

Imaging and clinical findings of a gossypiboma migrated into the stomach

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In the presented case, the radiologic, endoscopic and surgical findings of a gossypiboma that migrated into the stomach are presented. A 63-year-old woman presented with epigastric pain, and her clinical and laboratory findings were compatible with pancreatitis. Upper gastrointestinal endoscopy revealed a foreign body at the greater curvature of the stomach. Computed tomography and magnetic resonance imaging showed a mass consistent with a gossypiboma that had migrated into the stomach transmurally. This is a first case of a gossypiboma diagnosed endoscopically.

Key words: Transmural migration of gossypiboma, computed tomography, magnetic resonance imaging

Mide içine doğru emigre olan gossypibomanın görüntüleme ve klinik bulguları

Bu olguda mideye transmural olarak migrasyon gösteren gossypiboma olgusunun endoskopik ve radyolojik bulgularının sunulması amaçlanmıştır. Altmış üç yaşındaki bayan hasta epigastrik şikayetiyle geldiğinde direkt radyografi, bilgisayarlı tomografi, manyetik rezonans görüntüleme ve üst gastrointestinal endoskopik incelemeye alınmıştır. Hasta klinik ve laboratuvar bulguları olarak pankreatiti taklit etmiştir. Üst gastrointestinal sistem endoskopisinde mide büyük kurvaturünde yabancı cisim gözlenmiştir. Bilgisayarlı tomografi ve manyetik rezonans görüntüleme mideye transmural olarak migrasyon gösteren gossypiboma teşhis edilmiştir. Literatürde mideye transmural migrasyon gösteren, endoskopik olarak teşhis edilen ve pankreatiti taklit eden ilk gossypiboma vakasıdır.

Anahtar kelimeler: Gossypibomanın transmural göçü, bilgisayarlı tomografi, manyetik rezonans

INTRODUCTION

Gossypiboma is the term used to describe a mass of cotton matrix that causes a foreign-body reaction inside the body. A gossypiboma is an uncommon surgical complication, with an incidence of 1:1,000–10,000 in intra-abdominal operations (1). The gossypiboma can cause pressure necrosis of the bowel wall and ultimately lead to extrusion of the sponge into the bowel lumen. The transmural migration of a gossypiboma has been reported to occur in the stomach, ileum, colon, urinary bladder, diaphragm, trachea, vagina, spine, pericardium, nose, breast, lung parenchyma, and urethra (2-4).

The diagnosis of gossypiboma can sometimes be very difficult, as it can mimic a malignancy, abscess or exudative granulomatous reaction. Moreover, when the diagnosis is delayed, complications may occur. In this report, we present the radiologic and endoscopic imaging and surgical findings of a gossypiboma that had migrated into the stomach transmurally. This is the first reported case of an endoscopically diagnosed gossypiboma and the third case of transmural migration of a gossypiboma into the stomach (3).

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CASE REPORT

A 63-year-old woman presented with left upper quadrant pain, vomiting and nausea. Her medical history included a cholecystectomy four years earlier. On physical examination, she had tenderness and pain in the upper left quadrant only. The laboratory results revealed a high leukocyte count (15,600/L) and high levels of amylase (560 IU/L), lipase (405 IU/L), total bilirubin (1.15 IU/L), and direct bilirubin (0.69 IU/L). She was diagnosed with acute pancreatitis.

Upper gastrointestinal (GI) endoscopy showed a foreign body at the greater curvature of the stomach, which was diagnosed as a pseudotumor with an exudative surface. Endoscopic removal was attempted, but failed because of a fixed reaction. A direct abdominal X-ray indicated a mass including gas bubbles with peripheral radiopacity. Ultrasonography (US) showed a 9.5-cm mass with a hyperechoic wall and a dark acoustic shadow in the left upper quadrant. Abdominal computed tomography (CT) revealed a 9.5-cm hypodense mass with a spongiform appearance and a mildly enhancing hyperdense wall, consistent with a gossypiboma. The upper half of the gossypiboma had migrated transmurally into the greater curvature of the stomach. Magnetic resonance cholangiopancreatography (MRCP) was performed to evaluate the biliary system and pancreatic canal due to the clinical findings of pancreatitis. MRCP showed no abnormality in the pancreaticobiliary ductal system. Magnetic resonance imaging (MRI) also indicated a well-defined gossypiboma with a thick peripheral wall and transmural migration into the stomach. The lesion was hypointense on T1-weighted images and heterogeneously hyperintense on T2-weighted images.

On the half-Fourier acquisition single-shot turbo spin-echo (HASTE) sequence, a geographic pattern was seen in the central cavity. (Figure 1 A, B, C, D). The pancreatitis-like clinical and laboratory findings were attributed to the transmural migration of the gossypiboma into the stomach. At laparotomy, a mass walled by the omentum was found between the left lobe of the liver and anterior wall of the stomach. A surgical gas compress that had partially protruded into the stomach lumen was seen on dissection of the adherent omentum. After removing the gas compress, the stomach perforation was closed by suturing.

DISCUSSION

Transmural migration of a gossypiboma is a rare complication that can occur when the foreign body is adjacent to the GI tract. This case shows that transmural migration of a gossypiboma can be detected endoscopically. The presentation of a patient with a gossypiboma can mimic pancreatitis, as in our case. To our knowledge, these two points have not been reported previously.

An experimental animal study to evaluate gossypiboma described four stages in the process of migration: foreign-body reaction, secondary infection, mass formation, and remodeling (2). Pathologically, two types of foreign-body reaction can occur. The first is an aseptic fibrinous response that creates adhesions and encapsulation. The second response is exudative in nature and leads to abscess formation with or without secondary bacterial invasion (2,5,6). The intestine is the most commonly affected site due to the relatively large outer surface of the small intestine and because its thin wall offers the least resistance. The stomach is an unusual site for transmural migration because of its relatively small outer surface area, higher location in the abdomen, and thick wall (2). We emphasize that gossypiboma should always be considered during the investigation of abdominal masses in patients with a history of laparotomy.

Direct abdominal radiography, US, CT, and MRI are the available diagnostic modalities (1,7,8). The diagnosis of gossypiboma is usually difficult using X-ray film alone because the foreign material can fold, twist or disintegrate over time (1). The characteristic CT findings are a well-defined cystic mass having an internal spongiform appearance with scattered gas bubbles and a hyperdense enhancing capsule, with or without a calcified reticulate rind sign or mottled mural calcification (1,9).

In our case, the CT findings of the gossypiboma were as previously reported, except for the absence of calcification. The central cavity showed homogeneous low signal intensity on T1-weighted images and heterogeneous high signal intensity on T2-weighted images. Whorled stripes within the central cavity with low signal intensity on T2-weighted MRI are specific findings for gossypiboma. In our case, heterogeneous hyperintensity with gas bubbles was seen, but not the characteristic whorled stripe. A geographic pattern was observed on T2-weighted MRI, which was not reported previously. Mild-to-moderate enhancement

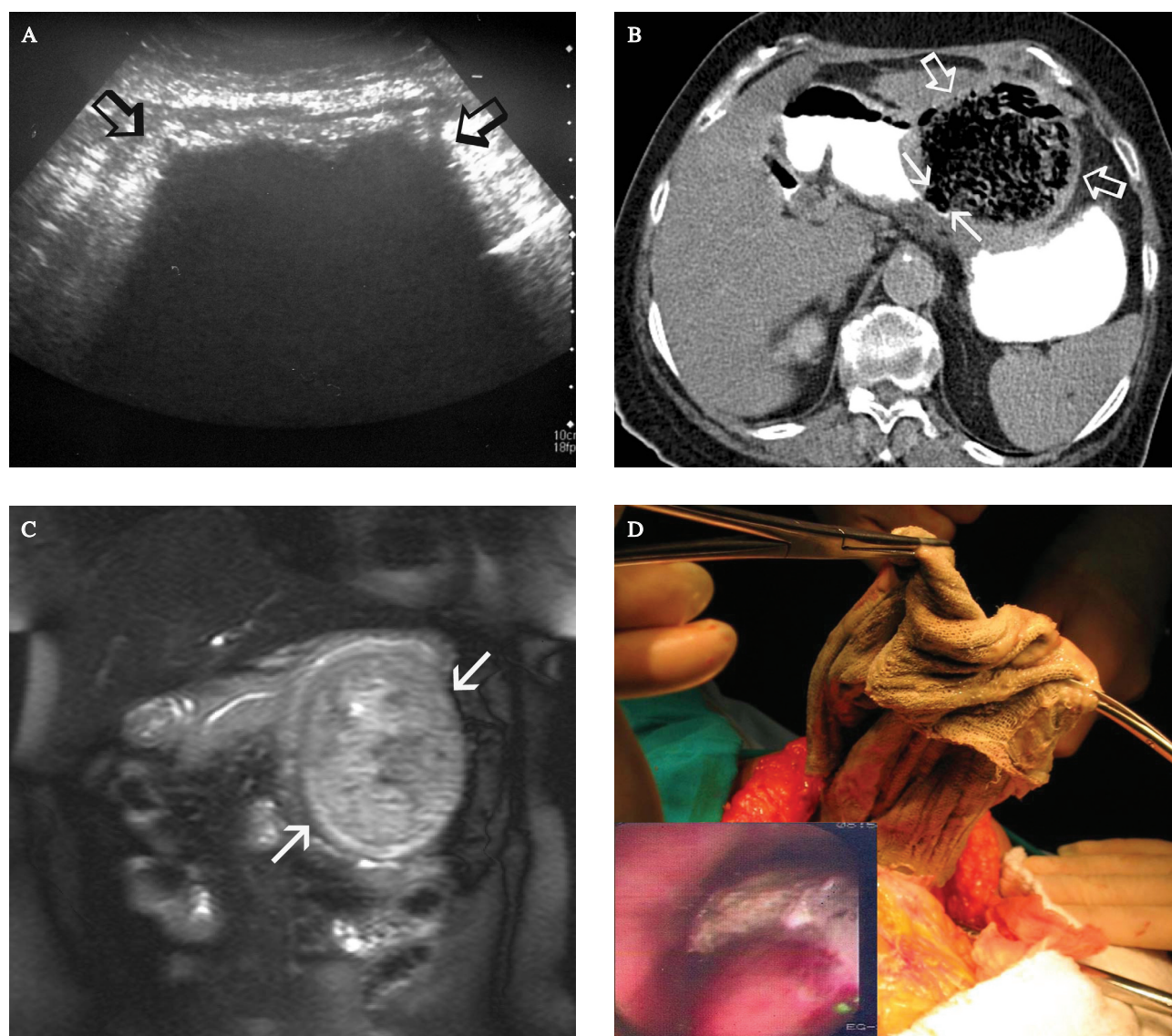


Figure 1. (A) The transabdominal axial US image shows a 9.5-cm mass (arrows) with a hyperechoic thick wall and a dark acoustic shadow. (B) The axial CT image shows a spongiform hypodense mass containing gas bubbles (open arrows). Transmural migration into the greater curvature of the stomach is also seen (arrow). (C) The coronal HASTE T2-weighted MRI indicates a well-defined mass including a central inhomogeneous mixed hypo-hyperintense cavity and a geographic pattern with a thick wall. (D) The operative image shows removal of a retained surgical gas compress. An upper GI endoscopic spot image reveals a surgical gas compress protruding partially into the gastric lumen.

and a serrated internal contour of the peripheral wall can be seen on enhanced MRI (7). We did not use contrast material because the MRI examination was MRCP only. Endoscopy has emerged as both a diagnostic and treatment modality in the last decade (2,3,10). In the absence of complications, such as a perforation or fistula, or the presence of migration into a luminal organ, conservative treatment with clinical and radiological follow-up can be considered (10). To prevent gossypiboma,

radiopaque swabs should be used, or barcodes can be applied to all swabs, with a barcode scanner used at the final count.

In conclusion, the early diagnosis of gossypiboma is important because of possible complications, such as transmural migration and a pancreatitis-like clinical presentation, as in our case. Transmural migration should be considered for a gossypiboma adjacent to the GI tract.

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