Endoscopic retrieval of a duodenal perforating teaspoon

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Abstract

Foreign objects ingestion occur commonly in pediatric patients. The majority of ingested foreign bodies pass spontaneously the gastrointestinal tract and surgery is rarely required for extraction. Endoscopic removal of foreign bodies larger than 10 cm has not yet been described. We present the case of a 16 years old bulimic girl that swallowed a 12 cm long teaspoon in order to provoke vomiting. The teaspoon perforated the duodenum. However, it was removed during gastroscopy and the site of perforation was closed endoscopically. This particular case shows the importance of endoscopy for retrieval of large foreign bodies, and the possibility to endoscopically close a perforated duodenal wall.

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using a rat-tooth forceps the impacted teaspoon handle was removed from the duodenal wall, brought into the stomach and then extracted. The spoon was 12 cm long, 2 cm large at the cup and 0.5 cm at the handle, which was sharp (Figure 1C). Control endoscopy was performed immediately after extraction of the teaspoon, and this confirmed perforation of the duodenal wall. The mucosal flaps on the site of perforation were closed by placing 5 clips (EZ clips long, Olympus, Tokyo, Japan), and by injection of 3 mL of fibrin glue (Beriplast, Nycomed, Germany) over the clips in a way to consolidate the closure. Air injection during endoscopy induced the onset of subcutaneous emphysema, which was diagnosed on palpation. On urgent computed tomography (CT) scan there was diffuse bilateral retro-pneumoperitoneum extending to the right inguinal region, with a small amount of fluid into the retro-duodenal region near the right kidney (Figure 1D).

White blood cells count was 12,240 (normal value 4,100-9,800), without fever. On physical examination there was abdominal tenderness without signs of peritonitis. The patient started iv therapy with broad spectrum antibiotics and proton pump inhibitors. Clinical course was uneventful during the following days, and white blood cells count normalized without occurrence of fever. Four days later upper gastrointestinal enema with water soluble contrast confirmed the absence of leaks at the site of perforation. On control CT scan after 7 d diffuse retro-peritoneum was still present without evidence of fluid collections and upper endoscopy confirmed complete closure of the perforation. One week later the patient started oral nutrition and was discharged in good clinical conditions.

DISCUSSION

Swallowing of large objects (> 10 cm) may occur, but these usually do not pass spontaneously through the gastrointestinal tract, and often require urgent surgery due to perforation[2]. In the setting of intentional foreign body ingestion, the rate of endoscopic intervention may be much higher (63%-76%) and the need for surgical intervention ranges from 12% to 16%[3,4]. This however depends on the size of the foreign body (usually < 10 cm). Mortality rate in these patients is extremely low[5]. The technique of fibrin glue injection has already been described[6]. Our patient developed diffuse subcutaneous emphysema during endoscopy. The use of carbon dioxide instead of air should be preferred in these circumstances because of much more rapid reabsorption. Timing of endoscopy in these patients is very important, in order to reduce the risk of bacterial contamination in case of perforation[6].

This particular case shows the importance of endoscopy for retrieval of large foreign bodies, and the possibility to endoscopically close a perforated duodenal wall. The endoscopic approach was essential in this case and avoided surgery to this young patient.
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