

A Symptomatic Cyst of the Falciform Ligament of the Liver: A Case Report and Review of the Literature

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Abstract

Falciform ligament cysts are very rare, with only 12 cases being reported so far. Patients may be asymptomatic or may present with symptoms such as abdominal pain and abdominal mass. In this report, we introduce a symptomatic case with abdominal pain. She was diagnosed with falciform ligament cyst using ultrasound imaging confirmed during laparotomy.

Keywords: Falciform ligament • Liver cyst • Para umbilical veins

Introduction

Falciform ligament is an anatomical structure of the ventral mesentery of the fetus. Falciform ligament consists of double layers of the peritoneum, extending from the belly button to the diaphragm. It contains variable amounts of fat. The free edge of the ligament contains the obliterated umbilical vein (ligamentum teres), the falciform artery, and Para umbilical veins. More accurately, the falciform ligament divides the caudal and left lobe of the liver into internal and external parts [1]. Falciform ligament cysts are extremely rare, and so far only have 12 cases been reported in the literature [2]. The first case of falciform ligament cyst was reported by Henderson in 1909 [3]. These cysts have no clear causes. In terms of clinical symptoms, they are very variable and can be asymptomatic or sympathetic. The diagnosis of these cysts is based on patient's medical history, accurate examination, strong clinical suspicion, and imaging. In this study, we report a case of falciform ligament cyst detected by ultrasonography and during laparotomy.

Case Presentation

A 30 year old woman had a seven-day history of abdominal pain. Her past medical history was unremarkable. She had undergone no abdominal surgery. She had normal Complete Blood Count (CBC) and renal and liver function tests and her BHCG was negative. Tumor markers of CA125 were negative. A physical examination revealed abdominal distention and tenderness. Her menstruation was irregular and her last menstruation period was 20 days earlier. Ultrasound imaging of the abdomen and pelvis was performed and a 102 mm³ × 184 mm³ × 204 mm³ cyst was found in the pelvic and abdominal cavity that seemed to originate from the right ovary. She was a non-smoker and had no history of drug abuse. In laparotomy, the cyst was excised completely (Figures 1 and 2). Pathology evaluation confirmed a benign epithelial cyst measured 11 cm in diameter (Figure 3). No operative or postoperative complication was observed and the patient seemed well without any symptoms in a two-week follow-up.



Figure 1. Laparoscopic finding: large cyst arising from the falciform ligament.



Figure 2. Laparoscopic image shows complete excision of the cyst.

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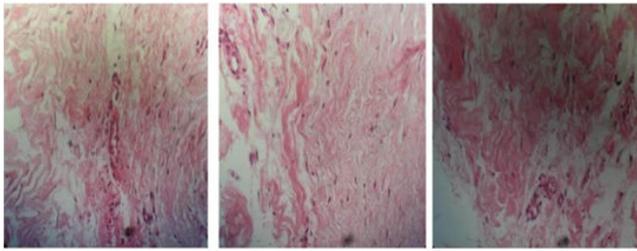


Figure 3. Pathologic finding: Benign epithelial cyst.

Discussion

The cysts of liver ligaments are very rare. In terms of etiology, the cysts have no specific cause. However, based on Brown's study, these cysts are divided into two types/groups of primary and secondary. The primary cysts are developed due to congenital mesenteric defect while the second type of cysts occurs following infections such as echinococcosis, abscesses, traumas, and secondary degeneration to tumors [4]. In some reports, the failure in the obliteration of the umbilical vein is expressed as another reason for these cysts [5,6]. The clinical signs and symptoms can be very diverse. Sometimes, a mass without any symptoms is the only complaint of the disease. However, symptoms such as abdominal pain, which is usually

positional, dyspepsia, pain in the right upper quadrant region, flatulent dyspepsia, and constipation are reported as common complaints.

Our patient had no history of illness and only complained of abdominal pain. On usual physical examinations, no definite evidence is found for cyst diagnosis, but the right side of the abdomen above the belly button may be tender, or a pulsatile mass may be touched/found during the examination [7]. The complications of these cysts include torsion, bleeding caused by cyst rupture, and intestinal obstruction [4].

Some diseases are considered in the differential diagnosis of the cysts, including omental, kidney, liver, bladder, and gallbladder tumors and hematoma [7], which should be correctly diagnosed according to patient's medical records, physical examination, and laboratory and imaging results, as well as strong clinical suspicion.

Ultrasound and CT diagnostic modalities may be required for further investigation. However, the best diagnostic-therapeutic modality is laparotomy; the definitive diagnosis is done based on laparotomy and pathological findings. Treatments include complete excision, marsupialization, and simple drainage. The gold standard treatment is complete excision with minimal side effects [8,9]. A laparoscopy was performed on this patient for complete excision, and no complication was observed during and after the surgery. Previous studies in the literature are listed in Table 1.

Table 1. Review of cases with falciform ligament cysts in the literature.

No.	Reference	Year	Gender/Age	Summary
1	Patel et al. [2]	2009	Female/61 years	A peritoneal cyst located in an unusual position in the patient, attached to the falciform ligament
2	Morgan et al. [10]	2004	Boy/7 years	Presented with abdominal pain; resection was curative
3	Enterline et al. [11]	1984	Female/27 years	A 5 cm diameter cyst diagnosed accidentally by CT-Scan, excised from inside the folds of the falciform ligament
4	Gondring et al. [7]	1965	Female/27 years	Pear-shaped, 9 cm in width, 11 cm in length, and 7 cm in depth; a reddish brown cyst containing blood clot and bile colored fluid with a history of progressive epigastric pain; abdominal mass.
5	Karabin et al. [6]	1951	Female/24 years	A fusiform cyst filled with serosanguineous fluid with dull abdominal pain for six weeks after blunt trauma to the abdomen
6	Brown et al. [4]	1948	Male/26 years	Acute condition within the abdomen with an abdominal mass of a 10 cm by 12 cm cyst with partial torsion about a fibrous band from the anterior abdominal wall
7	Lightwood et al. [12]	1939	Male/4 months	Abdominal mass from birth with a mass similar in size to liver
8	Wakeley et al. [13]	1937	Female/54 years	Dyspepsia for many years and a four-month history of abdominal mass with Fibrous-walled cyst, two inches in diameter
9	Henderson et al. [3]	1909	Male/41 years	An eight-year history of abdominal mass with Straw-colored mass and thin-walled cystic tumor

Conclusion

The cysts of the falciform ligament are taken into account in the differential diagnosis of abdominal pain and masses in RUQ. They can be differentiated using appropriate imaging instruments and laboratory tests. Laparotomy allows for a definitive diagnosis and appropriate treatment of the cysts.

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