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Case Report

Perforated Gallbladder With Extensive Subcutaneous Emphysema, Right Anterior Chest Wall Abscess, And Cholecystoduodenal Fistula In A Housebound Patient.

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Abstract

We report an unusual presentation of gallbladder perforation complicated by extensive subcutaneous emphysema, right anterior chest wall abscess, and cholecystoduodenal fistula in a patient with minimal healthcare engagement for over a decade. The case highlights diagnostic challenges due to delayed presentation, atypical physical findings, and the complexity of operative management in advanced biliary sepsis.

Keywords: Gallbladder perforation, subcutaneous emphysema, cholecystoduodenal fistula, abdominal wall abscess, delayed presentation.

INTRODUCTION

Gallbladder perforation is a rare but serious complication of acute or chronic cholecystitis, with mortality increasing significantly when diagnosis is delayed. Extension of infection into the **abdominal and chest wall** with associated **subcutaneous** emphysema is exceptionally uncommon. Cholecystoenteric fistulae, particularly **cholecystoduodenal fistulas**, usually arise from longstanding inflammation and gallstone disease, but are rarely encountered in patients isolated from healthcare systems.

We present a case combining these severe complications in a patient who had been housebound for over ten years, illustrating the challenges of diagnosis and operative management in advanced biliary sepsis.

CASE PRESENTATION

Patient Background

A 51-year-old man with **depression, gout**, and **housebound/ bedbound status** for approximately 10 years presented on 06/11/2025 with **right-sided abdominal pain**, tenderness, guarding, and intermittent fever. His medical history was poorly documented due to prolonged isolation.

Presenting Complaint

He reported **fullness in the right upper quadrant (RUQ)** and **mottling/discoloration** over the RUQ, right loin, and groin. Pain had been present for six weeks, worsening acutely in the 24 hours prior to admission. No history of trauma was reported.

Examination

- Surgical emphysema palpable in the RUQ and right anterior chest wall
- Diffuse abdominal tenderness, most severe in RUQ and periumbilical region
- Laboratory values: WBC 14.2 $\times 10^9$/L, CRP 257 mg/L, lactate 7 mmol/L
- Haemodynamic instability: NEWS 6 on arrival
- Chronic immobility and poor baseline functional status complicated assessment

Investigations

- CT imaging: pneumobilia, subcutaneous emphysema, inflammatory changes in porta hepatis, small ventral liver collection communicating with abdominal wall emphysema, **suspected cholecystoduodenal fistula**

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Figure 1. CT scan showing pneumobilia and subcutaneous emphysema

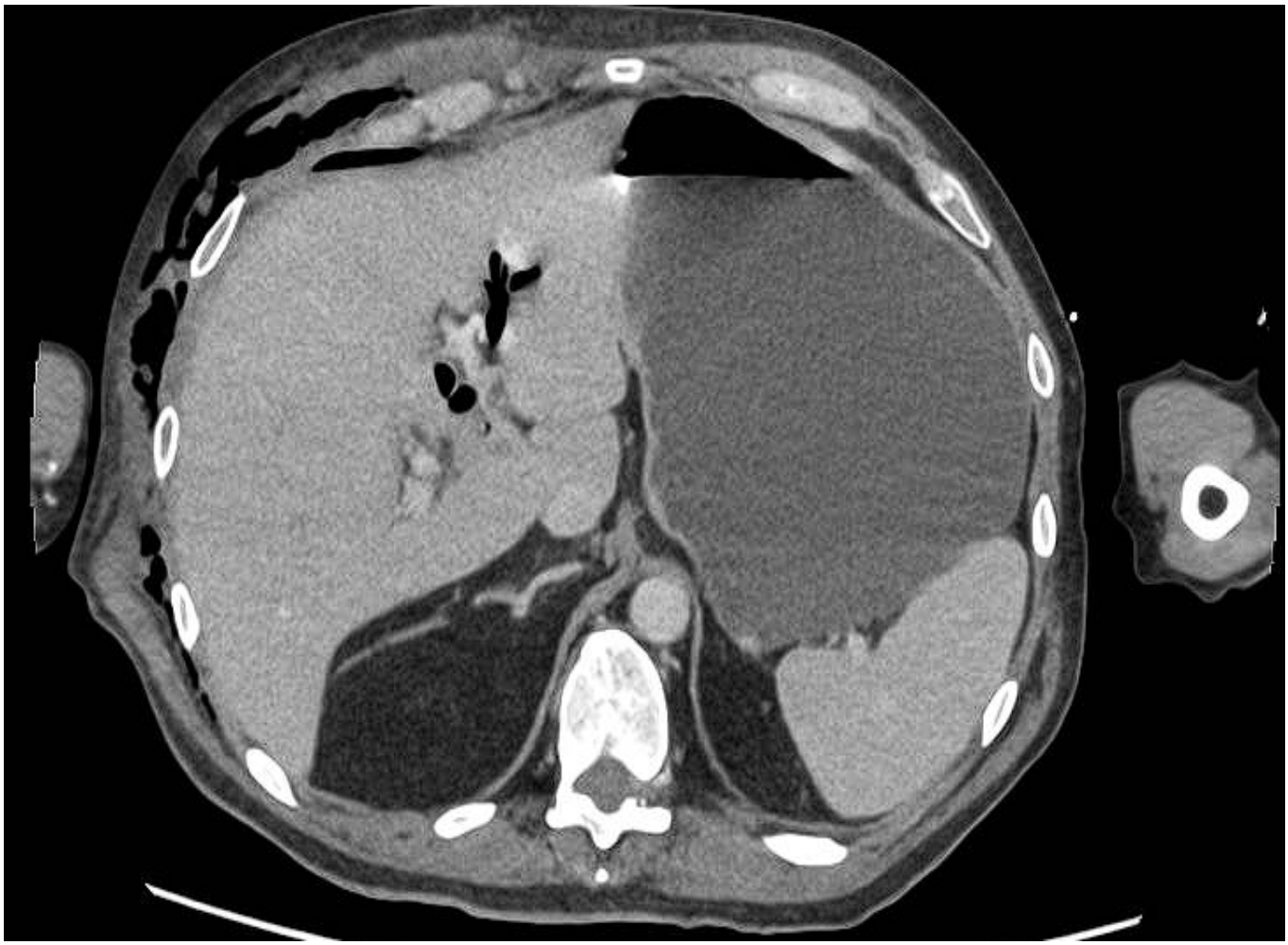


Figure 2. Collection on ventral liver surface communicating with abdominal wall.

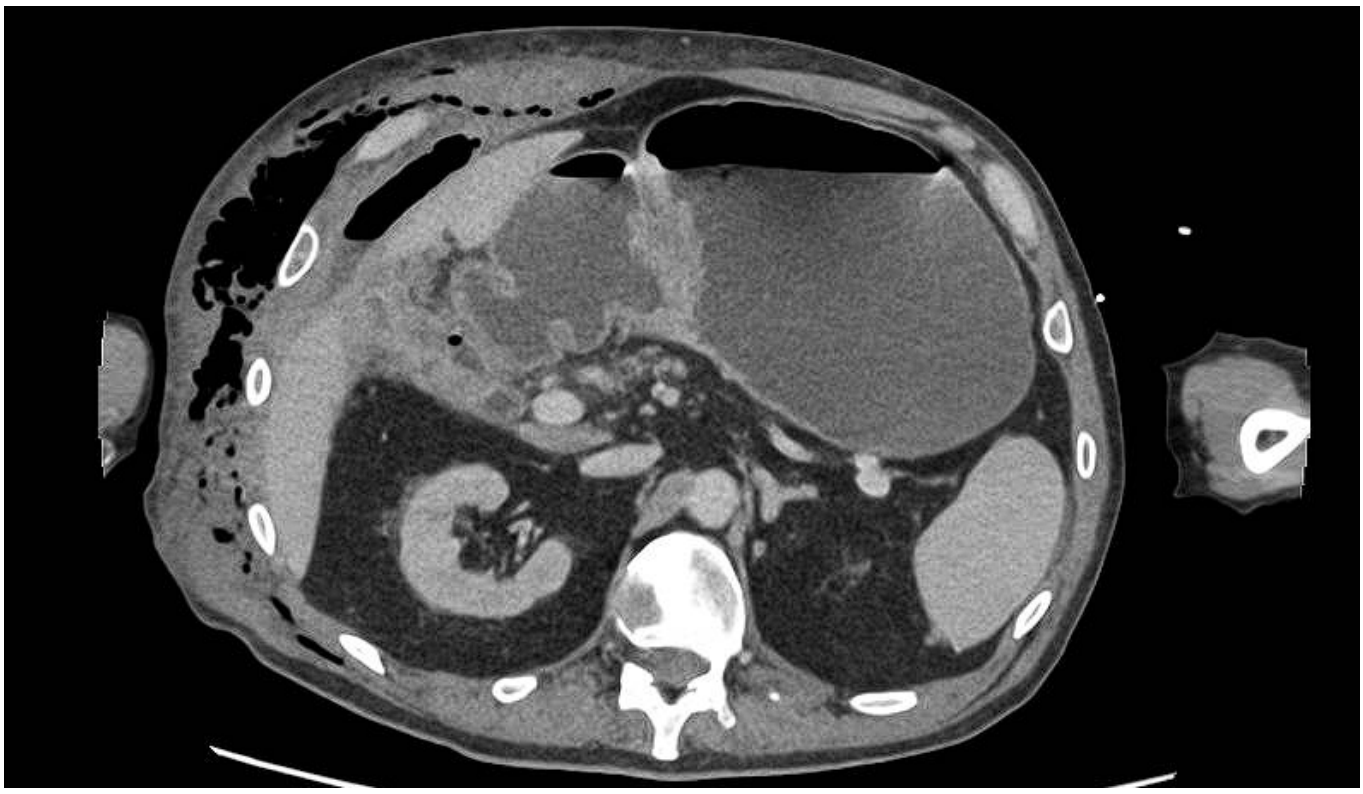
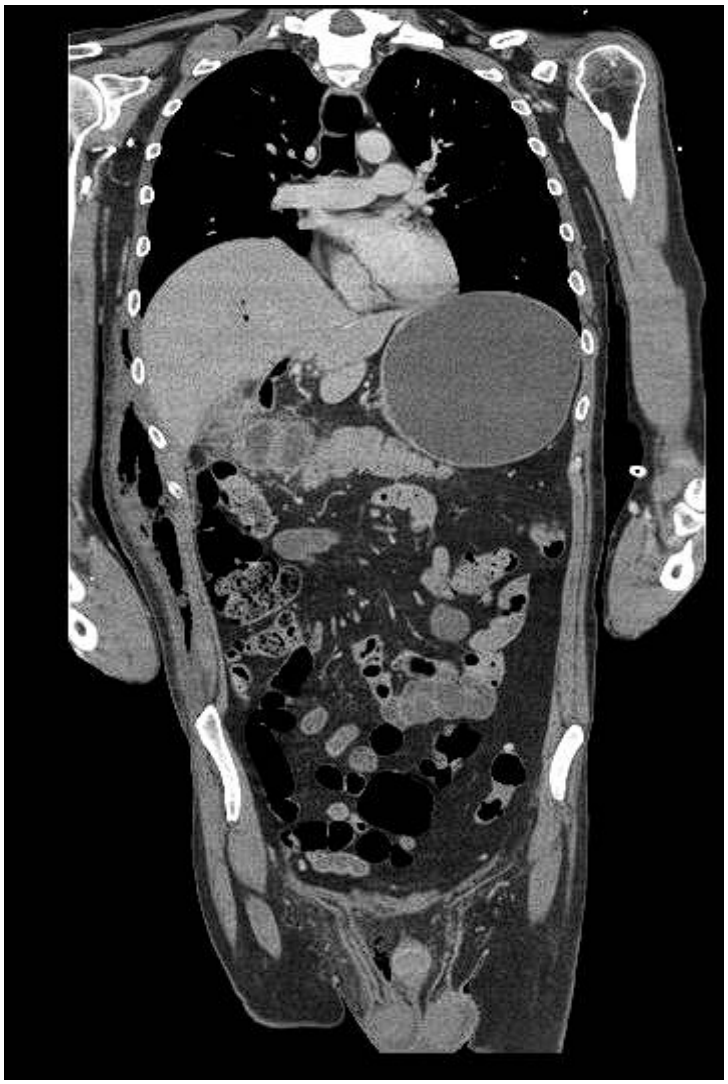


Figure 3. Cholecystoduodenal fistula



Management

Operative Intervention — 06/11/2025

- **Incision and drainage** of right abdominal wall abscess
- **Cholecystostomy**
- Large volumes of purulent fluid were drained; procedure was technically challenging due to distorted anatomy, tissue destruction, and unstable patient condition.

Post-operative Course

- Findings confirmed **perforated gallbladder** and **cholecystoduodenal fistula**
- Multiple drains placed due to widespread contamination
- Patient demonstrated worsening sepsis, requiring escalating **inotropes and vasopressors**
- On 14/11/2025, patient developed hypotension, tachycardia, and febrile spikes; urgent wound re-exploration was performed

DISCUSSION

This case illustrates a **rare and severe form of gallbladder perforation** with direct extension into the abdominal and chest wall, producing subcutaneous emphysema and a large abscess. Factors contributing to severity include:

- **Delayed presentation** due to prolonged social isolation
- **Chronic gallbladder inflammation**, predisposing to fistula formation
- **Advanced sepsis** at presentation

Cholecystoduodenal fistulas typically develop from long-standing inflammation or gallstone erosion. In this patient, full-thickness perforation with extraperitoneal spread is extremely rare. **Subcutaneous emphysema** in the abdominal wall secondary to gallbladder perforation is sparsely reported. **Surgical management** in such cases is complex. **Damage-control principles**—abscess drainage, cholecystostomy, source control, and intensive postoperative support—were appropriate given severe septic shock.

CONCLUSION

This case demonstrates an **exceptionally advanced presentation** of gallbladder disease in an individual with prolonged medical isolation. The combination of **gallbladder perforation, cholecystoduodenal fistula, abdominal**

and chest wall abscess, and subcutaneous emphysema represents a rare, life-threatening clinical scenario. Early recognition, aggressive source control, and intensive postoperative management are essential to improving outcomes in such complex cases.

DECLARATIONS

Patient Consent: Written informed consent obtained for publication
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Authors' Contributions: Literature review, Writing manuscript, Manuscript revision, Critical Review

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