

Umbilical hernia in a patient with liver cirrhosis

Yoshinosuke Shimamura MD, MPH¹  | Satoshi Nishi MD²

¹Department of Nephrology, Teine Keijinkai Medical Center, Sapporo, Japan

²Department of Surgery, Teine Keijinkai Medical Center, Sapporo, Japan

Correspondence

Yoshinosuke Shimamura, Department of Nephrology, Teine Keijinkai Medical Center, Sapporo, Hokkaido, Japan.

Email: yshimamura.tkh@gmail.com

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

KEYWORDS

acute kidney injury, incarceration, liver cirrhosis, umbilical hernia

A 61-year-old Japanese man presented to the emergency department with four-day history of abdominal pain 5 days after having undergone 7 L of paracentesis for ascites. He also complained of anorexia and decreased amounts of urine. His past medical history included liver cirrhosis (Child-Pugh classification, Grade B) due to hepatitis C virus infection. He had no previous history of renal disease. On examination, the patient was drowsy, his blood pressure was 78/52 mmHg, heart rate was 108 beats per minute, respiratory rate was 33 breaths per minute, and body temperature was 38.4°C. Notable examination findings included a brownish-colored abdominal distension at the umbilicus (Figure 1), associated with extreme tenderness and muscle guarding, and decreased skin turgor. A severely worsening of serum creatinine level from 0.96 to 7.59 mg/dL over five days was noted. Other laboratory findings included a normal red blood cell level ($5.7 \times 10^{12}/L$), a slightly elevated white blood cell level ($9.5 \times 10^9/L$), and a decreased platelet count ($8.9 \times 10^9/L$). Additionally, the serum albumin level was 2.6 g/dL, the total bilirubin level was 2.5 mg/dL (normal: 0.3-1.2 mg/dL), the alanine transaminase was 15 U/L (normal: 5-45 U/L), the aspartate aminotransferase level was 27 U/L (normal: 5-45 U/L), the lactate dehydrogenase level was 193 U/L (normal: 120-145 U/L), and the prothrombin time was 39%. Plain computed tomography of the abdomen revealed incarceration of the small intestine (Figure 2). Resuscitation with normal saline and antimicrobial therapy were immediately initiated.

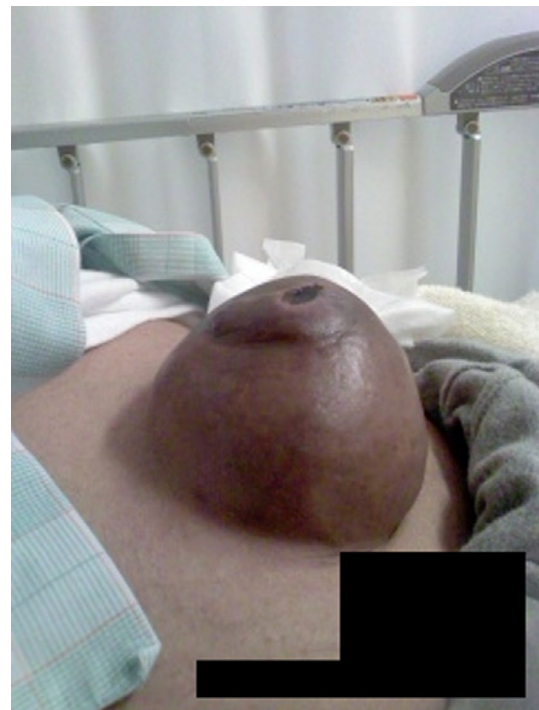


FIGURE 1 Physical examination showed a brownish-colored abdominal distension at the umbilicus

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2020 The Authors. *Journal of General and Family Medicine* published by John Wiley & Sons Australia, Ltd on behalf of Japan Primary Care Association.

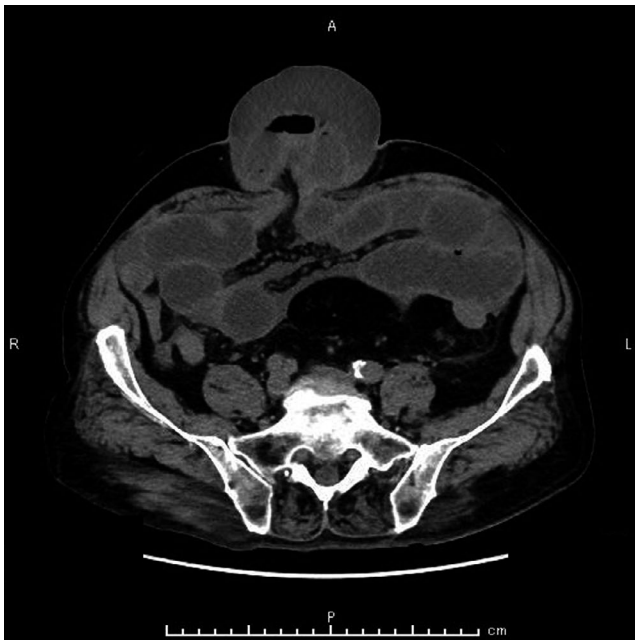


FIGURE 2 Plain computed tomography of the abdomen revealed incarceration of the small intestine

However, the patient's clinical condition progressively worsened and surgical reduction was attempted. During the procedure, the necrosis of the small intestine was found, and he ultimately underwent an emergent partial enterectomy.

Umbilical hernia, a ventral hernia located around the umbilicus, occurs in conditions with increased intra-abdominal pressure, including obesity, pregnancy, and cirrhotic patients with ascites. Approximately 20% of cirrhotic patients with ascites can develop umbilical hernia, mainly due to elevated intra-abdominal pressure from ascites and abdominal muscle weakness from hypoalbuminemia.¹ Several researchers reported that paracentesis may precipitate hernia incarceration of intestine^{2,3} as in our case. Hypoalbuminemia and dilation of the umbilical vein at the umbilicus were reported to be other predisposing factors.⁴ The indications, optimal timing, and approach for hernia repair in cirrhotic patients are controversial. However, there is general agreement among experts that urgent surgical interventions are needed for those with complicated umbilical hernia (ie, incarceration, strangulation, and rupture of the bowels) because prior studies showed that patients with surgical repair had a lower mortality rate than those with conservative management.^{2,5}

We may speculate pre-renal azotemia caused by four-day history of anorexia as the main etiology of his acute kidney injury. This is supported by oliguria from the patient history and decreased skin turgor on the physical examination.

The patient had excellent postoperative course without hernia recurrence or wound infection, and his serum creatinine improved (0.98 mg/dL). Additionally, the patient was advised that control of ascites is essential to reduce the risk of hernia recurrence.⁴

CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee at which the studies were conducted (IRB approval number: 2-019169-00) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

ORCID

Yoshinosuke Shimamura  <https://orcid.org/0000-0003-0278-6900>

REFERENCES

1. Coelho J, Claus C, Campos A, *et al* Umbilical hernia in patients with liver cirrhosis: A surgical challenge. *World J Gastrointest Surg.* 2016;8:476–82.
2. Cho SW, Bhayani N, Newell P, *et al* Umbilical hernia repair in patients with signs of portal hypertension: surgical outcome and predictors of mortalities. *Arch Surg.* 2012;147:864–9.
3. McKay A, Dixon E, Bathe O, *et al* Umbilical hernia repair in the presence of cirrhosis and ascites: results of a survey and review of the literature. *Hernia.* 2009;13:461–8.
4. McAlister V. Management of umbilical hernia in patients with advanced liver disease. *Liver Transpl.* 2003;9:623–5.
5. Andraus W, Pinheiro RS, Lai Q, *et al* Abdominal wall hernia in cirrhotic patients: emergency surgery results in higher morbidity and mortality. *BMC Surg.* 2015;15:65.