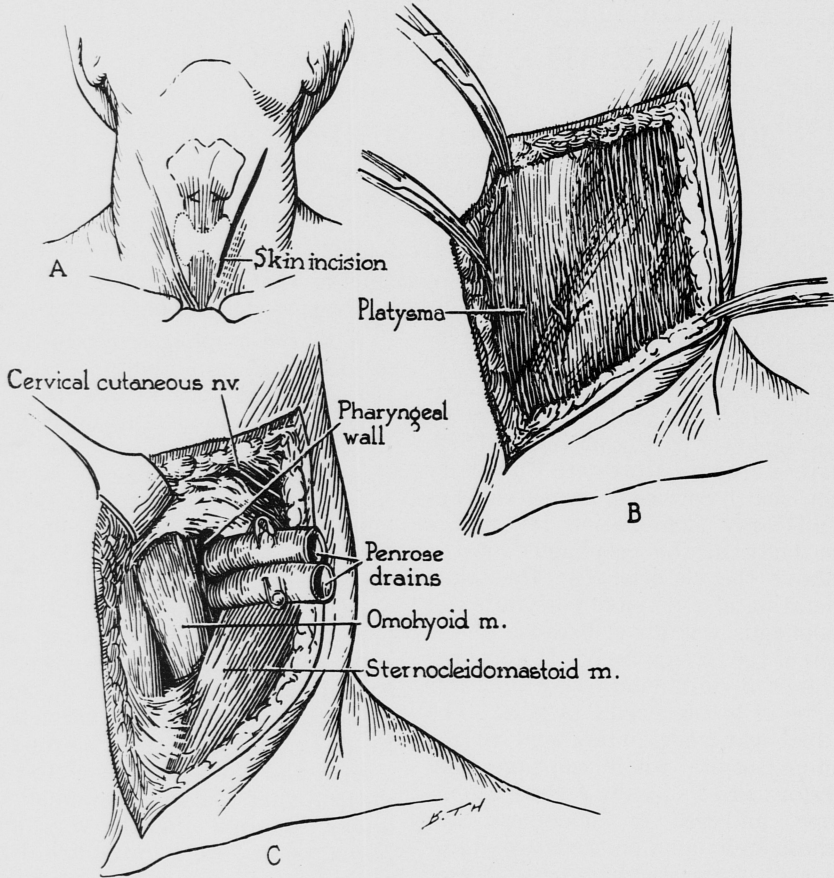


Fig. 1. Cervical mediastinotomy involves principally the anatomy illustrated above. It is employed in this instance on the left, because of the location of the foreign body. This incision is also employed in the surgical excision of pharyngo-esophageal diverticulum, because they usually are present on the left side. When cervical mediastinotomy is used to drain the infected mediastinum, the right sided approach is preferable.

this region, but it was nevertheless felt that drainage was the procedure of choice. The platysma and subcutaneous tissues were closed about the drain, and the skin closed with interrupted nylon sutures.

The patient's postoperative course was completely uneventful. He was kept on antibiotic therapy for the first several postoperative days. When his temperature and blood count showed that there was no evidence of mediastinitis, and further x-ray studies of the chest and cervical region were essentially normal, the antibiotic therapy was discontinued, drains were removed, and the patient allowed to leave the hospital.

In summary then, this is a 19-year-old male University student, whose inadvert-

ent ingestion of a foreign body caused a sensation of sticking in the left lower cervical region. X-rays demonstrated the foreign body (fig. 2), and it was removed through use of the combined endoscopic and open cervical mediastinotomy technic. This procedure not only allows us to expose satisfactorily and remove such foreign bodies, but also safely to treat a mediastinitis which may accompany their ingestion.

Philip Reading (1), in discussing the etiology of foreign bodies in the esophagus, classifies the articles ingested into three groups: 1) those deliberately swallowed with suicidal or infanticidal intent, or ingested as an exhibition; 2) those known to be present in the mouth, but

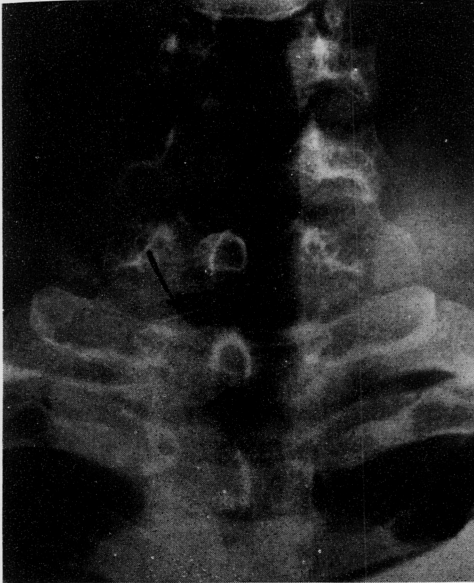


Fig. 2. Arrow designates wire bristles.

swallowed by accident: dentures, fish and chicken bones, coins, bottle caps, pins, small toys, etc.; and 3) foreign bodies of whose presence the patient is unaware. In this last category comes splinters (2) inadvertently baked into bread or biscuits, chips of glass (3) broken off in opening jars of food, and wire brush

bristles unwittingly swallowed with food. Holmes (4) reports a case similar to ours in which a 10-year-old boy had a piercing sensation while eating apple pie in a restaurant. A bristle of a fine steel brush was removed through a small exterior incision two weeks later, after an earlier, unsuccessful attempt at removal with a magnet and esophagoscopy.

Cleanliness has long been one of the most important public health measures for the protection of the restaurant patron. Recently, we were unhappily shown that even cleanliness carries with it some hazard. A wire brush used to scour a baking pan lost one of its bristles. The lost bristle found its way into a sweet roll baked in that pan and, when that sweet roll was eaten, lodged in our patient's esophagus.

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