Internal Hernia through Hepatic Falciform Ligament Iatrogenic Defect in a Neonate: A Case Report and Review of the Literature

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Abstract

Internal hernia through an iatrogenic defect in the hepatic falciform ligament and acquired jejunal atresia in an 8-day-old neonate was reported. The PubMed, MEDLINE, CNKI, Wanfang and Weipu databases were searched. The literature about the hepatic falciform ligament iatrogenic defect causing internal hernia was analysed. Ten other cases were collected from the world literature. Herniated intestinal necrosis was found in four cases. All cases were recovered uneventfully after operation. Internal herniation through an iatrogenic defect in the hepatic falciform ligament is extremely rare. However, the case reports are increasing, especially in the era of laparoscopic surgery. Adequate closure or open the defect is essential to prevent internal hernia occurrence.

Keywords: Hepatic falciform ligament, hernia, iatrogenic defect, internal, laparoscopic surgery

INTRODUCTION

Hepatic falciform ligament originates from the midline of the anterior abdominal wall just above the umbilicus attached to the hepatic diaphragmatic surface.[¹] Iatrogenic defect in the hepatic falciform ligament may lead to the occurrence of internal hernia, though it is rarely reported. It is challenging for surgeons to make an early diagnosis of this rare entity of internal hernia. Delayed diagnosis and management of internal hernia might lead to a life-threatening outcome.[²] Hereby, we report a neonatal case of internal hernia through an iatrogenic defect in the hepatic falciform ligament and acquired intestinal atresia. The world literature was reviewed.

CASE REPORT

A newborn baby aged 8 days was brought to our department by his parents with bilious vomiting, fever and abdominal distension for 7 days. He underwent a laparotomy on the 1st day of life for congenital gut malformation in another hospital. Physical examination revealed that vital signs were within the normal range. Abdominal distension was noted. Plain erect abdominal X-ray showed several air–fluid levels in the left upper quadrant and no air in the pelvis, indicating complete intestinal obstruction.

Following admission, nasogastric tube was inserted for gastrointestinal drainage and intravenous fluid therapy was administered. Laparotomy revealed small intestinal obstruction due to internal herniation through an iatrogenic defect in the hepatic falciform ligament. A 10 cm loop of the jejunum herniated through the defect and twisted thoroughly. Acquired jejunal atresia was found. The hepatic falciform ligament was transected to release the obstruction of the bowel. The atretic segment was resected and end-to-end one-layer anastomosis with absorbable suture was performed. The patient recovered uneventfully. There were no complications in the 3-year follow-up period.

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Internal hernia through defect of the hepatic falciform ligament presents no specific clinical manifestations. Radiology has an important role in the diagnosis of internal hernias.[14] Abdominal computed tomography (CT) scanning in herniation through falciform ligament defect may show a cluster of small intestine below the diaphragm, in front and above the hepatic.[8,12] In the present case, the internal hernia through hepatic falciform ligament defect was diagnosed intraoperatively and acquired jejunal atresia was found. From the data,[3,5,8,11] operative findings showed that the herniated bowel segment was necrotic in 4/11 cases.

The outcome is associated with early diagnosis and appropriate management.[14] Patients with symptoms and signs of intestinal obstruction after laparoscopic cholecystectomy and gastric fundoplication should pay much attention to the differential diagnosis of internal hernia.[8,10] If the diagnosis of intestinal obstruction was made, early laparoscopic surgery might be a choice.

**Conclusion**

In the era of laparoscopic surgery, especially in laparoscopic cholecystectomy or fundoplication, internal hernia due to iatrogenic hepatic falciform ligament defect may be one of the serious complications. It is crucial to close or open the defect so as to avoid the occurrence of internal hernia.

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**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients
understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**
There are no conflicts of interest.

**References**

1. Li J, Xu R, Hu DM. Internal hernia caused by congenital hepatic falciform ligament defect: A case report. Chin J Pract Surg 2018;38:958-9.
2. Wang ZM, Chen YJ, Zhang D. Clinical researches of pediatric internal hernia: A report of 72 cases. Chin J Pediatr Surg 2017;38:763-7.
3. Zhao D, Li HC, Lin N, Li YZ, Tao HG, Zong H, et al. Causes and treatment of severe complications after laparoscopic surgery. Chin J Hepat Surg (electronic edition) 2015;4:27-30.
4. Dusu K, Dindyal S, Gadhvi V. Small bowel obstruction via herniation through an iatrogenic defect of the falciform ligament following laparoscopic cholecystectomy. Ann R Coll Surg Engl 2015;97:e93-5.
5. Hu SF. Internal hernia of transverse colon through an iatrogenic of round hepatic ligament: A case report. Chin J Hepatobiliary Surg 2009;15:225.
6. Qiu RF, Tian ZL, Sun ZQ. Transverse colon herniation and necrosis through an iatrogenic hepatic falciform ligament defect after laparoscopic cholecystectomy: A case report. Chin J Pract Surg 2010;30:166.
7. Sourtzis S, Canizares C, Thibeau JF, Philippart P, Danry N. An unusual case of herniation of small bowel through an iatrogenic defect of the falciform ligament. Eur Radiol 2002;12:531-3.
8. Malas MB, Katkhouda N. Internal hernia as a complication of laparoscopic nissen fundoplication. Surg Laparosc Endosc Percutan Tech 2002;12:115-6.
9. Lakdawala M, Chaube SR, Kazi Y, Bhasker A, Kanchwala A. Internal hernia through an iatrogenic defect in the falciform ligament: A case report. Hernia 2009;13:217-9.
10. Vissers G, Talboom A, Gys B, Desbuquoit D, Komen N, Hubens G. Internal herniation through the falciform ligament of the liver: A case report. Acta Chir Belg 2019;119:331-4.
11. Okumura K, Hosogi H, Yamaura T, et al. Internal hernia through the falciform ligament of the liver after laparoscopic gastrectomy. Nippon Shokaki Geka Gakkai Zasshi 2015;48:172-7.
12. Charles A, Shaikh AA, Domingo S, Kreske E. Falciform ligament hernia after laparoscopic cholecystectomy: A rare case and review of the literature. Am Surg 2005;71:359-61.
13. Schutz RB, Ziegler AM. Persistent fetal tachycardia and neonatal intestinal obstruction due to internal hernia beneath the umbilical vein. Am J Obstet Gynecol 1937;33:692-4.
14. Selçuk D, Kantarci F, Öğüt G, Korman U. Radiological evaluation of internal abdominal hernias. Turk J Gastroenterol 2005;16:57-64.