CASE REPORT

Spontaneous acalculous gallbladder perforation

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SUMMARY

An 86-year-old woman, 4 days post-operative following a right-sided Austin-Moore arthroplasty, reported abdominal pain around a known umbilical hernia and became increasingly confused. A diagnosis of incarcerated umbilical hernia was made. At surgery, on entering the peritoneal cavity, bile was immediately noted. The operation was converted to a laparotomy and a perforation was noted in the gallbladder. An open cholecystectomy was performed. Macroscopically the gallbladder was perforated in multiple places, was thin walled and did not contain gallstones. This case demonstrates the difficulty in diagnosing an apparently spontaneous gallbladder perforation in a cognitively frail patient.

BACKGROUND

Gallbladder perforation is a rare but serious and potentially fatal diagnosis due to the delay in diagnosis, which is often made at surgery. It is most often associated with acute cholecystitis with or without gallstones. This is an interesting case as it presented unusually as a strangulated umbilical hernia in someone without any right upper quadrant pain. Pathologically it was also unusual as it occurred in an acalculus gallbladder. This case serves to remind us that gallbladder perforation is a difficult diagnosis to make clinically before surgery and can apparently occur spontaneously.

CASE PRESENTATION

An 86-year-old woman was admitted to the hospital with a right-sided neck of femur fracture after a mechanical fall at home. Her medical history was significant for atrial fibrillation, stroke, dementia and an incarcerated umbilical hernia. She underwent an uncomplicated Austin-Moore arthroplasty and was making a steady recovery when, on the fourth postoperative day, she began to report increasing abdominal pain and became more confused although she remained haemodynamically stable. A general surgical opinion was obtained, which noted bluish discolouration and tenderness around an irreducible umbilical hernia. The patient was scheduled for an umbilical hernia repair. At operation, the hernia sack was entered with a conventional transverse incision and bile-stained fluid was immediately noted. The operation was converted to a laparotomy and access to the right upper quadrant was achieved through an upper midline incision. Inspection of the gallbladder and biliary tract showed the gallbladder to be perforated in three places and leaking bile into the peritoneum. An open cholecystectomy was performed and four abdominal drains left in situ. The patient went to the intensive therapy unit postoperatively and received 5 days of intravenous amoxicillin, metronidazole and gentamicin. She was stepped back down to the ward and made an uncomplicated if slow recovery. She was eventually discharged home on the 13th postoperative day after her open cholecystectomy.

INVESTIGATIONS

Bloods

Our patient did not undergo any cross-sectional or plain imaging prior to her laparotomy; however, her blood results are shown in table 1.

It can be seen that there are very minor fluctuations in her bloods from before and after the operation and minor but significant fluctuations in her LFTs. It must also be remembered that this patient already had a neck of femur fracture (NOF) and so fluctuations in alkaline phosphatase (ALP) could be explained away.

Histology

Macroscopically, at the time of surgery, the gallbladder was noted to be thin and acalculous. It was noted to be perforated in three places. These findings led the surgical team to surmise that in an elderly lady with known atrial fibrillation, this could be an ischaemic phenomenon secondary either to atherosclerotic arterial disease or embolic disease.

Microscopically, the gallbladder was reported to show "features of acute on chronic cholecystitis with epithelial reactive/regenerative atypia and gastric metaplasia without evidence of malignancy." It was measured as 5 mm in maximal thickness.

OUTCOME AND FOLLOW-UP

The patient was discharged from hospital to a rehabilitation facility where she made good progress and eventually returned home at her functional baseline.

DISCUSSION

We felt that this was a very unusual case due to its presentation and also its possible causes. This case of perforated gallbladder presented as a strangulated hernia and delerium without any right upper quadrant pain. It presented instead with umbilical pain and a bluish discolouration of the skin around a known umbilical hernia presumably due to tracking of bile within the abdomen. This patient also had no known history of gallstones and had no gallstones at laparotomy. Her histology suggested acute on chronic gallbladder

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Table 1 Blood test results

	Admission	Preoperative	D0	D1 postoperative
Hb (g/L)	108	105	99	110
WCC ($\times 10^9$)	5.5	8.8	6.9	7.4
Bilirubin (μmol/L)	–	32	20	36
ALP (IU/L)	–	93	137	147
ALT (IU/L)	–	20	33	40

ALP,alkaline phosphatase; ALT,alanine aminotransferase; Hb, haemoglobin; WCC, white cell count.

Learning points

- Gallbladder perforation is very hard to diagnose clinically as it can present in very nebulous ways without a classical history.
- Gallstones are not a pre-requisite for gallbladder disease or gallbladder perforation.
- Prompt surgical management of gallbladder perforation is life-saving.

inflammation. We suggest that this inflammation was due to chronic ischaemic changes. Clearly there was some event to cause an acute perforation. She had been fasted for around 12–18 h prior to her NOF operation and we surmise that the subsequent distension of her gallbladder due to bile retention led to critical ischaemia and perforation.

Acalculous gallbladder rupture is described in the literature as associated with Epstein-Barr virus infection,[1] liver abscess,[2] blunt abdominal trauma[3] and as occurring spontaneously.[4] This is the first report that associates acalculous gallbladder perforation with ischaemia and bile stasis secondary to preoperative fasting.

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Competing interests None.

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