

Delayed complete gastric outlet obstruction due to a dinner fork: report of a case

Yemek çatalına bağlı gecikmiş tam mide çıkım tıkanıklığı: Olgu sunumu

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Ingestion of foreign bodies can be a common problem especially among children, alcoholics, psychiatric patients, and senile patients, but ingestion of a metallic dinner fork is uncommon. Foreign bodies with smooth edges usually do not pose significant problems, but a sharp foreign object that is not retrieved at the earliest may penetrate the wall and cause complications. Ingested foreign bodies usually pass the intestinal tract without problems, and perforation occurs in less than 1%. In this paper, a case of rare gastric outlet obstruction due to a dinner fork, which was ingested 25 days before, is reported.

Key Words: Gastric outlet obstruction; foreign body; ingestion; dinner fork.

Yabancı cisimlerin yutulması, özellikle çocuklar, alkolikler, psikiyatrik hastalar ve yaşlılar arasında çok sık rastlanan bir sorun olmasına rağmen yemek çatalının yutulması oldukça nadirdir. Yuvarlak uçlu yabancı cisimler genellikle bir soruna neden olmazken sivri uçlu yabancı cisimler erken dönemde çıkarılmadıkları takdirde intestinal duvara penetre olup komplikasyona neden olabilirler. Yutulan yabancı cisimlerin çoğunluğu sorunsuz intestinal kanaldan geçerken sadece %1'den daha azı perforasyona neden olur. Bu yazıda, 25 gün önce yutulmuş yemek çatalına bağlı geç dönemde ortaya çıkan nadir bir mide çıkım tıkanıklığı olgusu sunuldu.

Anahtar Sözcükler: Mide çıkım tıkanıklığı; yabancı cisim; yutma; yemek çatalı.

Ingestion of foreign bodies can be a common problem especially among children, alcoholics, psychiatric patients, and senile patients, but ingestion of a metallic dinner fork is uncommon.^[1] Approximately 80% of small foreign bodies that reach the stomach will spontaneously pass through the alimentary canal. Up to 10-20%, however, will require endoscopic removal and possibly 1-4% will require surgery.^[2] Many studies have shown that objects longer than 6-10 cm have difficulty passing through the duodenum and should be removed.^[1-3] Foreign bodies with smooth edges usually do not pose significant problems, but a sharp foreign object that is not retrieved at the earliest may penetrate the wall and cause complications.

In this paper, a case of rare gastric outlet obstruction due to a dinner fork ingested 25 days before is reported.

CASE REPORT

A 20-year-old soldier was admitted to the emergency department with a two-day history of intermittent upper abdominal pain, nausea and vomiting aggravated by eating. On questioning, he reported a history of dinner fork ingestion. This patient had no significant medical history and had no psychiatric disorders. He neither smoked nor was an alcoholic or drug addict. The patient claimed that he accidentally swallowed a dinner fork 25 days before. On physical examination, there was right upper-quadrant tenderness with no acute abdominal signs. He had no fever or leukocytosis. Bowel sounds were exaggerated. Examination of the other systems was normal. An abdominal X-ray showed a dinner fork in the region of the stomach (Fig. 1). According to upper gastrointestinal flexible endoscopy, the esophagus was normal, and a huge

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Fig. 1. A plain abdominal radiography showing the dinner fork in the patient's stomach.

metallic foreign body was suspended by the pylorus. Endoscope could not be passed through the duodenal lumen. Endoscopic removal of the fork from the stomach could not be achieved. Therefore, the patient was scheduled for emergency surgical exploration. The abdomen was explored via upper midline incision. The outer layer of the stomach was normal, but there was a huge hard mass filling the whole cavity of the antrum and duodenum. With a longitudinal gastrotomy in the greater curvature, the stomach was opened. At the operation, we determined that the blunt end of the fork passed through the duodenum, and that the sharp end of the fork was suspended by the pylorus. The fork was removed from the stomach (Fig. 2). Following the removal of the fork, the gastric mucosa was examined thoroughly, and hemorrhagic mucosal erosions were observed in the antral region. After saline irrigation, the stomach was repaired in two layers. A nasogastric tube was inserted. A liquid diet was started on the fourth day, and he was discharged six days after the operation. The patient's postoperative period was uneventful.

DISCUSSION

The majority of foreign body ingestions occur in the pediatric population, with a peak incidence between the ages of 6 months and 6 years. In adults, true foreign object ingestion takes place more commonly among those with psychiatric disorders, mental retardation, or impairment caused by alcohol, or those seeking some secondary gain with access to a medical facility.^[1-3] Children most often ingest toys, coins, crayons, and ballpoint pen caps, whereas adults prevalently tend to have problems with meat and bones.^[3,4] Once a foreign

body reaches the stomach, it has an approximately 80% chance of passage. Ingested foreign bodies of the stomach and duodenum on initial emergency department presentation are usually asymptomatic. If the foreign body is located in the stomach and symptoms (nausea, vomiting, hematemesis, and abdominal pain) are present, they usually denote a complication of the foreign body (bleeding, perforation, obstruction).^[1,2,5] The main manifestation of our patient was abdominal pain, nausea and vomiting, suggesting complete gastric outlet obstruction. Although the physical examination in patients with gastric or duodenal foreign bodies is generally not beneficial, signs of obstruction, perforation, and bleeding should always be sought. Biplane radiographs identify most true foreign bodies, and free abdominal or mediastinal air. However, wood, plastic, fish or chicken bones, most glass, and thin metal objects can not be detected easily.^[1-3] On plain abdominal radiography, we found an opaque dinner fork. The pylorus may limit the course of a foreign body if it exceeds a certain size. Objects greater than 6 cm in length, such as spoons and toothbrushes, may have difficulty passing the duodenal sweep. Objects greater than 2 cm in diameter may not pass through the pylorus.^[1-3,6,7] We determined dimensions of the dinner fork in the present case as 14 cm in length and 3 cm in diameter. The ligament of Treitz may be a site of foreign body impaction owing to its normal anatomic narrowing. Sharp-pointed foreign bodies, as well as elongated foreign bodies, can be very challenging and difficult to manage; luckily, they are uncommon. A myriad of ingested sharp-pointed objects have been illustrated.^[2,8-10] Those most commonly associated with complications are fish and chicken bones, toothpicks, and needles. Although the majority of sharp-pointed objects that enter the stomach will pass through the remaining gastrointestinal tract without incident, the risk of complication caused by a sharp-pointed object is as high as 35%.^[3] Sharp, pointed foreign bodies fre-

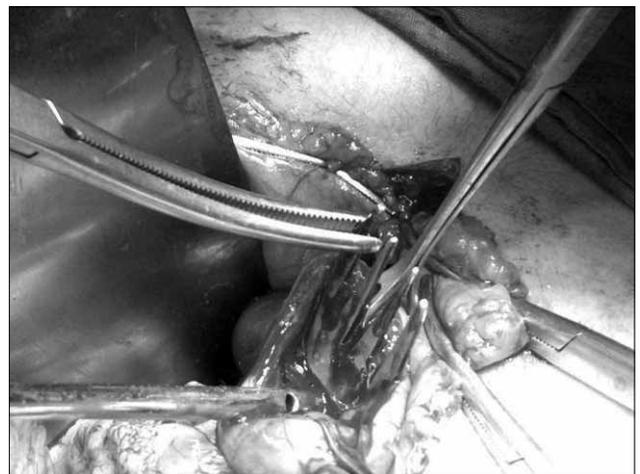


Fig. 2. Appearance of the dinner fork in the stomach.

quently cause perforations in the gastrointestinal tract; endoscopic removal is advisable if they are within the reach of available endoscopes. With advances in endoscopic techniques, foreign bodies can be extracted safely in these patients. A few techniques in the literature are described for the endoscopic retrieval of long foreign bodies. Chang et al.^[11] described the one single accessory channel gastroscope and two polypectomy snares technique, and Aoyagi et al.^[12] described the double-snare technique with a two-channel gastroscope and a balloon. Endoscopic inspections can show all gastric foreign bodies. Foreign bodies located in the esophagus or stomach should be treated conservatively in the first instance. Surgery is recommended in cases with massive and non-progressive foreign bodies, or complicated cases presenting with perforation, penetration, hemorrhage, or obstruction.^[1-3] Moreover, those causing acute intestinal obstruction require surgical intervention. In our patient, endoscopic removal of the dinner fork was attempted, but was unsuccessful. Gastric foreign bodies are usually removed by longitudinal gastrotomy. If complicated, a small percentage of cases can be treated by gastric resections. Our case presented with a large non-movable mass, with manifestations of obstructions. Therefore, gastrotomy and removal of the foreign body was performed. Otherwise, sharp-pointed objects may be followed with daily radiographs to verify their passage, with surgical intervention considered for objects that fail to progress for three continuous days.

In conclusion, we report a case of accidental ingestion of a long, pointed metallic dinner fork that failed to pass through the gastrointestinal tract. This patient was managed successfully with gastrotomy to remove the object. We recommend that if the patient has no acute abdominal signs, endoscopic retrieval of the

foreign material must be performed. If this treatment fails, surgery must be performed for the removal of long pointed foreign bodies to avoid the development of complications. Under rare circumstances, the surgeon might prefer to manage the patient who ingested a long pointed foreign body without using current algorithms.

REFERENCES

1. Eisen GM, Baron TH, Dominitz JA, Faigel DO, Goldstein JL, Johanson JF, et al. Guideline for the management of ingested foreign bodies. *Gastrointest Endosc* 2002;55:802-6.
2. Selivanov V, Sheldon GF, Cello JP, Crass RA. Management of foreign body ingestion. *Ann Surg* 1984;199:187-91.
3. Stack LB, Munter DW. Foreign bodies in the gastrointestinal tract. *Emerg Med Clin North Am* 1996;14:493-521.
4. Cheng W, Tam PK. Foreign-body ingestion in children: experience with 1,265 cases. *J Pediatr Surg* 1999;34:1472-6.
5. Velitchkov NG, Grigorov GI, Losanoff JE, Kjossev KT. Ingested foreign bodies of the gastrointestinal tract: retrospective analysis of 542 cases. *World J Surg* 1996;20:1001-5.
6. Blaho KE, Merigian KS, Winbery SL, Park LJ, Cockrell M. Foreign body ingestions in the Emergency Department: case reports and review of treatment. *J Emerg Med* 1998;16:21-6.
7. Losanoff JE, Kjossev KT. Ingested foreign bodies of the gastrointestinal tract. *J Emerg Med* 1999;17:525-6.
8. Webb WA. Management of foreign bodies of the upper gastrointestinal tract: update. *Gastrointest Endosc* 1995;41:39-51.
9. Steenvoorde P, Moues CM, Viersma JH. Gastric perforation due to the ingestion of a hollow toothpick: report of a case. *Surg Today* 2002;32:731-3.
10. Ginsberg GG. Management of ingested foreign objects and food bolus impactions. *Gastrointest Endosc* 1995;41:33-8.
11. Chang DK, Ross WB. Endoscopic retrieval of a teaspoon from the stomach. *ANZ J Surg* 2004;74:1013-4.
12. Aoyagi K, Maeda K, Morita I, Eguchi K, Nishimura H, Sakisaka S. Endoscopic removal of a spoon from the stomach with a double-snare and balloon. *Gastrointest Endosc* 2003;57:990-1.