

## Case Report

# Gallbladder perforation into a parastomal hernia

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**Received:** 13 January 2026

**Revised:** 12 February 2026

**Accepted:** 19 February 2026

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### ABSTRACT

Gallbladder perforation into a parastomal hernia is an exceptionally rare but important differential diagnosis in patients presenting with parastomal pain, cellulitis, or sepsis of unknown origin. This case report highlights the diagnostic complexity of this presentation and the surgical considerations for management, particularly in comorbid patients who may not be an appropriate surgical candidate.

**Keywords:** Parastomal hernias, Parastomal herniation of the gallbladder, Perforated parastomal gallbladder

### INTRODUCTION

Parastomal hernias (PSHs) are a frequent long-term complication following stoma formation, with some literature suggesting that PSHs can occur in more than 50% of patients with stomas.<sup>1</sup> These hernias commonly contain fat, small bowel, colon, or omentum. Parastomal herniation of the gallbladder is a rare but documented phenomenon, with elderly women being most affected. Furthermore, perforation of a herniated gallbladder is rarer still, with only a limited number of cases reported in the literature. We presented a case of gallbladder perforation into a parastomal hernia, highlighting the diagnostic complexity and surgical considerations of this unusual presentation. This case highlights the importance of maintaining a broad differential diagnosis in patients with parastomal hernias presenting with sepsis or pain and contributes to the limited body of literature on this uncommon presentation.

### CASE REPORT

An 80-year-old woman presented to the Emergency Department with a one-week history of feeling generally unwell with associated loss of appetite, vomiting and

subjective fevers. She also reported tenderness at the skin on the right side of her abdomen, adjacent to her stoma. On examination, her abdomen was soft however there was a tender, erythematous area of fluctuance lateral to her stoma. She was also noted to be febrile shortly after presentation. This patient's medical background involved a previous robotic assisted laparoscopic right hemicolectomy, omentectomy and ileostomy formation for surgical management of advanced adenocarcinoma of the ascending colon with peritoneal and hepatic metastases. At time of admission, she had a mildly raised neutrophil count and a c-reactive protein of 110 however white cell count, liver function and renal function tests were within normal limits. In the context of her fevers, raised c-reactive protein and features on examination concerning for a parastomal collection, the patient was commenced on intravenous antibiotics in the first instance. Computed tomography (CT) imaging of her abdomen and pelvis was subsequently performed and demonstrated a fluid collection communicating with the gallbladder as well as the lateral edge of the existing stoma (Figure 1). Following her imaging, the impression was of a parastomal collection communicating with an anteriorly perforated gallbladder, for which she underwent an incision and drainage. During the

procedure, she was noted to have a large area of cellulitis superior and lateral to her ileostomy as well as a predominately inflammatory phlegmon with bile-stained necrotic fat and a small volume of bile-stained fluid. A culture of the fluid collected from the collection did not grow any organisms. Due to her comorbidities, she was deemed to not be a suitable surgical candidate and underwent a radiologically guided percutaneous cholecystostomy. She was later discharged with the cholecystostomy tube in situ and over 18 months of follow up, had one episode of a dislodged cholecystostomy tube requiring rewiring. She otherwise remained stable.



**Figure 1: CT demonstrating a 9.2×3.2 cm fluid collection communicating with the stoma at the lateral edge and with the gallbladder and extending to the right lateral abdominal wall and subcutaneous fat.**

## DISCUSSION

Parastomal hernias are a recognised, often late complication following stoma formation, with literature suggesting several risk factors. These include older age, obesity, inadequate nutrition, ascites, raised intra-abdominal pressure, chronic obstructive pulmonary disease and corticosteroid use, and surgical factors such as stoma site, stoma type and the size of the fascial defect made at the time of stomal fashioning.<sup>2,3</sup> While the majority of parastomal hernias contain small bowel, colon, omentum or fat, herniation of the gallbladder is distinctly uncommon due to its typical anatomic fixation to the under surface of the liver.

Gallbladder herniation, when it occurs, has predominantly been described in elderly women. Proposed mechanisms include age-related loss of visceral fat, elongation or laxity of the gallbladder mesentery, and liver atrophy, all of which may predispose the gallbladder to increased mobility.<sup>4</sup> This along with a fascial defect in the abdominal wall at the site of the hernia can result in this rare phenomenon.

Perforation of a herniated gallbladder is rarer still, with very few cases reported in the literature. The

pathophysiology is likely multifactorial, involving impacted gallstones, torsion or kinking of the cystic duct or gallbladder neck, impaired venous drainage, and increased intraluminal pressure, leading to ischemia and subsequent perforation.<sup>5</sup> In the present case, anterior perforation of the gallbladder resulted in bile leakage into the subcutaneous tissues adjacent to the stoma, manifesting clinically as cellulitis and a parastomal inflammatory collection rather than classical features of acute cholecystitis or biliary peritonitis.

This case highlights the diagnostic challenge associated with gallbladder perforation into a parastomal hernia. The patient presented with non-specific systemic symptoms and localised parastomal tenderness, without derangement of liver function tests or a significant leucocytosis. Cross-sectional imaging, particularly CT, plays a crucial role in diagnosis, allowing delineation of hernia contents, identification of gallbladder pathology, and assessment of associated collections or perforation.<sup>6</sup> In this case, CT imaging was instrumental in identifying communication between the gallbladder, parastomal collection and abdominal wall.

Management of gallbladder perforation within a parastomal hernia must be individualised, taking into account patient comorbidities, physiological reserve and overall prognosis. While definitive surgical management with cholecystectomy and hernia repair may be appropriate in selected patients, many reported cases, including this one, involve elderly patients with significant comorbidities for whom operative intervention carries substantial risk.<sup>7</sup> Percutaneous cholecystostomy offers a minimally invasive alternative that can provide effective source control, particularly in the setting of sepsis or perforation, and may be used as either definitive or bridging therapy.<sup>7</sup> In this patient, a conservative approach combining drainage, antibiotics and percutaneous cholecystostomy resulted in clinical stability and acceptable long-term outcomes.

## CONCLUSION

Gallbladder perforation into a parastomal hernia is an exceptionally rare but important differential diagnosis in patients presenting with parastomal pain, cellulitis, or sepsis. This case underscores the need for a high index of suspicion and the value of cross-sectional imaging in establishing the diagnosis. Management should be tailored to the individual patient, with percutaneous cholecystostomy representing a viable and effective option in high-risk surgical candidates. Reporting such cases contributes to the limited existing literature and may aid clinicians in recognising and managing this unusual complication of parastomal hernias.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Mourad R. Gallbladder perforation into a parastomal hernia. *Int Surg J* 2026;13:442-4.