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A Rare Case of Ligament Teres Cyst in A Neonate: A Tale of Successful Management

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ABSTRACT

Falciform and ligament teres cysts are those arising due to congenital remnants either umbilical vein or mesenchymal elements. Asymptomatic to some extent, but can present directly with complications leading to morbidity and even mortality, hence justifying the need of surgery. Definitive diagnosis is by contrast enhanced computerized tomogram (CECT) and treatment is by open surgery or laparoscopic surgical resection with usually a good outcome. We report a 26-day-old female presenting with abdominal distension and irritability. Imaging revealed a cyst arising from the ligamentum teres. Surgical excision was performed, and histopathology confirmed a benign serous cyst. The infant recovered well and remained asymptomatic at 1-year follow-up. Early diagnosis and surgical management are key to favorable outcomes.

Keywords: *Ligament teres cyst, Falciform ligament cyst, peritoneal cyst, umbilical vein remnants*

1. INTRODUCTION

Cysts arising from the ligamentum teres or falciform ligament of the liver are exceedingly rare, particularly in the neonatal age group. These congenital or acquired cystic lesions often present a diagnostic challenge due to their nonspecific clinical features. In neonates, such cysts may manifest with abdominal distension, irritability, vomiting, or feeding intolerance due to pressure effects on adjacent structures [1]. However, in some cases, they remain asymptomatic and are discovered incidentally during imaging performed for other reasons.

The rarity of these lesions in neonates often leads to delayed or missed diagnoses unless a high index of suspicion is maintained. Radiological imaging, especially ultrasound and contrast- enhanced computed tomography (CECT), plays a pivotal role in identifying the cyst's origin, size, and effect on surrounding organs [2].

Management strategies vary depending on the cyst's size, location, and symptoms, with surgical excision being the treatment of choice in most cases to prevent complications such as rupture, infection, or compression of vital structures.

We report a rare and successfully treated case of a ligamentum teres cyst in a neonate, emphasizing the importance of early recognition, appropriate imaging, and prompt surgical intervention for optimal outcomes.

2. CASE REPORT

A 26day old female neonate born by term delivery with no significant perinatal events in another country presented with abdominal bloating, irritability & recurrent fever, when they travelled to India, with history lasting since a week after arrival to India. The child had undergone ultrasonography elsewhere and referred for further management with the diagnosis of abdominal cyst. The child was vitally stable with upper abdominal distension, tenderness in upper mid abdomen, continuity of dullness with the liver, normal other organic dullnesses & normal bowel sounds. The child underwent CECT abdomen and diagnosis of a cyst with air in the region of base of liver and anterior abdominal wall was made. The total counts were raised with neutrophilia, liver & renal function tests were normal. The child was prepared for surgery and diagnostic laparoscopy revealed mass arising from ligament teres and falciform ligament near liver. The child underwent conversion to open surgery with a small incision for the complete resection of the cyst. (Fig.1) Histopathology revealed serous cyst with cuboidal endothelium lining with inflammatory cell infiltration. The child recovered well and doing well in follow up period with no symptoms and appropriate weight gain according to the age at 1 year of life.

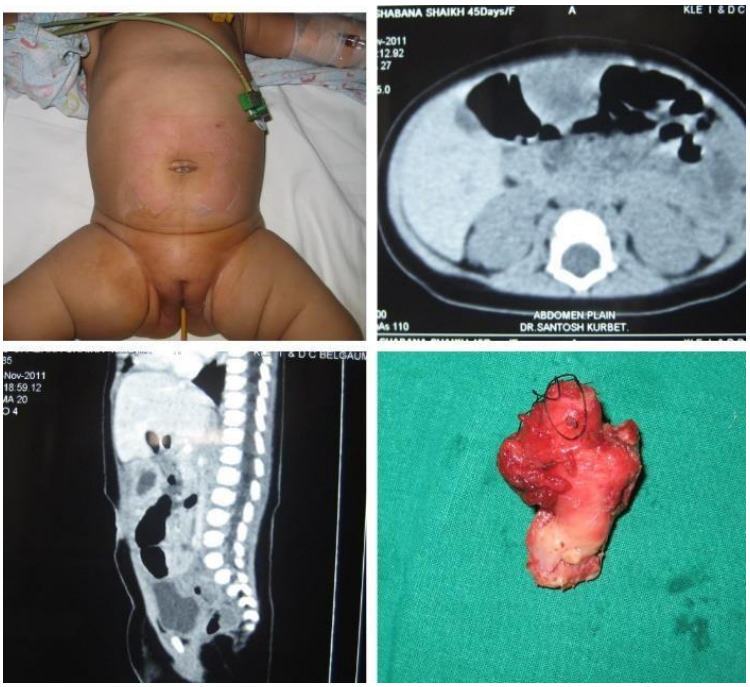

Fig 1. Shows abdominal photograph of Neonate, with cyst on CECT Abdomen(2) & Excised cyst.

3. DISCUSSION

Cysts of the ligamentum teres and falciform ligament are exceptionally rare, especially in neonates. They are generally considered to be developmental anomalies, arising from remnants of the ventral mesentery, a structure involved in the embryological formation of the liver. These remnants may contribute to the anatomical division of the left hepatic lobe into its medial and lateral segments during fetal development.[1,2]

The falciform ligament, a double layer of peritoneum, stretches from the umbilicus to the liver, enclosing structures such as the obliterated left umbilical vein, paraumbilical venous channels, fatty tissue, and occasionally smooth muscle fibers.[1,3] at the hepatic surface, the two layers diverge to join the visceral peritoneum, anchoring the liver to the anterior abdominal wall.

While the exact origin of these cysts is not well understood, various theories exist. Wakeley et al.[5] proposed that incomplete obliteration of the umbilical vein, retaining endothelium with secretory function, could lead to cyst formation. Alternatively, Karabin et al.[6] believed that a complete failure of the umbilical vein to regress postnatally may result in such lesions.

Brown et al.[7] offered a classification system dividing these cysts into primary cysts, which are congenital or developmental in nature and usually appear during childhood, and secondary cysts, which occur in older patients and are typically associated with infections (e.g., echinococcosis), trauma (e.g., bile leakage or hematoma), or neoplasms exhibiting cystic degeneration.

The clinical manifestations are highly variable. Many cases remain asymptomatic and are detected incidentally on imaging. Symptomatic presentations may include abdominal distension, tenderness, vomiting, or palpable masses. The cysts may also mimic other hepatic or peritoneal pathologies. Some may originate from mesenchymal tissue or represent rare lesions such as lymphangiomas, mucinous cysts, lipomas, or leiomyomas.[6,8]

Potential complications, if the cyst remains undiagnosed or untreated, include rupture, infection, haemorrhage within the cyst, torsion or twisting of the cyst, and mechanical compression of adjacent organs leading to obstruction[6],[8].

Imaging modalities play a vital role in diagnosis. Ultrasound is often the first-line investigation, typically revealing a well-defined cystic mass near the anterior liver surface or falciform ligament. Contrast-enhanced computed tomography (CECT) provides better localization, showing a fluid- density lesion separate from the gallbladder and bowel, often situated in the caudal region of the left intersegmental fissure.

Management depends on symptoms, cyst size, and risk of complications. Options include image- guided aspiration or drainage, though recurrence is common; marsupialization; and definitive surgical excision, which is the preferred treatment method[7].

Complete surgical removal, either through laparoscopy or a small open incision, minimizes recurrence and offers excellent long-term outcomes with minimal morbidity.[1],[6],[8] in the presented case, surgical excision via mini-laparotomy was successful, with no recurrence noted during follow-up.

4. CONCLUSION

Cysts arising from the ligamentum teres and falciform ligament are rare, particularly in neonates. Despite their benign nature, these cysts can present with non-specific symptoms and pose a diagnostic challenge. Timely imaging using ultrasound and CT plays a pivotal role in diagnosis. Complete surgical excision remains the definitive and curative treatment, ensuring excellent outcomes and preventing complications. This case highlights the importance of considering such rare developmental anomalies in the differential diagnosis of neonatal abdominal distension and reinforces the effectiveness of early surgical intervention.

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