CASE REPORT

A ventral incisional hernia with herniation of the left hepatic lobe and review of the literature

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SUMMARY

Ventral incisional hernias with hepatic herniation are extremely rare. Only six cases have been reported so far in the literature. We report a case of a ventral incisional hernia with hepatic herniation along with a review of the literature. A 70-year-old female patient with a history of coronary artery bypass graft surgery 6 months earlier, was admitted to our hospital with symptoms of epigastric swelling and discomfort for 3 months. On examination, she had a mild tender 5 cm×5 cm epigastric lump and was diagnosed as ventral incisional hernia. Contrast-enhanced CT of the abdomen revealed a ventral hernia with herniation of omentum and left hepatic lobe. The patient underwent onlay mesh repair and is asymptomatic at 1-month follow-up. There is a need for evaluation of risk factors for this type of ventral incisional hernia and to recognise it as a special entity.

BACKGROUND

Ventral incisional hernias with hepatic herniation are extremely rare. Hepatic herniation through congenital defects such as diaphragmatic hernia or omphaloceles are known to occur, but subcutaneous hepatic herniation through a ventral incisional hernia is rarely encountered. We report a case of a ventral incisional hernia with hepatic herniation, and its clinical and radiological findings, along with a review of the literature.

CASE PRESENTATION

A 70-year-old female patient presented with epigastric swelling and discomfort of 3 months' duration. The swelling had increased to its present size over the past 3 months. The patient also reported discomfort and dull aching pain in the epigastric region. Her medical history was significant for hypertension and coronary artery disease. She underwent tubectomy 30 years prior, hysterectomy 15 years prior and coronary artery bypass graft (CABG) surgery 6 months earlier.

On examination, there was a scar in midline extending from thorax to upper abdomen. There was a large defect in the abdomen wall in the upper midline suggestive of a ventral incisional hernia. The patient had a 5 cm×5 cm lump protruding through the defect in the epigastric region with mild tenderness, which was ill defined and firm in consistency. However, the nature of the lump and organ of origin could not be ascertained on clinical examination (figure 1).

Figure 1 Preoperative photograph.

INVESTIGATIONS

Routine laboratory blood investigations were normal. Abdominal ultrasound reported a ventral hernia in upper midline through the previous incision site. Owing to the complex nature of the hernia (with a scar involving thorax and abdomen and a firm lump being palpable through the defect) the patient underwent contrast-enhanced CT of the abdomen, which confirmed the presence of a ventral hernia with protrusion of omentum and left hepatic lobe (figure 2). Although not a routine preoperative imaging study, CT scan was imperative for the diagnosis, especially regarding contents of the hernia in this case and for preoperative planning. On echocardiography, the patient had concentric left ventricular (LV) hypertrophy, grade I LV diastolic dysfunction and LV ejection fraction of 56%.

TREATMENT

The patient underwent open incisional hernia repair. The surgical procedure performed was the standard technique we follow for any other ventral incisional hernia. A review of the literature revealed no standard operative details for operating on a hepatic hernia. By upper midline approach, the skin and subcutaneous flaps were raised, and the hernia sac was explored with extreme caution so as to prevent injury to the contents of the hernia. The adhesions between the contents and hernia sac were lysed followed by reduction of herniated omentum and left hepatic lobe, and excision of the sac. The fascial edges were approximated, followed by fixation of the mesh by onlay technique. Closed suction drains were placed, followed by closure of dermis and skin (figure 3). The postoperative course was uneventful. The patient is asymptomatic at 1-month follow-up.

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Figure 2 Contrast-enhanced CT of the abdomen showing hepatic herniation.

OUTCOME AND FOLLOW-UP

The postoperative course was uneventful. The patient is asymptomatic at 1-month follow-up.

DISCUSSION

Ventral hernias with hepatic herniation (apart from congenital causes in neonatal period) are rare. The first such case was reported by Adeonigbagbe *et al*¹ in 2000, when a 56-year-old female patient presented with persistent abdominal pain due to herniation of liver through the rectus muscle. Hepatic herniation has also been reported to occur after blunt trauma by Bairagi *et al*,² when a 40-year-old male patient had hepatic and colon herniation with diaphragm rupture by blunt trauma due to a motor vehicle collision. Apart from trauma and congenital causes, hepatic herniation has also been reported to occur with ventral incisional hernia, which is extremely rare. To date, only six such cases have been reported in the literature.

In 2004, Sheer and Runyon reported a case of hepatic herniation in a 45-year-old female patient who presented with pain in the abdomen and swelling, and with a history of liver transplantation for cirrhosis. The patient had hepatic herniation through incision site, recurrent steatosis, and later succumbed to sepsis.³

In 2005, Abci *et al* reported herniation of the left hepatic lobe (medial segment) with incarceration through ventral incisional hernia in a 73-year-old female patient presenting with pain in the abdomen and dyspnoea, who was managed non-surgically. Her history was significant for dilated cardiomyopathy, hypertension and she had undergone cholecystectomy and laparotomy for intestinal obstruction.⁴

Figure 3 Postoperative photograph.

In 2009, Shanbhogue and Fasih reported a case of hepatic herniation in a 48-year-old female patient who presented with abdominal discomfort and epigastric swelling, and with a history of CABG surgery and sternal dehiscence. CT of the abdomen revealed midline defect with herniation of left hepatic lobe in the abdomen wall resembling a horse face in axial section and duck in parasagittal section; the patient was managed non-surgically.⁵

In 2012, Nuño-Guzmán *et al* reported a case of left hepatic lobe herniation through ventral incisional hernia along with right adrenal myelolipoma in a 78-year-old female patient who presented with pain in the abdomen and jaundice; on examination she had an abdomen wall defect with protruding mass. Her history was significant for cholecystectomy. Ultrasound of the abdomen revealed choledocholithiasis and CT of the abdomen confirmed the presence of left hepatic lobe herniation. The patient underwent resection of right adrenal, choledochotomy with stone extraction and reconstruction of abdomen wall.⁶

In 2012, Warbrick-Smith *et al* reported a case of hepatic herniation through abdomen wall defect (ventral incisional hernia) in an 81-year-old man who presented with abdominal pain. The patient's history was significant for CABG surgery by median sternotomy.⁷

In 2014, Barral *et al* reported a case of hepatic herniation through sternotomy incision in a 90-year-old female patient who presented with a painful abdomen and vomiting. CT of the abdomen revealed herniation of part of the left hepatic lobe. The patient underwent surgery with reduction of hernia and repair by mesh.⁸

There are multiple risk factors for formation of ventral incisional hernia that are well recognised, such as obesity, poor nutrition, infection (surgical site), old age and increased intra-abdominal pressure. Of seven hepatic herniation cases, six are female patients, four cases had a history of sternotomy (three for CABG) and strangulation occurred in none. Hepatic herniation after sternotomy can probably be explained by the anatomical relation of the liver to the incision site for CABG or sternotomy. As hepatic herniation occurs through large ventral abdominal wall defects there is minimal risk for strangulation. However, due to limited data available and hepatic herniation being extremely rare, it is difficult to evaluate the risk factors and outcomes. This is the only such case and the first case reported from India (to the best of our knowledge).

The management of such unusual hernias is complex and treatment has to be tailored on an individual basis. With only a few cases reported (only six cases to the best of our knowledge) and limited literature available on hepatic hernias, it is difficult

to decide between conservative and surgical management. As hepatic hernias have minimal risk for strangulation and these unusual hernias occur in old patients with multiple comorbidities, conservative management should be the first approach for all cases. However, if the patient does not benefit from conservative management and the benefits of the surgery outweigh the risks, it is prudent to go for surgical management when the patient is operable.

Learning points

- ▶ Ventral incisional hernias with hepatic herniation are extremely rare.
- ▶ Hepatic hernias have minimal risk for strangulation as they occur through large defects.
- ▶ Treatment (surgical or conservative) has to be tailored on an individual basis.

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Contributors HNL carried out the literature search, prepared the draft manuscript and provided the photographs. RB and DS gave input on the manuscript, and were

involved in the patient's postoperative management. PO supervised and edited the final manuscript. All authors were involved in the patient's care, and they read and approved the final manuscript.

Competing interests None.

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