

An Unusual Case of Bowel Obstruction

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Abstract: A 91 year old male with abdominal pain was found on CT Abdomen to have a gallstone impacted in a sigmoid diverticular stricture causing bowel obstruction. Gallstone ileus accounts for only 1-3% of all cases of intestinal obstruction, and only 4-8% lodge in the colon. A review of the literature was performed.

Case history A 91 year old male presented with a short history of gradually worsening generalised abdominal pain, together with diarrhoea 10-12 times per day. On examination his abdomen was soft but there was vague tenderness in the lower abdomen although no guarding or rigidity. Past medical history included gallstones but nothing else of note. Initial ultrasound examination revealed simple liver cysts, but no other relevant findings. A provisional diagnosis of gastroenteritis was made.

The patient's condition deteriorated over the following 4 days with the development of abdominal distension and constipation. A CT scan was performed which demonstrated large-bowel obstruction secondary to a gallstone impacted in a sigmoid stricture, gas in a contracted gallbladder and choledocholithiasis (Figures 1 & 2).

Subsequently the patient underwent laparotomy and Hartmann's procedure (resection of the sigmoid colon with closure of the rectal stump and colostomy). The gallstone was found to be impacted in a diverticular stricture and no malignancy was identified. The patient made a prolonged recovery complicated by a CVA.



Figure 1: A CT topogram image showing dilated loops of bowel consistent with obstruction.



Figure 2: A coronal reconstruction of the abdominal CT showing a gallstone in the sigmoid colon.

Gallstone ileus caused by impaction of a gallstone in the intestinal lumen is unusual, accounting for 1-3% of all cases of intestinal obstruction, usually in elderly females over 65 years of age^{1,2}. The majority impact in the ileum (60-70%), other sites include the jejunum (14-16%) and stomach and duodenum in 5-14%. Patients usually present with signs of bowel obstruction though the initial presentation may be insidious resulting in diagnostic delay. Obstruction of the colon by a gallstone is rare, occurring in 4-8%^{1,2}. The stone most commonly enters the bowel by way of cholecystocolonic fistula¹⁻³, or less commonly via cholecystoduodenal fistula with obstruction occurring most commonly in the sigmoid colon, usually due to pathological narrowing at the level of impaction¹⁻⁵.

The classical radiographic appearances of pneumobilia, mechanical small bowel obstruction and the presence of a gallstone on plain abdominal films as described by Rigler et al⁶ (Rigler's triad) are relatively unusual as pneumobilia only occurs in one third of cases due to the inflammatory process occluding either in the cystic or common bile duct^{1,7,8}. Studies have shown that plain films are diagnostic in less than 50% of patients, and Rigler's triad may be seen in as few as 14.8% of cases. CT may demonstrate Rigler's triad in up to 77.8%^{7,10}, additionally, it can demonstrate the fistula between the gallbladder and bowel. On CT the appearances of gallstones may vary from heavily calcified through to soft-tissue density⁷. Ultrasound is widely used for assessment of suspected gallstone ileus, though there is little prospective evidence for its accuracy. Sonographic findings include gas in the gallbladder/biliary tree, dilated small bowel loops and ectopic gallstones⁶⁻¹⁰. Identification of Rigler's triad varies between 11 and 69%^{9,10}.

Most gallstones that enter the colon pass spontaneously. Those that impact usually do so in the sigmoid colon at the site of a pathological stricture. In this case the stone impacted in a sigmoid diverticular stricture. Treatment is usually surgical with either laparotomy and enterolithotomy or enterolithotomy, cholecystectomy and fistula closure. Endoscopic removal has been utilised and may be indicated in higher risk patients^{4,5}. In our case CT suggested the stricture was too tight and the gallstone too severely impacted to attempt endoscopic extraction and at surgery the stone could not be manipulated into the proximal colon.

Gallstone obstruction, although rare, should be considered in the differential diagnosis of large-bowel obstruction, especially in the elderly patient. CT allows accurate diagnosis and assessment of suitability for endoscopic or surgical extraction.

Discussion:

Conclusions:

References:

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