

Final destination of an ingested needle: the liver

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ABSTRACT

Foreign body ingestion is a common problem in children, but it is also seen among adults. Most foreign bodies pass through the gastrointestinal tract without causing complications. Perforation of the gut by a foreign body, followed by migration of the foreign body to the liver is quite rare. Herein we report a case of inadvertent ingestion of a sewing needle that perforated the duodenum and migrated to the liver. The patient was monitored weekly with abdominal radiographs, but displacement of the needle could not be observed. At follow-up, right upper quadrant pain was noted. Two weeks later, computed tomography revealed that the needle was completely buried into the right lobe of the liver. Ultrasonographic examination successfully showed the extracapsular displacement of the needle. Eventually, laparoscopic removal of the needle was easily performed.

Key words: • liver • foreign body • computed tomography • ultrasonography • radiography

Foreign body ingestion occurs in all age groups, especially in childhood. Most foreign bodies pass through the gastrointestinal tract without causing any damage. Migration of an ingested needle to the liver is very rare. We report a case of ingestion of a sewing needle that was removed successfully by laparoscopic surgery. Our aim is to emphasize that the preoperative diagnosis is difficult and a high degree of suspicion is required for the diagnosis.

Case report

A 22-year-old female was admitted to the emergency department after accidental ingestion of a sewing needle. She was asymptomatic. On physical examination, there were no signs of peritoneal irritation. A plain radiograph of the abdomen showed a needle in the right hypochondrium. Weekly abdominal radiographs were obtained to monitor displacement of the needle. Prophylactic antibiotics were prescribed. Two weeks later, gastroscopy and colonoscopy were performed because the needle was not seen to be displaced on the plain radiograph. The needle was not seen during gastroscopy and colonoscopy; computed tomography (CT) was then performed. CT showed a linear density in the right liver lobe with surrounding inflammation due to foreign body reaction (Fig. 1). Migration of the needle from the duodenum to the liver was suggested. At follow-up, stabbing pain in the right upper abdominal quadrant was noted. Surgical exploration was planned; however, sonographic examination performed just before the operation revealed extracapsular migration of the needle (Fig. 2). The decision was then made to perform laparoscopic removal; the needle was easily removed in this fashion (Figs. 3 and 4). The postoperative period was uneventful, and the patient was discharged at second day following the operation.

Discussion

The majority of ingested foreign bodies pass through the gastrointestinal (GI) tract uneventfully (1, 2). GI perforation has been reported in fewer than 1% of patients; the most commonly affected areas are the ileocecal, rectosigmoid, and duodenal regions (3). GI perforation, though rare, may occur and may present with peritonitis, localized abscess or inflammatory mass, hemorrhage, or fistula (1).

Hepatic foreign bodies are rare (1, 4). Foreign bodies can reach the liver by one of three routes: direct penetration through the abdominal or thoracic wall, migration from the gastrointestinal tract, or through the blood (4). Most hepatic foreign bodies have been reported to enter the liver by transmigration from the gastrointestinal tract (stomach, duodenum, and transverse colon) (4).

Prompt recognition and early intervention are necessary to avoid morbidity and mortality (2). Methods of foreign body investigation in-

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Received 1 March 2009; accepted 19 March 2009.

Published online 28 December 2009
DOI 10.4261/1305-3825.DIR.2703-09.0



Figure 1. Contrast enhanced axial CT scan revealed linear density in the right liver lobe surrounded by inflammation due to foreign body reaction (*arrowheads*).

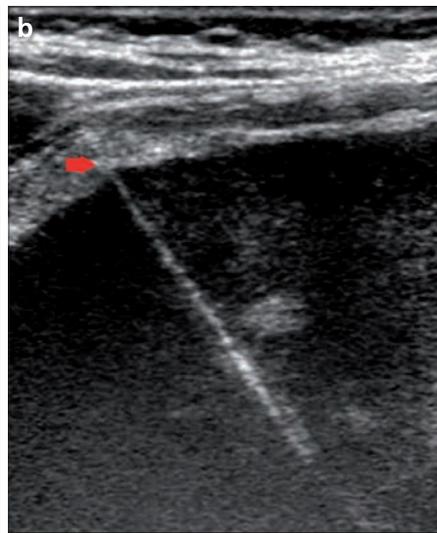
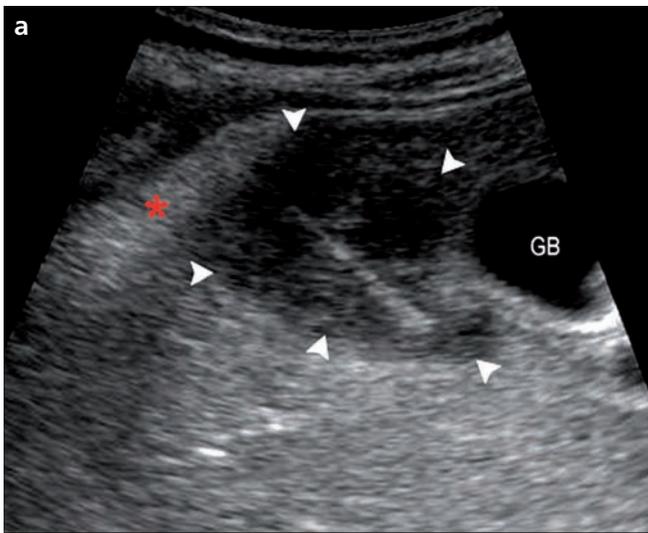


Figure 2. a, b. Ultrasound of the abdomen showed the linear hyperechoic needle in the right liver lobe within a hypoechoic area (*arrowheads*). Also, a hyperechoic area corresponding to the omentum covered the extracapsular part of the needle (*asterisk*) (a). Examination with linear transducer clearly showed extracapsular extension of the needle (b, *red mark*).

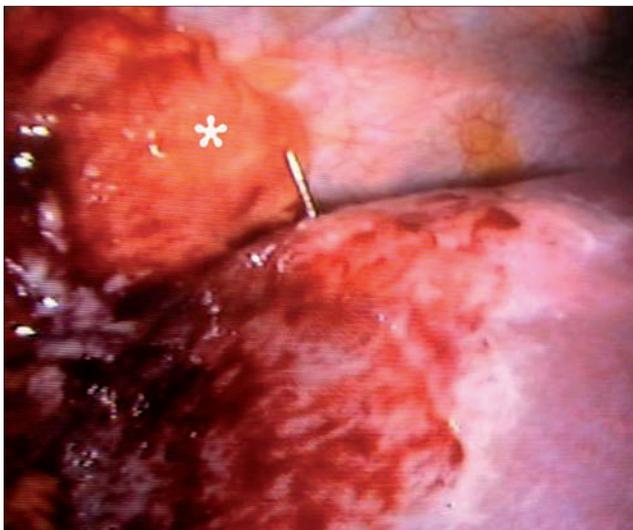


Figure 3. At laparoscopy, extracapsular extension of the needle was shown on the surface of the right liver lobe. The omentum was also noted between the surface of the liver and the parietal peritoneum of the upper abdominal wall (*asterisk*).

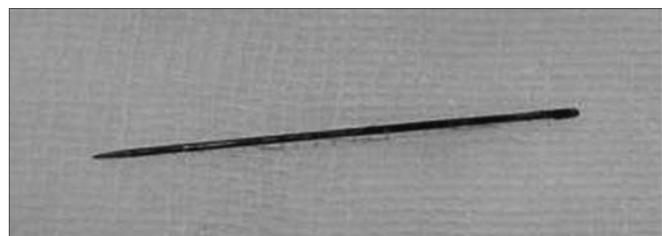


Figure 4. Sewing needle after retrieval.

clude plain radiography, ultrasound, CT, upper gastrointestinal series, upper endoscopy, colonoscopy, laparotomy, and autopsy (2). Traditionally, the diagnosis of ingestion and localization

of the foreign body is made by plain abdominal radiograph (5). If the object is not recovered in stool, a radiograph is taken weekly to determine whether it has left the stomach and is progress-

ing satisfactorily (5). Endoscopy may be helpful when performed early, i.e., before foreign body migration and mucosal healing (3). Ultrasonography and CT may help to diagnose these

unusual presentations of migrating foreign bodies and to plan management. CT is excellent in detection of foreign bodies because of its high resolution and accuracy (3). CT findings in this patient demonstrated that the needle passed directly from the duodenum into the liver. In our case, extracapsular migration of the needle and the cover of the hepatic surface by the omentum was successfully shown by sonographic examination. Foreign body reaction due to intrahepatic needle was readily observed in both CT and ultrasonography.

In the presence of an uncomplicated hepatic foreign body, follow-up without surgical intervention is recommended (1). Patients with complicated hepatic foreign bodies have been treated using surgical removal by laparoscopy or laparotomy, drainage for abscess, and hepatic segmentectomy.

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