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Case Report
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Endoscopic Removal of Wire Brush Bristle Perforating Cervical Esophagus into Carotid Sheath

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Abstract

Introduction: Metal brushes are tools commonly used to clean barbeque grills however accidental ingestion of loose bristles is increasingly being reported in the medical literature. They have been found in various areas including the base of tongue, esophagus and pancreas and have required bedside procedures, endoscopy or open surgery to remove them. Some have been conservatively managed.

Clinical Presentation: We report a case of a 61-year-old lady who presented to the emergency department after eating grilled salmon with CT evidence of esophageal perforation with the distal end of the wire immediately posterior to the right common carotid artery. This was removed endoscopically, and the wire bristle passed through the small bowel and colon safely.

Conclusion: This case demonstrates again the dangers of wire brushes in food preparation and the importance of careful inspection of the wire brush prior to usage and the food before consumption.

Introduction

Foreign body ingestions are a relatively common presentation to the emergency department with coins being the most common ingested item in children [1] and fish bones being the most common in adults [2]. In adults, 80% to 90% of foreign bodies pass through the gastrointestinal tract without complications while 10% to 20% require endoscopic intervention [3].

Metal brushes are commonly used to clean barbeque grills however their slender wires are easily broken or come loose with usage. Moreover, they are difficult to see, easily get attached or embedded into food and have been found difficult to localize and visualize by the clinician making them a challenge to treat.

Case Presentation

A 61-year-old lady presented to the emergency department having felt something catch in her throat immediately after eating a salmon steak that had been cooked on a grill. Her husband had cleaned the grill with a wire brush recently. This is on a completely unremarkable medical history. She was on no regular medications, did not smoke and did not have significant alcohol intake.

She did not have any signs of airway distress however she complained of pain over the right side of her neck especially with swallowing saliva. There was no subcutaneous emphysema on palpation. An X-ray noted a thin linear dense object placed horizontally in the post-cricoid esophagus. It measured 34mm in length, half a millimeter in width.

This was followed up with a CT scan which found a foreign body perforating the right lateral esophagus with its distal tip immediately related to the posterior aspect of the right common carotid artery (Figure 1). There was no hematoma around this site. Flexible endoscopy under general anesthesia found only a small section of the metallic bristle still within the lumen of the esophagus (Figure 2). Removal was attempted with an endoscopic biopsy forceps however this proved difficult due to the angle in which it was embedded into the esophageal wall and the short segment of wire available for manipulation. After multiple attempts the portion of wire within the lumen of the esophagus was no longer visible on endoscopy.

There was concern that the wire had been pushed in deeper into the neck tissue so a CT neck with contrast was performed to assess its position and exclude damage to any vascular structures. Fortunately, this found that the foreign body was no longer in the neck and there was no sign of a bleed at its previous site. An abdominal X-ray found that it had been pulled out of the esophagus

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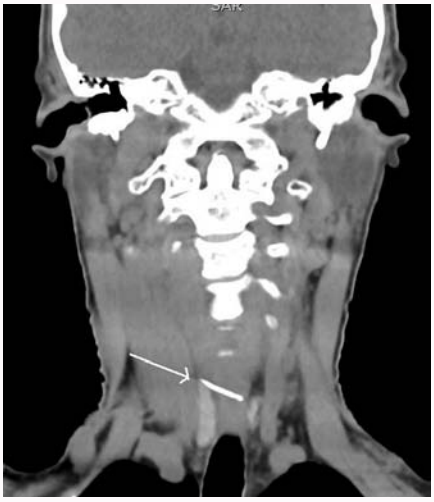

Figure 1: 34 mm wire bristle in cervical esophagus.

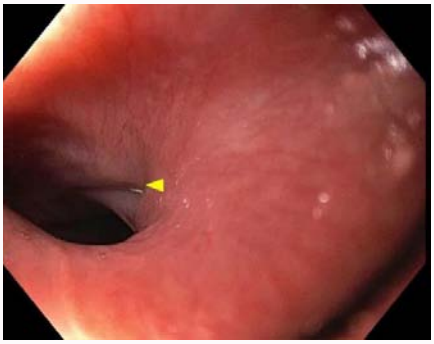

Figure 2: Attempted endoscopic removal of bristle.

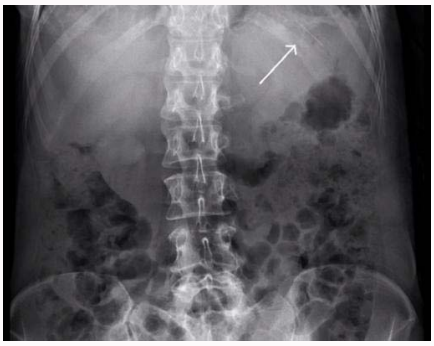

Figure 3: Wire bristle found to have dropped into stomach.

and had dropped into the stomach (Figure 3). This was followed radiologically for the next 48-h as it passed safely through the intestinal tract without any complications (Figure 4).

Discussion

The first case of a steel wire bristle being ingested was reported in the 1946 by Dr Edgar Holmes in Boston, Massachusetts, USA in a 10-year-old child. Dr Holmes also found it difficult to visualize and remove the foreign body and this resulted in a 3-week admission into hospital [4].

Since then, there have been case reports of wire bristles being ingested in the medical literature with a review by Mortensen et al.

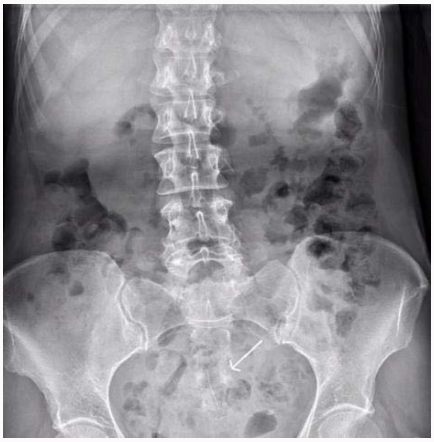

Figure 4: Passed to rectum within 48 hours.

in 2018 finding the vast majority of these being found in the upper aerodigestive tract [5]. There have also been cases of wire bristle perforating the duodenum [6], pancreas [7] and small bowel [8] though these case numbers are far fewer.

The method of removal of the bristles is also very variable. Laryngoscopy with handheld forceps, fiberoptic endoscopy, open neck surgery and, more recently, endoscopic ultrasound with lumen-apposing metal stent [9] has been used to drain an abscess and remove the wire bristle responsible.

Conclusion

We present a case of a bristle initially found in the cervical esophagus, removed *via* endoscopy and passed safely through the remaining digestive tract with no complications. Wire bristle ingestion is a rare but difficult problem to solve due to their size and ability to get lodged in difficult to reach areas. Greater care and attention while using of wire brushes is indicated.

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