

INTRODUCTION

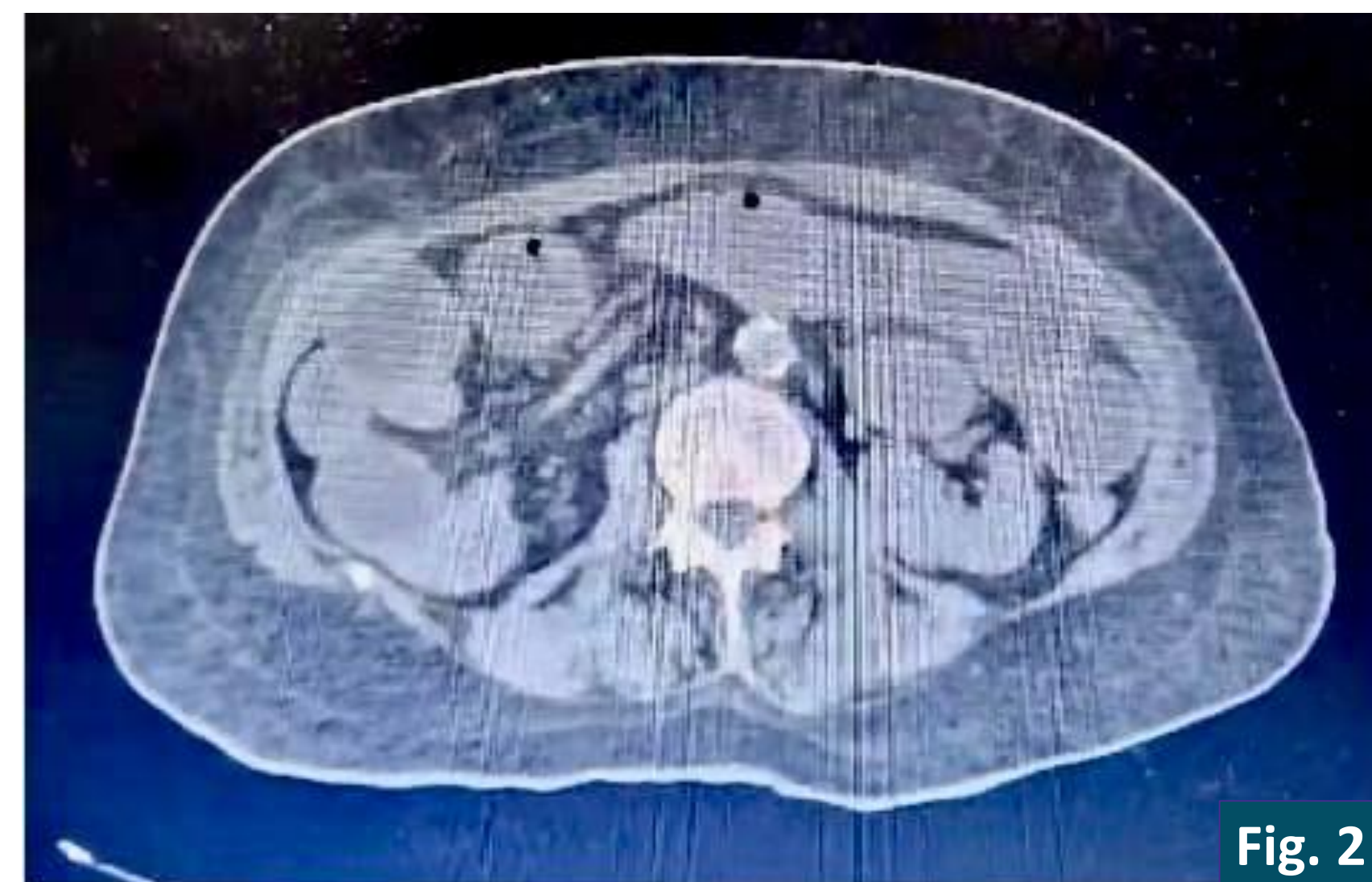
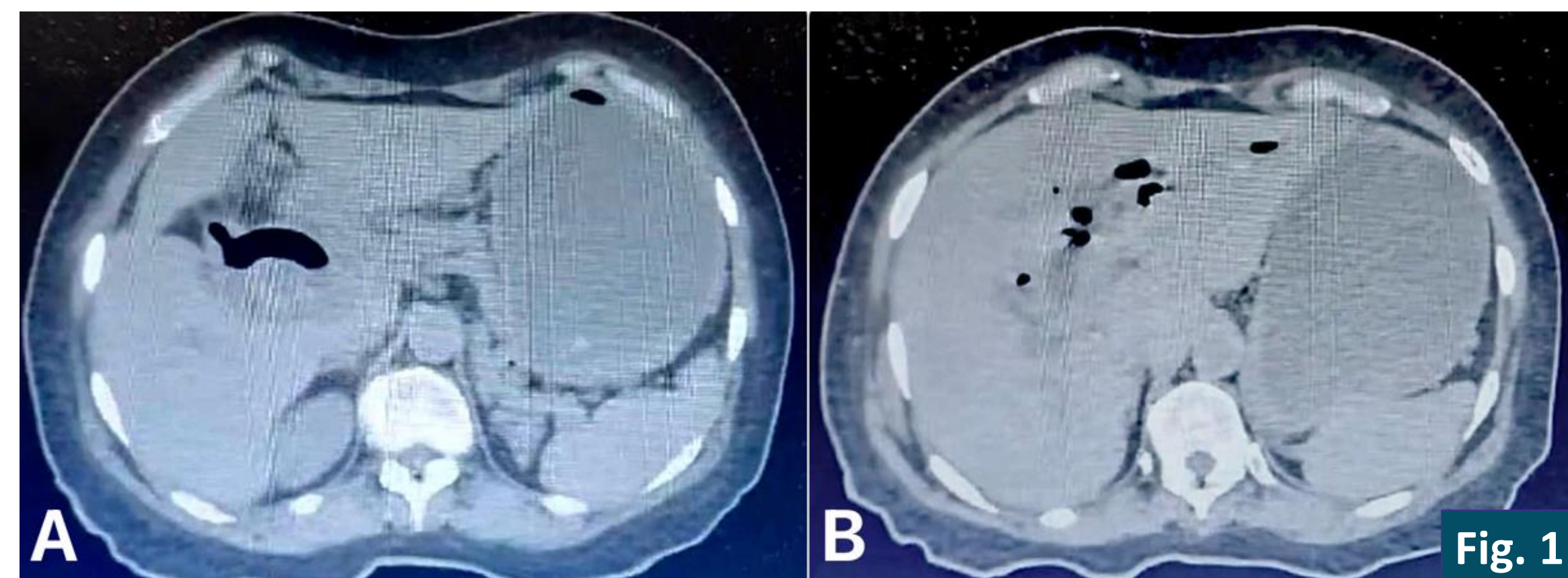
Gallstone ileus is an uncommon complication of cholelithiasis. This process typically occurs following erosion of the gallbladder wall and formation of a bilioenteric fistula, most frequently a cholecystoduodenal fistula, allowing gallstones to enter the intestinal lumen¹. A specific variant of gallstone ileus occurs when the stone becomes impacted at the ileocecal valve, a presentation historically referred to as Barnard's syndrome².

Clinical presentation is variable and depends on the site of stone impaction³. Diagnosis is frequently delayed due to non-specific symptoms and intermittent obstruction, and many cases are confirmed intraoperatively⁴. Computed tomography is the diagnostic modality of choice, allowing identification of Rigler's triad—pneumobilia, ectopic gallstone, and bowel obstruction⁵. Management strategies include enterolithotomy alone, one-stage surgery with fistula repair and cholecystectomy, or a staged approach⁶.

CASES PRESENTATION

A man in his early 70s with no significant past medical history developed colicky right hypochondrial pain a day after ingesting a high-fat meal, associated with gastrobilious vomiting. He continued to have persistent oral intolerance for a week, prompting him to attend the emergency department.

An abdominal CT scan was performed, demonstrating pneumobilia (**Fig. 1**), a distended gallbladder filled with fluid-attenuation contents, loss of normal morphology with intraluminal gas, and 23-mm calculi within a 4-mm-thick wall. Dilated small-bowel loops were also noted, consistent with ileus (**Fig. 2**).



On examination, he was alert and oriented, haemodynamically stable, afebrile, and had distended abdomen, present bowel sounds, and tenderness to superficial and deep palpation in the right hypochondrium and mesogastrium and tympany in the right upper quadrant. Vital signs on arrival were normal. Laboratory revealed leukocytosis ($12.7 \times 10^3/\mu\text{L}$) and a markedly elevated CRP level (9 mg/dL). Mild hyperbilirubinaemia (total bilirubin 1.5 mg/dL; direct bilirubin 1.0 mg/dL) and elevation of aspartate aminotransferase (71 U/L), other cholestatic markers remained within normal limits. Renal function was impaired with a creatinine level of 2.0 mg/dL. Hyperglycaemia was also observed (glucose 222 mg/dL). The remaining laboratory parameters were unremarkable.

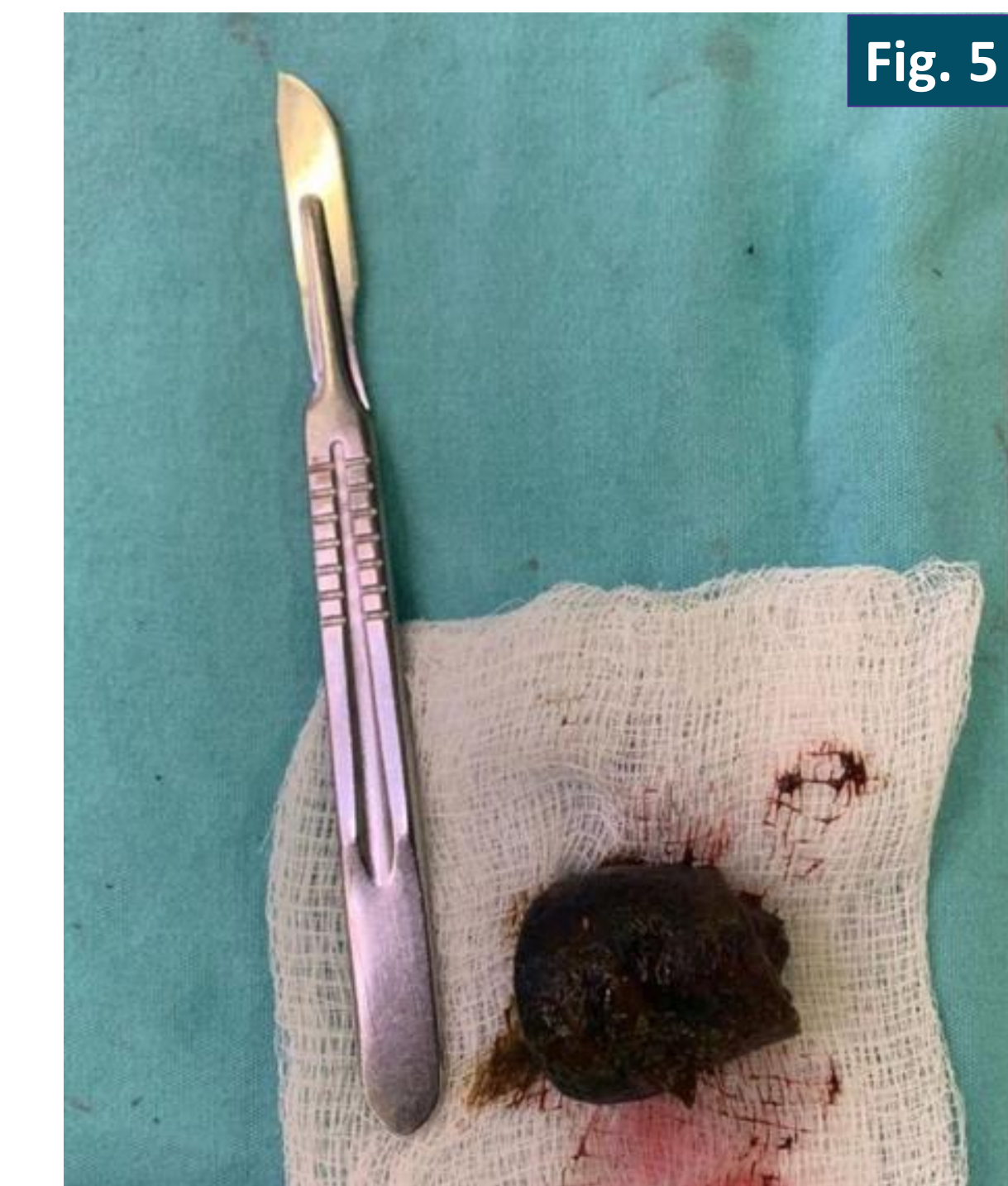
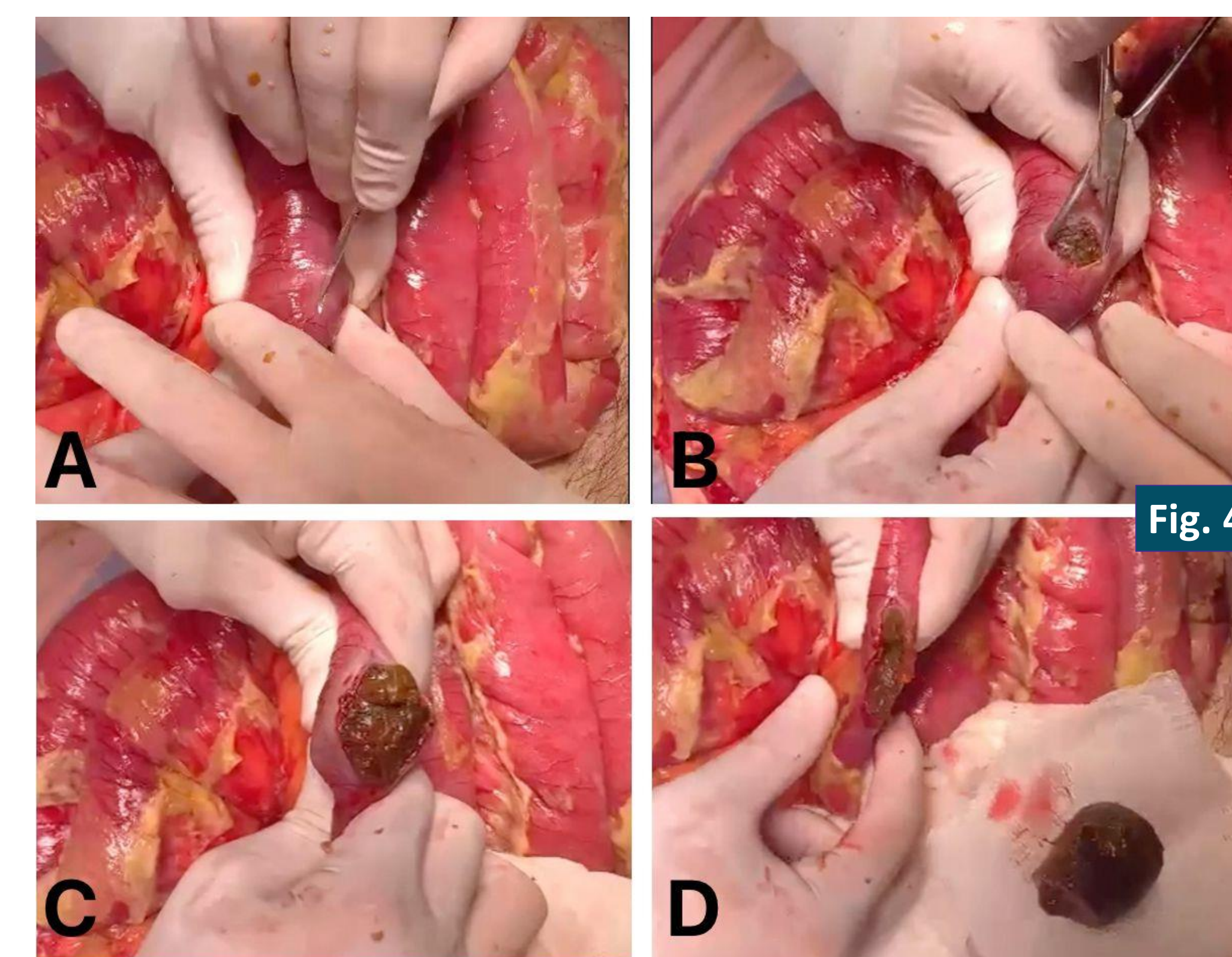
On retrospective review of the CT scan, we recognised that the elements of Rigler's triad — pneumobilia, small-bowel obstruction, and an ectopic gallstone (**Fig. 3**) — had been present from the start but were overlooked during initial evaluation. This oversight contributed to the delayed recognition of gallstone ileus.



A day after admission, he underwent exploratory laparotomy, where a gallbladder plastron was identified, with difficult dissection of Calot's triangle. A 6-cm duodenal opening was noted. A partial cholecystectomy was performed, with extraction of three large gallstones. Pyloric exclusion and duodenorrhaphy were undertaken, along with placement of a jejunostomy and a Stamm gastrostomy.

He was admitted to the intensive care unit requiring invasive mechanical ventilation, without vasopressor support, for close monitoring. During admission he developed intestinal content drainage through a Penrose drain, prompting re-exploration.

During the second-look surgery performed a few days later, 700 mL of intestinal content was found within the peritoneal cavity, along with partial dehiscence of the duodenorrhaphy. The jejunostomy and gastrostomy were taken down, and a side-to-side gastrojejunostomy was created manually in two layers using Connell-Mayo and continuous Lembert sutures. A biliary stone was then identified 100 cm distal to the ligament of Treitz (**Fig. 4**), and an enterotomy was performed for stone extraction (**Fig. 5**) with primary closure. The abdominal cavity was irrigated with 3 litres of solution, and drains were placed along the right paracolic gutter and hepatic bed. These findings confirmed a diagnosis of Barnard's syndrome.



The patient returned to the intensive care unit and remained under observation until resolution of abdominal sepsis, with no evidence of early anastomotic leak. A week after the second surgery, he was transferred to the surgical ward, where he continued to recover without complications, and was later discharged home with outpatient follow-up. At present, the patient remains asymptomatic and without sequelae.

LEARNING POINTS

1. Rigler's triad must be actively sought in any patient with pneumobilia or suspected bilioenteric fistula.
2. Diagnostic delay remains common and can be mitigated through systematic CT review.
3. Staged surgical management is often the safest strategy in frail or unstable patients, balancing immediate life-saving intervention with delayed definitive repair.
4. Recognition of gallstone ileus is essential in older populations presenting with unexplained obstruction, even when another pathology (such as a fistula) appears to dominate the clinical picture.
5. Ultimately, although the initial diagnosis was incomplete, adaptation of the surgical plan to the patient's condition allowed successful resolution of both the fistula-related pathology and the small-bowel obstruction, resulting in a favourable outcome.

REFERENCES

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