CASE REPORT

INTERNAL HERNIA THROUGH FORAMEN OF WINSLOW: A CASE REPORT

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ABSTRACT

Hernia through the foramen of Winslow is relatively rare and seldomly seen. The patients usually have vague abdominal pain and present with symptoms of acute intestinal obstruction. We present a case of a 66-year-old female who presented acutely in ER with right hypochondrial pain, abdominal distension, and vomiting. The patient initially had an ultrasound of the abdomen which showed mild free fluid and was advised a CT scan. She then underwent a non-contrast CT of the abdomen and pelvis which revealed internal hernia through the foramen of Winslow.

Keywords: Internal hernia, foramen of Winslow, Bowel obstruction, cecal incarceration.

Introduction

Foramen of Winslow is an anatomical communication between the lesser and greater peritoneal cavities and herniation of normal abdominal structures like omentum, mesentery, bowel loop, gall bladder, and liver through this orifice is a rare condition.[1,2] The clinical symptoms vary; however, it mostly presents with signs of intestinal obstruction including sudden onset of severe abdominal pain, obstipation, and vomiting. Less often these patients present with a vague history of abdominal pain over a long period. Imaging plays an extremely important role in the diagnosis of these patients and their early management. The modality of choice is CT, which depicts the herniation of bowel loops or other organs through this natural orifice with additional findings such as free fluid in the abdomen and pelvis along with bowel dilation.[1,2]

Case Presentation

A 66-year-old female patient presented to our emergency department with right hypochondrial pain, abdominal distension, and vomiting. Physical examination showed tenderness with moderate guarding in the right upper quadrant.

Ultrasound of abdomen was performed which showed thick-walled contracted gall bladder having a wall thickness of 10 mm, with mild pericholecystic, subhepatic and free fluid in abdomen and pelvis (Fig.1). Correlation with laboratory workup and CT abdomen and pelvis was advised.

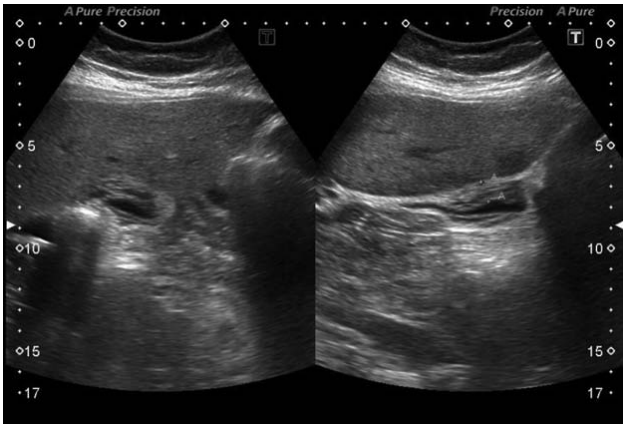

Figure 1: Ultrasound shows gallbladder with thick edematous walls.

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Radiograph abdomen was also performed which showed mildly dilated small bowel loops in the mid-abdomen with caliber reaching up to 4 cm, concerning intestinal obstruction.

Non-contrast CT scan of abdomen and pelvis was then performed. CT showed herniation of ileocecal junction, cecum and part of proximal ascending colon through the foramen of Winslow. There was distinctly dilated abnormally located caecum in the midline of the upper abdomen in the lesser sac posterior to the stomach along with superiorly displaced/stretched terminal ileum, ileocecal junction, and their mesentery in the portocaval region (Fig.2). The cecum was not found in its normal anatomical location and empty right iliac fossa was seen (Fig.3). Abrupt transition was noted at the hernial orifice involving the distal ileum and mid right colongiving a beak sign posterior to the porta hepatic structures (Fig.2,4 and 5).

Surgical exploration was then performed the next day using the midline laparotomy approach. During laparotomy, they found an internal herniation of ileocecal junction along with cecum and ascending colon through the foramen of Winslow into lesser sac causing small bowel obstruction. Discoloration bands were observed at the neck of the herniated bowel concerning bowel ischemia. The cecum was found to be excessively mobile, which was likely the cause of the hernia.

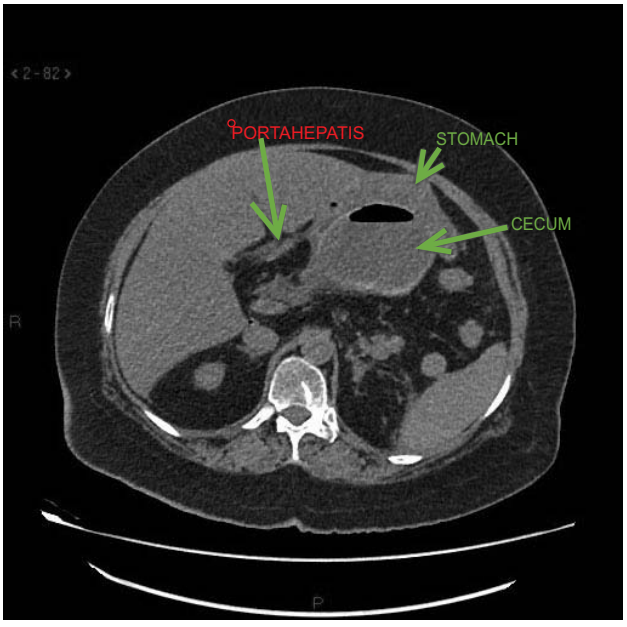

Figure 2: Non-contrast axial CT scan showing dilated caecum with air fluid level within it herniating through the foremen of Winslow and present posterior to the stomach in the lesser sac. Bird beak sign is seen towards foramen of Winslow.

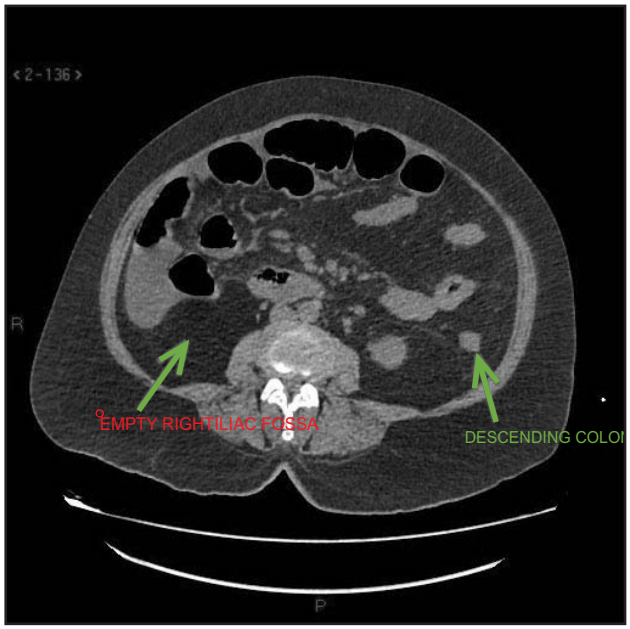

Figure 3: Non-contrast axial CT showing absence of caecum in its normal anatomical position.

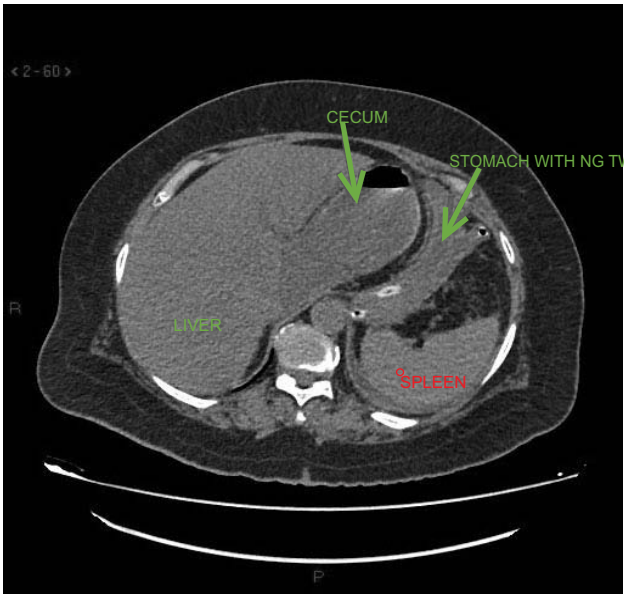

Figure 4: Non-contrast axial CT showing dilated caecum in the lesser sac. Collapsed stomach with NG tube in its lumen.

After hernia reduction, multiple sus-picious areas of necrosis were observed in the wall of herniated bowel; hence right hemicolectomy was done with ileocolic anastomosis and right iliac fossa loop ileostomy made to protect the anastomosis. The foramen of Winslow was kept open. More than one liter of ascites was drained per-operatively. There was concomitant acute

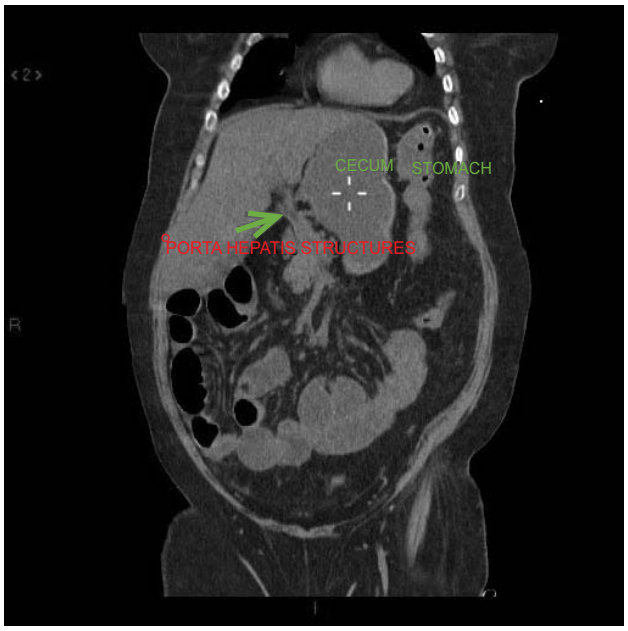

Figure 5: Non-contrast coronal reformatted CT scan image showing porta hepatis structures are stretched with the caecum lying in lesser sac.

cholecystitis, so formal cho-lecystectomy was performed using the fundal approach. The postoperative recovery was uneventful.

Specimens were sent for histopathology which confirmed focal transmural cecal infraction, edema, and congestion. The specimen was negative for malignancy and granulomatous inflammation. The gallbladder specimen showed mild chronic cholecystitis and was also negative for malignancy.

Discussion

Internal hernias are significantly less common than external hernias, with the incidence being less than 1 % and hernias through the foramen of Winslow constituent only about 0.5-4.1% of all the internal hernias and 0.08% of all the hernias.[1,2] The first-ever case of internal hernia through the foramen of Winslow was reported in 1824 by Greenhow. It was diagnosed on autopsy in a postpartum female who died immediately after childbirth and the cause was found to be adhesion secondary to peritonitis.[2] Since then, fewer than 200 cases of internal hernia through the foramen of Winslow have been described.[3]

Foramen of Winslow is a 2 cm natural foramen communicating the lesser and greater sacs of the peritoneum. It has proper anatomical walls. Superiorly it is bounded by the caudate lobe/segment I of the liver; inferiorly, there is the third part of the duodenum, anteriorly the hepatoduodenal ligament containing portal vein, hepatic artery, and CBD, and posteriorly the peritoneal covering of the IVC.[2]

When talking about gender prevalence it is more common among men and between the age of 20-60 years.[4] Younger patients with age of 8 days to 2-year-old have also been diagnosed with this internal hernia.[5]

It is encountered most commonly in middle-aged adults who present with insidious onset of severe abdominal pain with or without nausea, vomiting, and altered bowel habits. The physical examination is usually unremarkable.[1,6]

Radiographic evaluation is non-specific however the presence of bowel dilation and air-fluid levels in the upper abdomen is the most encountered features consistent with associated bowel obstruction as a result of the hernia. Similar ultrasound will also not give more information than bowel dilatation. CT plays a vital role in diagnosis. It is quick and easy to perform. A non-contrast CT was enough to help make the diagnosis as in our case.

Deschner et al. have described few signs on CT in their case report of spontaneous reduction of internal hernia via the foramen of Winslow. The following three signs should be observed on CT for diagnosis of internal hernia through the foramen of Winslow :

1) mesenteric fat and vessels passing into the lesser sac via the foramen of Winslow posterior to the portal vein, CBD, and hepatic artery,

2) gas or fluid in the lesser sac with bird beak sign towards foramen of Winslow/epiploic foreman and anterior to IVC, and

3) absent cecum at its normal anatomical location in the right iliac fossa.[1,6]

Yamashiro et al. have described significantly narrowed portal vein as a fourth important sign of internal hernia through the foramen of Winslow.[7]

Different abdominal structures have been documented herniating through the foramen of Winslow. Most commonly small bowel loops were seen in about 63% of cases, cecum and ascending colon were seen in 30 % and transverse colon was seen in 7 %. Rare cases have also been reported in which gall bladder, small bowel diverticulum, and Meckel's diverticulum have been described as herniating through the foramen.[8]

Foramen of Winslow has been classified into four types depending on the type of organ herniating through it. Type I, small bowel; type II, terminal ileum, cecum and ascending colon; type III, transverse colon and type IV, gall bladder or any other intraabdominal organ such as greater omentum.[9]

MacDonald et al. have described a similar case in a pregnant female who presented with symptoms of obstructive jaundice and MRCP was used to make the diagnosis.[10] Numata et al. have reported a case of gall bladder herniation through the foramen of Winslow.[11] Huh CW et al. have reduced gastric antrum herniating through the foramen of Winslow using an endoscope.[12]

Multiple anatomical abnormalities have been described in the literature which is considered pre-disposing factors for a visceral herniation through this foramen. Some worth mentioning are abnormally enlarged foramen, elongated right lobe of the liver, gastro-hepatic ligament defect, and incomplete intes-tinal rotations or malrotation, etc[3,13]

The treatment is urgent surgery, as it may lead to strangulation and necrosis of the bowel loop. The mortality rate is 36 to 49 percent if there is a delay in diagnosis.[5] Urgent laparotomy is considered the treatment of choice throughout the literature however, laparoscopic reduction of the bowel has gained ground recently.[7,14,15,16]

There are no specific current guidelines for the closure of the foramen of Winslow.[5] Complete closure of the foramen of Winslow leads to complications like portal vein thrombosis. Hence leaving it open is considered justifiable as the post-operative adhesions will lead to the obliteration of the foramen. Instead of closing the foramen of Winslow altogether, packing it with omentum can be an option.[17]

Conclusion

Foramen of Winslow hernia is a rare known internal hernia causing bowel obstruction. CT is the easy and quick modality for diagnosing this rare cause of abdominal pain at the earliest to avoid bowel ischemia. Laparoscopy is the preferred treatment in cases where there is no evidence of bowel ischemia. However, laparotomy is considered when bowel ischemia and extensive adhesions are seen.

Conflict of Interest: None

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