

Gallbladder herniation through ventral hernia: A Case Report

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Abstract

Background: Gallbladder herniation is an extremely rare entity. Risk factors include elderly age and the female gender. Complications of this disease includes incarceration, cholecystitis, volvulus, and ischemia/gangrene. While most of the surgical literature today describes cholecystectomy and surgical repair of hernia as part of the treatment process, we present a rare case of uncomplicated asymptomatic gallbladder herniation in a poor surgical candidate who was treated conservatively.

Case presentation: In this article, we present the case of an 82-year-old Chinese man with a history of ischemic heart disease and thoracic aortic aneurysm who presented with an incidental finding of gallbladder herniation via ventral hernia. The patient was managed conservatively in view high cardiac risk.

Conclusion: Ventral hernia containing the gallbladder within its sac is a rare encounter. Majority of the reports document herniation via a para-stomal, incisional or lesser sac location. In this article, we have demonstrated the importance of assessing a patient holistically and demonstrate that conservative treatment of gallbladder hernia is possible, especially in a patient with high surgical risk.

Keywords: Ventral Hernia; Gallbladder; Gallbladder Hernia.

Introduction

Gallbladder herniation is an uncommon event. Most case reports describe a para-stomal, incisional or lesser sac location of the herniated gallbladder¹⁻³. Since the first case of gallbladder herniation (lesser sac) was reported by McGrea⁴ in 1951, the surgical literature has seen multiple other sporadic instances of this rare phenomenon. With the increasingly liberal use of cross-sectional imaging, incidental identification of an uncomplicated gallbladder herniation has become increasingly common.

Case Report

We describe a case involving an 82-year-old gentleman with a past medical history of ischemic heart disease status post coronary artery bypass graft 6 years prior. This patient also had a significant past medical history of thoracic aortic aneurysm (TAA) on conservative management and follow-up with cardiothoracic surgeons. He presented to the hospital with dyspnea and orthopnea secondary to fluid indiscretion and non-compliance to hypertension medications. Chest X-ray done at

admission noted a possibly enlarging thoracic aortic aneurysm and a computer tomography (CT) aortogram was performed. This revealed a 6.2cm TAA, 4.2cm abdominal aortic aneurysm, and incidental findings of a segment III hepatic lesion suggestive of hemangioma and an upper abdominal wall hernia containing a herniated gallbladder (**Figure 1**). As further workup, a magnetic resonance imaging (MRI) of the liver was performed. This confirmed the diagnosis of hepatic hemangioma. In addition, a 3.5cm hernia containing the gallbladder body and fundus was visualized between the layers of the anterolateral abdominal wall muscles in the right upper quadrant (**Figure 2 and 3**). There was no evidence of cholecystitis or gallstone disease, and the biliary tree was radiologically normal.

On examination, there was a 4cm painless reducible lump in the right upper quadrant. Cough impulse was positive, but the patient was clinically well and asymptomatic. There was no jaundice and a liver panel performed was normal. A trans-thoracic echocardiogram performed (requested for by cardiothoracic surgeons) showed an ejection fraction of 26% with severe global left ventricular hypokinesia. After discussion

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with the patient a decision was made for conservative management of both the gallbladder herniation and TAA. He was discharged and given an outpatient appointment.

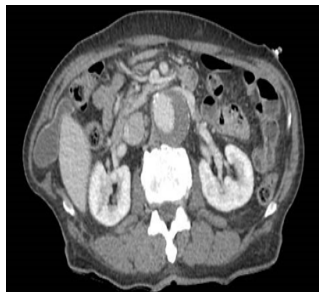


Figure 1: Computed tomography (CT) aortogram demonstrating incidental finding of right upper quadrant abdominal wall hernia containing the gallbladder body and fundus.

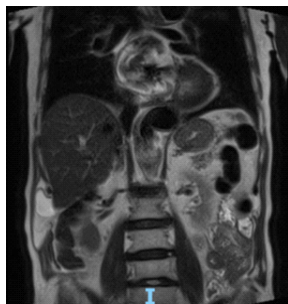
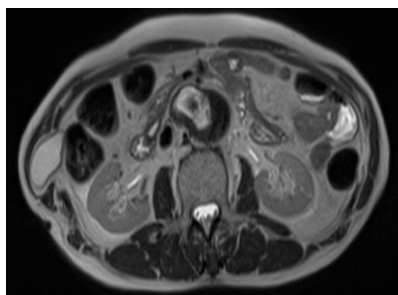


Figure 2 and 3: Magnetic resonance imaging (MRI) of the liver confirms a right upper lateral abdominal wall (3.5 cm) hernia between the layers of the abdominal wall muscle, with herniation of the gallbladder body and fundus. No evidence of cholecystitis, edema, ischemia, gangrene, or gallstone disease.

Discussion

Elderly age and female gender remain the most well-documented risk factors for gallbladder herniation (at any location). It is postulated that reduced peritoneal fat, a smaller liver, weakened anterior abdominal wall musculature and an increasingly ptotic gallbladder contributed by elongation of attached mesentery are all contributing factors to this rare condition [1, 2]. Apart from the more commonly reported parastomal, incisional and lesser sac gallbladder hernia, there has been the occasional standout report of exceedingly rare locations for a herniated gallbladder. Tajti et.al [5] and Rodrigues et.al [6]. report on, to date, the only encounters of gallbladder herniation through the inguinal and femoral canals respectively. Both patients were treated with an open cholecystectomy and subsequent hernia repair. Donati et.al describes the only case of gallbladder herniation through a Spigelian hernia [7]. This patient was an 84-year-old lady who presented with right iliac fossa pain and a palpable swelling in the para-rectal loca-

tion. CT revealed a ptotic gallbladder with right sided intra-abdominal peritonitis and free fluid accumulation adjacent to a Spigelian hernia sac. Surgical exploration found a ptotic and necrotic gallbladder rotated on its cystic duct axis by >180°. She was treated with a cholecystectomy and primary repair of Spigelian hernia. Carragher et. al. describes an interesting case of subcutaneous right upper quadrant gallbladder herniation with spontaneous discharge of pus through a cholecystocutaneous fistula [8]. Finally, Schiffman et. al. reports on an intercostal gallbladder herniation in a patient with previous thoracotomy and right lower lobectomy for lung carcinoma. This condition was attributed to the vacuum that the lower lobectomy left, combined with an extremely lax diaphragm and chest wall [9].

To our knowledge, there have only been 4 reports to date of gallbladder herniation through ventral wall defects [10-13]. All 4 patients were symptomatic at presentation and underwent cholecystectomy. Goldman et. al. describes a case of gallbladder herniation through the epigastric linea alba. Intra-operatively, it was found that the cystic duct and artery had been compressed by the hernial ring, resulting in both obstruction and ischemia [10]. Paolino et. al. reports on a unique case of gallbladder herniation being complicated by Mirizzi's syndrome. This 85-year-old patient presented with right-sided abdominal pain. CT confirmed the presence of a herniated gallbladder through the anterior abdominal wall, combined with a 1.7cm infundibular stone causing dilatation of the common bile duct. Laparoscopic cholecystectomy was performed uneventfully, and the defect primarily repaired with absorbable sutures [13]. Paolino et. al. and El-Bakush et. al. are the only authors to report on a laparoscopic technique for cholecystectomy in the context of gallbladder herniation through ventral herniae [12, 13]. Both patients recovered well with no complications.

Our study is the first to report a ventral gallbladder herniation through the layers of the right anterolateral abdominal wall. In addition, we are the first to report this as an incidental finding in an asymptomatic patient who was ultimately treated conservatively. Complications from gallbladder herniation include incarceration, cholecystitis, gallbladder volvulus and gallbladder ischemia/gangrene [10, 14, 15]. We can, however, expect an increasing number of asymptomatic and uncomplicated gallbladder herniation to be incidentally picked up on the myriad of scans that have now become commonplace for a good majority of our patients. In the absence of symptoms or complications, conservative management is a viable option.

Conclusion

Gallbladder herniation is an exceedingly rare entity. The majority of these occur through surgical incisions, the foramen of Winslow or at a para-stomal location. Inguinal, femoral, Spigelian, subcutaneous and ventral herniation have all been reported as isolated encounters. An uncomplicated and asymptomatic gallbladder herniation occurring in a poor surgical candidate should prompt a discussion favoring conservative management.

Declarations

Ethics approval and consent to participate: Ethics approval was waived in view of the nature of the study as a case report. Our manuscript does not report on or involve the use of any animal or human data or tissue.

Consent for publication: Consent for publication was obtained from the patient.

Availability of data and materials: A supplemental video file demonstrating the clinical presentation of the patient is available.

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Authors' contributions: AKHC and CKM was involved in the conception of the topic. CKM was involved in the drafting of the manuscript. AKHC, CKM and SHXC was involved in the critical revision and approval of final version of manuscript.

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