

Gallstones ileus: an illusory diagnosis

Causing severe colicky pain, vomiting, constipation – and often fever and dehydration as well – obstruction to the small intestines by gallstones is not often diagnosed but is still a condition to consider in the elderly patient. **Drs Victoria Keevil, Divya Tiwari and Tim Battcock** discuss the reasons why this diagnosis is often missed, its atypical presentations and why it should be explored in this age group.

'A BMS (best medical student) hears hoof beats outside his window, the first thing he thinks of is a zebra.' From *The House of God* by Samuel Shem

Gallstone ileus was first described in the seventeenth century and, in the general population, is a rare phenomenon. In the elderly, it accounts for approximately 25 per cent of mechanical small bowel obstruction¹. Gallstone ileus results from recurrent attacks of cholecystitis, with formation of a biliary-enteric fistula and passage of gallstones into the bowel. The gallstone often impacts at the ileo-caecal valve, resulting in obstruction. The level at which the stone obstructs is dependent on its size. Mortality from gallstone ileus ranges from 12–17 per cent², and many sources identify delayed diagnosis as a contributing factor to this relatively high mortality rate. The authors were presented with an elderly woman with a short history of vomiting and feeling generally unwell.

Case report (published with permission)

Mrs X is an 88-year-old lady who described a two-day history of vomiting and intolerable nausea. She had been unable to eat or drink and had an uncomfortable feeling in her abdomen, which was relieved by vomiting. She experienced a similar episode a month before and had been diagnosed with a chest infection by her general practitioner.

She was a relatively fit lady with a past medical history of hypertension and polymyalgia rheumatica, for which she was taking enalapril, bendrofluzide and low dose prednisolone. She had bilateral hip replacements several years ago. She did not have any past history of gallstones or related gallbladder disease.

On examination her abdomen was soft and there was no demonstrable tenderness. She had active bowel sounds and examination of the rectum revealed a small amount of faeces. Initial investigations revealed a high erythrocyte sedimentation rate (ESR), a neutrophilia and mild renal failure. Her liver function tests and amylase were within normal limits and an abdominal radiograph showed no evidence of obstruction (*Figure 1, overleaf*). An opinion was sought from the surgical team but Mrs X was referred back to the elderly care physicians, with a provisional diagnosis of gastroenteritis. She was managed with intravenous fluids and supportive care but failed to improve. Her vomiting became more profuse and offensive in nature. She was noted to have a positive urine culture with growth of coliforms, but after twenty-four hours of antibiotics there had been no amelioration of her symptoms.

She complained of worsening colicky central abdominal pain and another abdominal radiograph was requested. There was still no evidence of

DR VICTORIA KEEVIL is a specialist registrar in geriatric medicine at Southampton General Hospital; **DR DIVYA TIWARI** is a specialist registrar in elderly medicine at the Royal Bournemouth Hospital and **DR TIM BATTCOCK** is a consultant in geriatric medicine at Poole General Hospital



Figure 1: Plain abdominal radiograph depicting a radio-opaque shadow in the left upper quadrant.



Figure 2: Plain abdominal radiograph showing radio-opaque shadow in the left lower quadrant.



Figure 3: Plain abdominal radiograph showing small bowel obstruction and an ectopic gallstone, prior to surgery.

small bowel obstruction but a circular opacity, inhomogeneous in nature and outlined by a calcified rim, was present in the left iliac fossa (*Figure 2*). On retrospective analysis of her admission radiograph, the same opacity was present, but in the left upper quadrant (*Figure 1*). It appeared to have moved

around the abdomen in the time elapsed between both films being taken. On close inspection, a small amount of pneumobilia – the radiographic finding of air in the biliary tree – was also evident. A further surgical opinion was sought and a diagnosis of gallstone ileus was concluded (*Figure 3*). She

proceeded quickly to mini laparotomy and enterolithotomy – 11 days after her admission. A large single gallstone was removed from the small intestine without complication. Her liver function tests remained normal throughout her admission. She recovered well postoperatively and was discharged to a community hospital for convalescence.

Discussion

Gallstone ileus is difficult to diagnose as patients present with insidious symptoms, and it is a condition rarely seen in a clinician's working life. Many patients, as in the case of this patient, do not have any history of gallstone disease. In addition, characteristic features of intestinal obstruction are found in only 50 per cent of cases. This may be because as the gallstone 'tumbles' through the gastrointestinal tract, it impacts and disimpacts, producing intermittent mechanical obstruction (*Figures 1&2*).

On average patients have symptoms for approximately one week before surgery is

undertaken³. Moreover, at the time of surgery some series report less than 50 per cent of patients have been diagnosed preoperatively³, with the remainder only elucidated at laparotomy.

To make a preoperative diagnosis, clinical signs on the plain abdominal radiograph can be looked for: pneumobilia, an ectopic gallstone and partial or complete bowel obstruction. However, Rigler's triad is only present in about 36 per cent of patients⁴ and individual signs on their own can easily be misinterpreted (eg, pneumobilia as gas in the overlying colon). Although computed tomography (CT) imaging of the abdomen has a higher sensitivity for detecting gallstone ileus⁴, emergency CT scanning of all elderly patients presenting with symptoms of small bowel obstruction is not routine.

If left untreated the gallstone erodes through the bowel wall at the site of impaction, leading to bowel perforation and peritonitis. Thus, diagnosis and surgical intervention is essential for successful management. There is debate over whether

Key points

- > Gallstone ileus is a serious but elusive diagnosis.
- > Delayed diagnosis contributes to high mortality from this diagnosis.
- > This condition should be considered in elderly patients presenting with intestinal obstruction.

enterolithotomy alone is sufficient, or whether the surgeon should perform cholecystectomy and fistula closure, simultaneously with enterolithotomy^{2,3}. Most reports agree that without intervention prognosis is poor and despite debate over surgical technique, the most conclusive factor influencing mortality is the age of the patient^{5,6}.

Elderly patients have multiple co-morbidities, including concurrent dementia, which can make the history difficult to define. They may not experience the same quality of symptoms as described in the younger population, and characteristic physical signs are often absent on examination. Thus, a condition such as gallstone ileus can easily be missed, resulting in delayed diagnosis and deterioration of the patient's preoperative condition and fitness for surgery.

Conclusion

Although gallstone ileus is rare, in the context of the elderly population presenting with small bowel obstruction, it accounts for a quarter of all cases. This highlights the need to think of possible diagnoses in the context of the whole clinical scenario. In other words, if you do hear hoofbeats and you stand back and realise you are in Africa, it probably is a zebra.

Conflict of interest: none declared.

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