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"Obstructed Incisional Hernia in Chronic Liver Disease (Child–Pugh B): A Rare Surgical Challenge and Review of Literature"

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Abstract
Background
Incisional hernia is a common complication following abdominal surgery; however, its occurrence in patients with chronic liver disease (CLD) presents unique challenges due to ascites, malnutrition, coagulopathy, portal hypertension, and impaired wound healing. Emergency presentation with bowel obstruction or strangulation is uncommon but carries significant morbidity and mortality.
Case Presentation
A 59-year-old female, mother of a serving soldier, known case of chronic liver disease with portal hypertension, oesophageal varices, and post-tubectomy incisional hernia, presented with abdominal pain, vomiting, constipation, and irreducible infraumbilical swelling. Imaging revealed a closed-loop small bowel obstruction within an incisional hernia. She was classified as Child–Pugh B (score 7–9). Emergency laparotomy demonstrated a Richter's hernia with gangrenous bowel and perforation, along with herniated omentum and ascites. Resection of the affected bowel segment with primary anastomosis was performed. The postoperative period was managed with intensive supportive care, including antibiotics, blood transfusions, fresh frozen plasma, and fluid resuscitation, resulting in successful recovery.
Discussion
Emergency surgery in cirrhotic patients is associated with increased perioperative risk. Delayed presentation, bowel strangulation, ascites, hypoalbuminemia, and portal hypertension contribute to poor outcomes. Early diagnosis, prompt surgical intervention, and multidisciplinary perioperative management remain critical for survival.
Conclusion
Obstructed incisional hernia with Richter's bowel involvement in Child–Pugh B cirrhosis is rare and potentially fatal. Timely surgical management combined with aggressive perioperative optimisation can lead to favourable outcomes despite significant operative risk.

Keywords
Chronic liver disease; Cirrhosis; Child–Pugh B; Incisional hernia; Obstructed hernia; Richter's hernia; Bowel perforation; Emergency laparotomy; Portal hypertension; Ascites

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I. Introduction

Incisional hernia is a frequent long-term complication following abdominal surgery, with reported incidences ranging between 10% and 20% following laparotomy[1]. Patients with chronic liver disease (CLD) and cirrhosis are particularly predisposed to abdominal wall hernias because of persistent ascites, malnutrition, muscle wasting, increased intra-abdominal pressure, and defective collagen metabolism[2–4]. The prevalence of abdominal

wall hernias among cirrhotic patients has been reported to range from 16% to 40%, significantly higher than in the general population[5].

Management of hernias in cirrhotic patients remains controversial because surgical intervention carries increased risks of bleeding, infection, hepatic decompensation, and mortality[6]. Historically, conservative treatment was advocated owing to concerns regarding poor operative outcomes; however, delayed surgery may result in incarceration, obstruction, strangulation, skin necrosis, spontaneous rupture, and bowel perforation[7–9]. Several studies have demonstrated that emergency surgery in cirrhotic patients is associated with significantly higher morbidity and mortality than elective repair[10–12].

Child–Pugh and Model for End-Stage Liver Disease (MELD) scores are widely used to assess operative risk in cirrhotic patients[13]. Individuals with Child–Pugh B and C disease frequently present with ascites, coagulopathy, thrombocytopenia, hypoalbuminemia, and portal hypertension, making perioperative management particularly challenging[14,15]. Richter's hernia, wherein only part of the bowel circumference becomes incarcerated, is uncommon and may progress rapidly to ischemia and perforation without complete intestinal obstruction[16].

Recent literature increasingly supports elective repair of abdominal wall hernias in selected cirrhotic patients because delayed intervention may lead to life-threatening complications and increased mortality associated with emergency surgery[17–20]. Furthermore, portal hypertension, refractory ascites, and advanced liver dysfunction have been identified as important predictors of poor surgical outcomes[21–23]. Nevertheless, once obstruction or strangulation develops, emergency surgical intervention remains the definitive treatment[24–26].

We report a rare case of obstructed incisional Richter's hernia with bowel gangrene and perforation in a patient with Child–Pugh B cirrhosis who was successfully managed by emergency laparotomy and bowel resection. The case highlights the challenges associated with emergency surgery in cirrhotic patients and reviews the current literature regarding management strategies and outcomes[27–30].

II. Case Presentation

A 59-year-old female, mother of a serving soldier, known case of chronic liver disease with portal hypertension and oesophageal varices, presented with complaints of abdominal pain, vomiting, constipation, and a non-reducible infraumbilical swelling of six days duration. She had undergone a tubectomy several years earlier and subsequently developed an incisional hernia.

The patient was initially admitted to a civil hospital on 11 December 2025 and was diagnosed with an obstructed incisional hernia, ascites, chronic liver disease, splenomegaly, cholelithiasis, thrombocytopenia, anaemia, and jaundice. Owing to persistent symptoms and increasing abdominal pain, she reported to our tertiary care centre on 14 December 2025.

On admission, she was tachycardic, tachypneic, and hypotensive. Abdominal examination revealed a 4 × 5 cm irreducible infraumbilical swelling with absent cough impulse. Laboratory investigations revealed haemoglobin of 7.8 g/dL, thrombocytopenia, and biochemical evidence of chronic liver disease. Based on clinical and laboratory findings, the patient was classified as Child–Pugh grade B (score 7–9).

Plain abdominal radiography demonstrated dilated jejunal loops suggestive of small bowel obstruction (Figure 1). Non-contrast computed tomography of the abdomen revealed a 20 mm left infraumbilical midline fascial defect containing omentum and a closed-loop segment of small bowel measuring approximately 36 mm in calibre with surrounding fat stranding, suggestive of strangulation (Figure 2).

Following aggressive resuscitation, correction of fluid deficits, and optimisation of coagulation parameters, emergency exploratory laparotomy was performed under general anaesthesia on 17 December 2025. Intraoperatively, a Richter's hernia involving a necrotic segment of small bowel with localised perforation was identified. The hernial sac contained gangrenous bowel and omentum along with significant ascites (Figure 3). Resection of the affected bowel segment, followed by primary end-to-end anastomosis, was performed.

Postoperatively, the patient was managed with broad-spectrum intravenous antibiotics, intravenous fluids, fresh frozen plasma, packed red blood cell transfusions, nutritional support, and close monitoring in a high-dependency setting. Her postoperative recovery was uneventful, and she demonstrated gradual clinical improvement before being discharged in stable condition.

Figures:

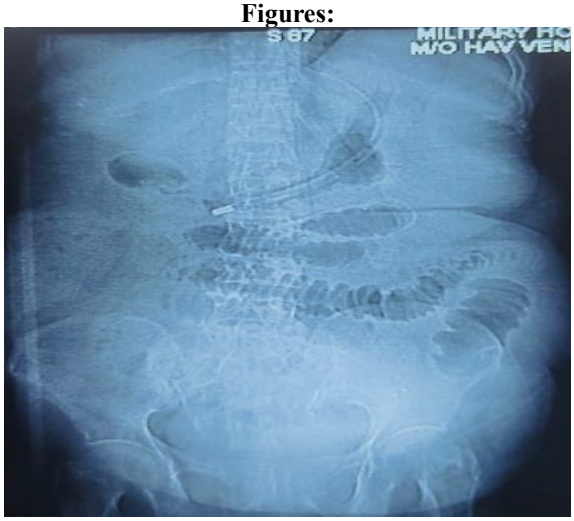

Figure1: X-ray showing a dilated jejunal loop

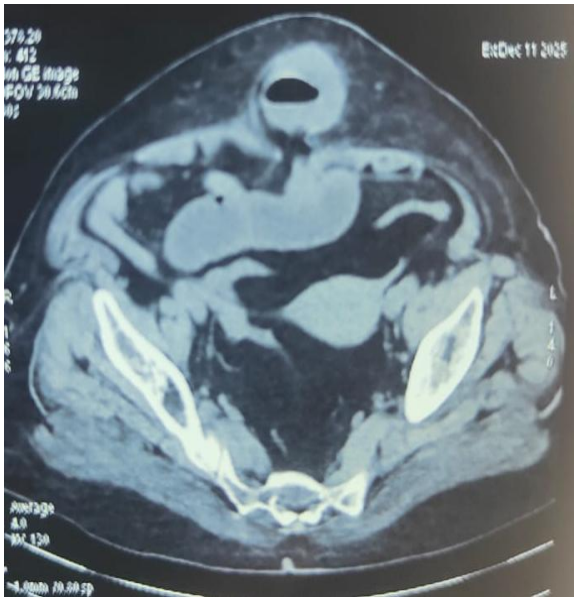

Figure 1: NCCT abdomen showing closed loop obstruction, small bowel

Figure 3: Intraoperative showing Richter's Hernia with a perforated and necrosed wall

III. Discussion

Abdominal wall hernias are a common complication in patients with cirrhosis owing to increased intra-abdominal pressure from ascites, poor nutritional status, muscle wasting, and impaired collagen synthesis[2–4]. Incisional hernias in cirrhotic patients represent a significant clinical challenge because operative intervention is associated with increased perioperative morbidity and mortality[10].

Marsman et al. demonstrated that emergency surgery in cirrhotic patients carries significantly worse outcomes than elective repair[10]. Similar findings were reported by Carbonell et al., who identified emergency surgery as an independent predictor of postoperative mortality among cirrhotic patients undergoing abdominal wall hernia repair[17]. Consequently, there has been a shift towards elective repair following optimisation of ascites and liver function rather than prolonged conservative management[18],[19].

The present patient exhibited several risk factors associated with adverse surgical outcomes, including Child–Pugh B cirrhosis, portal hypertension, thrombocytopenia, anaemia, ascites, and delayed presentation. These factors have consistently been associated with increased postoperative complications and mortality[21–23].

A particularly noteworthy aspect of this case was the presence of a Richter's hernia. Richter's hernias are uncommon and frequently difficult to diagnose because only part of the bowel wall is incarcerated, allowing intestinal continuity to be maintained despite progressive ischemia[16]. Consequently, delayed presentation may result in bowel necrosis, perforation, and sepsis[20]. Similar observations have been reported in previous case series involving incarcerated hernias in cirrhotic patients[19],[20].

Mansour et al. reported that operative mortality increases significantly with worsening Child–Pugh classification, particularly among Child–Pugh C patients[21]. Although our patient belonged to the intermediate-risk Child–Pugh B category, the coexistence of portal hypertension and bowel perforation significantly increased operative risk. Choi et al. further demonstrated that portal hypertension and emergency surgery are important predictors of perioperative morbidity and mortality in cirrhotic patients undergoing abdominal wall hernia repair[30].

Current evidence supports meticulous perioperative optimization, including correction of coagulopathy, control of ascites, nutritional support, and careful haemodynamic management[22–24]. Nevertheless, once bowel strangulation or perforation develops, immediate surgical intervention becomes mandatory[25],[26]. In our patient, emergency bowel resection with primary anastomosis was unavoidable because of established gangrene and perforation.

The favourable outcome observed in the present case can be attributed to prompt surgical intervention, adequate resuscitation, correction of coagulation abnormalities, blood product support, intensive postoperative monitoring, and multidisciplinary management. This case reinforces the importance of early diagnosis and timely operative management in cirrhotic patients presenting with complicated incisional hernias[27–30].

IV. Conclusion

Obstructed incisional Richter's hernia in a patient with Child–Pugh B chronic liver disease is a rare but life-threatening surgical emergency. Delayed presentation may result in bowel strangulation, gangrene, perforation, and sepsis. Early recognition, timely surgical intervention, and comprehensive perioperative optimization are essential for improving outcomes. Elective repair of abdominal wall hernias should be considered in carefully selected cirrhotic patients to prevent emergency presentations and reduce morbidity and mortality.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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