

# Rare Presentation of Non-pancreatic Pseudocyst in Falciform Ligament of Liver

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## Abstract

A 3-year-old male child presented with a painful abdominal lump in the upper abdomen. On examination, the child had a large epigastric lump. The radiological examination was suggestive of a falciform ligament cyst. The child was taken for laparotomy and an excision of the cyst was done. Histopathology revealed it to be a pseudocyst. We present this case given rarity of falciform ligament pseudocyst.

**Keywords:** Falciform Ligament Cyst; Pediatric Surgery; Liver.

## Introduction

Falciform ligament consists of double layers of the peritoneum, extending from the umbilicus to the liver. Falciform ligament divides the caudal and left lobe of the liver into internal and external parts.<sup>1</sup> Thirteen cases of the falciform ligament cyst have been reported so far. The first case was reported by Henderson in 1909.<sup>2,3</sup> Cyst of the falciform ligament is rarely suspected on clinical examination. We present a case report of a falciform ligament cyst detected radiologically and confirmed intra-operatively.

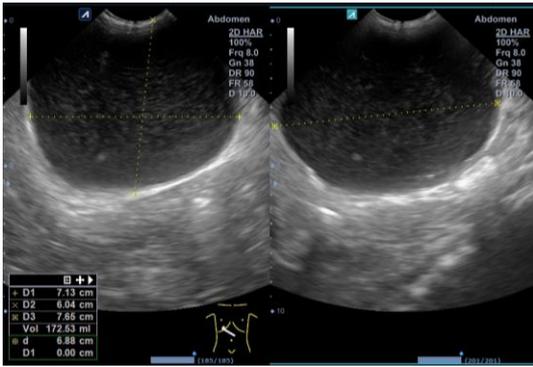
## Case Report

A 3-year-old male child presented to our hospital with a progressively increasing painful upper abdominal lump for one year with no antecedent trauma or infection. On examination, the child had a hard globular lump in the epigastric region measuring 5 X 5 cm. On radiographic investigation (Contrast enhanced computed tomography), there was a loculated non-enhancing hypodense collection measuring 3 X 4 X 3 cm without internal septation in the right lumbar region with surrounding thickened mesentery and omental fat and inflammatory changes. The child underwent routine blood investigations namely complete blood count, liver function tests and kidney function tests as part of pre anaesthetic workup which were normal. The child was taken for exploratory laparotomy. A serous fluid-filled cyst measuring 7 X 5 X 3 cm was arising from the anterior abdominal wall near the umbilicus and extending to the liver. The cyst was separated from dense adhesions with the anterior abdominal wall and resected after transfixing the end of the falciform ligament near the liver and umbilicus. There was no ascites, lymph nodes, abscesses, or other intra-abdominal masses in either the liver or the peritoneum.

Cyst contained clear fluid. Cytological examination of the cyst revealed a total leukocyte count of 620 cells/cumm comprising mostly neutrophils. The smear revealed viable and degenerated inflammatory cells.

Histopathology report showed a fibro-collagenous, fibro adipose, and fibromuscular wall showing moderate inflammatory infiltrate comprising of lymphocytes, plasma cells, histiocytes, few neutrophils, and occasional eosinophils. Wall also showed focal granulation tissue formation, dilated congested blood vessels, and areas of hemorrhage. No epithelial lining was identified. No granuloma/ atypical cells were seen. Histopathological findings were suggestive of a pseudocyst.

The patient was followed up for six months and was asymptomatic.



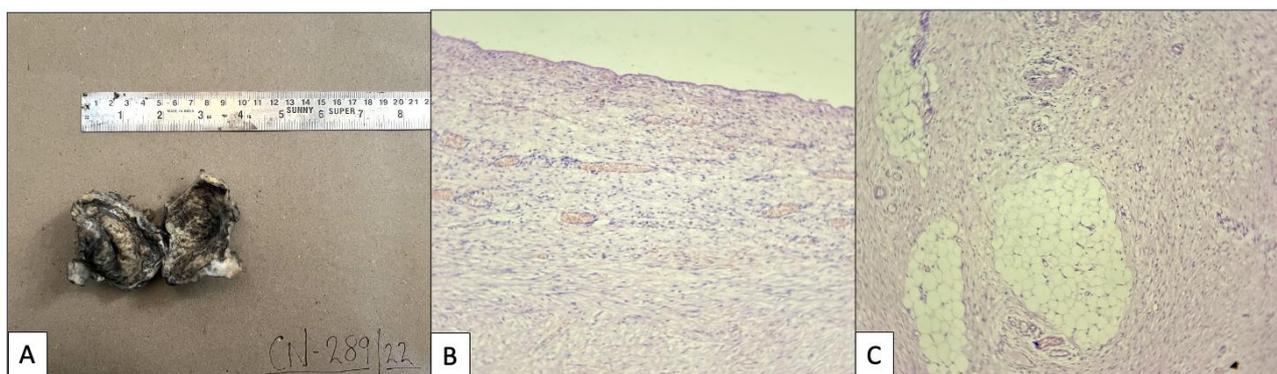
**Figure 1:** Ultrasound abdomen showing a large cyst measuring 7 X 6 X 7 extending from liver to the umbilicus.



**Figure 2:** CT Abdomen showing a large cyst extending from liver to the umbilicus



**Figure 3:** Intra-operative photograph showing cyst of the falciform ligament



**Figure 4:** Histopathology of the cyst. (a) Cut-open gross specimen of cystic soft tissue mass with greyish-yellow areas. (b) Cyst wall composed of fibro-collagenous tissue with no definite lining epithelium. (c) Wall at places composed of fibroadipose tissue with mild to moderate chronic inflammation.

## Discussion

The cysts of liver ligaments are rare. An extensive literature search could shed light on a few cases of cysts of ligament teres. Most of the cysts either had a mesothelial or an endothelial lining. Our cyst is unique in a way that it did not have any lining. All the cases reported so far had an epithelial lining over the cyst.<sup>4-6</sup> Non-pancreatic pseudocysts have been reported in the retroperitoneal region but no case report of a pseudocyst in the ligament of the liver could be found.<sup>7</sup>

Based on Brown's study, cysts are divided into two types/groups, 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.<sup>8</sup>

Failure in the obliteration of the umbilical vein is one of the postulated hypotheses.<sup>9,10</sup> A cyst might as well appear due to fluid collections in ligaments caused by normal anatomic variation or pathological process (e.g Cirrhosis, liver atrophy, liver abscess)

Out of the 13 cases reported so far, only 2 paediatric cases have been reported. One case was reported in 1939 and another in 2004.<sup>4,5</sup> Our case is unique as it presented in the toddler age group with the patient being symptomatic for over a year.

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

S. No.	Reference	Age/Gender	Year	Summary
1	Lightwood et al <sup>4</sup>	4 months/Boy	1939	Abdominal mass from birth with a mass similar in size to liver
2	Morgan et al. <sup>5</sup>	7 years/ Boy	2004	Presented with abdominal pain; resection was curative
3	Yhoshu et al. <sup>6</sup>	5 years/ Boy	2020	Upper abdominal pain and non-bilious vomiting
4	Index Case	3 year/ Boy	2023	Painful abdominal mass; resection was curative

Diverse symptoms have been reported. Falciform ligament cyst can have varied symptomatology ranging from abdominal mass, abdominal pain, dyspepsia, or constipation.

Our patient presented with a painful abdominal mass. The differential diagnosis for the same includes omental, kidney, liver, bladder, and gallbladder tumors, hematoma, and abscesses.<sup>13</sup> The suspicion of a falciform ligament cyst was raised based on ultrasound and computed tomography (CT) findings and ruled out the rest of the differentials.

Radiological investigations including ultrasound and CT can help in defining the lesion and point towards appropriate differentials. In our case, the CT image raised suspicion of a cyst involving the ligament of liver.

The best step for confirming the diagnosis is laparoscopy/laparotomy as per availability. The treatment of cyst includes excision of the cyst with minimal side effects.<sup>6,12-14</sup>

## Conclusion

Cyst of the falciform ligament of the liver is a rare entity encountered seldom in the paediatric population. Our case report of a 3-year-old presenting with the same proves that it should be kept as a differential in the case of an epigastric lump. The definitive treatment involves complete excision via laparotomy/ laparoscopy.

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