Laparoscopic management of a rare tumor at an uncommon location: Porta hepatis mesothelial cyst

Raghavendra Havannavar, Raja Kalayarasan, Biju Pottakkat, Ranjith Arumbakkam Ramesh

Departments of Surgical Gastroenterology and Pathology, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India

ABSTRACT

Mesothelial cysts are rare intra-abdominal fluid-filled cysts that are detected commonly in females on radiological evaluation. Porta hepatis is an uncommon site for these lesions. A 40-year-old female presented with abdominal pain of 2 months duration. Her computed tomography abdomen showed a cystic lesion at the porta hepatis in close proximity to hepatic artery and magnetic resonance imaging showed normal bile duct with a separate cystic lesion at the porta hepatis. Since there were no features of malignancy, a laparoscopic approach was used for cyst excision. With careful dissection, cyst could be excised laparoscopically leaving a small rim of tissue adjacent to hepatic artery. Histological examination showed calretinin positive cells lining the cyst consistent with the mesothelial cyst. At 6 months of follow-up, patient is doing well without signs of recurrence.

Key words: Laparoscopy, mesothelial cyst, porta hepatis

INTRODUCTION

Mesothelial cysts are rare intra-abdominal fluid-filled cysts lined by flattened, cuboidal, or columnar mesothelial cells. Most intra-abdominal mesothelial cysts present with nonspecific symptoms and are detected incidentally during radiological evaluation. While mesothelial cysts can arise at any site lined by mesothelium, they are most commonly reported in the female pelvis. Porta hepatis is an uncommon location for these rare cystic lesions. Surgical excision is the recommended treatment for these cysts and is conventionally performed by an open approach. A rare case of porta hepatis mesothelial cyst managed by laparoscopic approach is described in this report.

CASE REPORT

A 40-year-old postmenopausal female presented with abdominal pain of 2 months duration. She was initially evaluated at another center and was referred as a case of choledochal cyst for further management. Her complete blood count and liver function tests were within normal limits. Contrast enhanced computed tomography (CT) showed a cystic lesion at porta hepatis abutting caudate lobe. The common hepatic artery was coursing anterior to the cyst, and a repositioned right hepatic artery was seen coursing through the posterior wall of the cyst [Figure 1a].
and b]. Magnetic resonance imaging (MRI) was done further to delineate the cyst that showed a normal bile duct and a separate cystic lesion in the porta hepatis [Figure 1c]. Since there were no features suggestive of a malignant cyst, a laparoscopic approach was planned. The patient was placed in French (supine with leg split) position. Pneumoperitoneum was established using an infraumbilical port which was also used as camera port. Additional working ports were placed as follows: 5 mm right pararectal port below the right subcostal region, 12 mm right pararectal port above the level of umbilicus, 5 mm left midclavicular port below the left subcostal region, and 5 mm epigastric port. Right pararectal ports were used as principal working ports. The epigastric port was used for liver retraction. The cyst in the porta hepatis was multilobulated abutting the under surface of segment 3 and 4 and caudate lobe medially and gall bladder laterally [Figure 2a-c]. Replaced right hepatic artery in the posterior wall of the cyst was identified and preserved. Anteriorly, the cyst was in direct contact with the gastrohepatic omentum. The cyst wall was thin and filled with clear straw colored fluid. Laparoscopic subtotal excision of the cyst was done, and a thin rim of the cyst wall adherent to the replaced right hepatic artery was left intact to avoid injury to the artery. The patient had an uneventful postoperative course and was discharged on postoperative day 5. Histopathological examination revealed a multiloculated cyst lined by flattened to cuboidal cells which were positive for calretinin. No atypia or mitosis was seen. Features were consistent with the diagnosis of benign mesothelial cyst [Figure 2d and e]. At 6 months, follow-up patient is asymptomatic with no evidence of recurrence.

DISCUSSION

Mesothelial cysts are rare intra-abdominal cystic lesions secondary to incomplete fusion of mesothelial-lined peritoneal surfaces. More than 80% of the cysts are reported in females suggesting a role for female sex hormones in the pathogenesis of these cysts. Pelvis is the most common site although they can arise at any site lined by mesothelium. Porta hepatis is an uncommon location, and the present case is only the second report of porta hepatis mesothelial cyst. Clinical manifestations of mesothelial cyst depend upon the site of origin. Most common symptom of intra-abdominal mesothelial cysts is a nonspecific abdominal pain. Large cysts can compress adjacent organs and present with abdominal pain, distension, bloating, constipation and vomiting. In the present case, the patient had abdominal pain without any pressure symptoms and the cyst was diagnosed on radiological evaluation.

Accurate preoperative diagnosis of mesothelial cyst is difficult due to lack of typical symptoms or radiological findings. The majority of the patients undergo ultrasound abdomen as the initial investigation for evaluation that often reveals an anechoic cyst. Cross-sectional imaging (CT or MRI) is required to determine the size, location, relation of the cyst to surrounding structures, and delineate the nature of cyst wall and contents. Mesothelial cysts usually do not have a well-defined wall and internal septations, as in the present case. Definitive diagnosis requires histopathological examination. Mesothelial cysts are lined by flat, cuboidal or columnar mesothelial cells with fibrovascular stroma without any lymphatic or muscular component. An immunohistochemical analysis can achieve further characterization of mesothelial cells that are positive for cytokeratin and calretinin and negative for factor VIII and CD31.

Complete excision is the treatment of choice for mesothelial cysts to exclude malignancy and prevent future complications. However, when the lesion is in close proximity to vital structures, a judicious decision needs to be taken considering the pros and cons of the complete excision versus injury to major neurovascular structures. When complete excision
portends a risk of injury to critical vascular structures and suspicion for malignancy is low, a subtotal excision is an accepted procedure for the treatment of a mesothelial cyst.\(^9\) Traditionally open method was used, and few authors recently described the feasibility of laparoscopic excision of mesothelial cyst.\(^{10,11}\) In the present case, the lesion was at the porta hepatis in proximity to the vital structures. However, with careful dissection laparoscopic excision of the cyst was completed successfully without injury to structures in the hepatoduodenal ligament.

**CONCLUSIONS**

Mesothelial cyst although rare should be considered in the differential diagnosis of a cystic lesion at porta hepatis. Laparoscopic excision of the mesothelial cyst at porta hepatis is feasible with care taken to avoid injury to vital structures.

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**Conflicts of interest**

There are no conflicts of interest.

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