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Peritoneal Encapsulation: A Rare and Unrecognized Cause of Abdominal Pain

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Abstract

Peritoneal encapsulation (PE); first reported by Clelant in 1868 is a rare congenital anomaly caused by a defect in the development of the midgut and consisting of the abnormal presence of an accessory peritoneal sheet enveloping part or all of the small intestines. The pathogenesis is still unclear: the embedding of the loops in the neoformed sac, with the development of adhesions and bridges between the loops and the sac, are at the origin of digestive symptoms ranging from non-specific abdominal pain to acute intestinal obstruction, the most dreaded complication. Preoperative diagnosis is often difficult, facilitated by CT scans, but intraoperative discovery is predominant. We hereby report the case of a 40-year-old patient with no particular history who presented with chronic abdominal pain evolving for 2 years; injected abdominal CT confirmed the diagnosis and the patient underwent surgery, excision of the sac was performed with release of the incarcerated handles. We publish this clinical case to report this rare congenital malformation.

Keywords: ***Peritoneal encapsulation; Abdominal pain; Intestinal obstruction***

1. Introduction

PE is a rare entity characterized by the encasement of the small intestines in an accessory peritoneal membrane [1]. It is difficult to diagnose, often discovered intraoperatively or during autopsy [2], and is often asymptomatic, with acute intestinal obstruction being the extreme clinical expression [3]; fewer than 50 cases have been reported in over 100 years [4], prompting us to shed light on this pathology by reporting this case in which laparotomy remains the gold standard in terms of management [5].

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2. Clinical Case

We study the case of our 40-year-old male patient, with no medical history, who has complained for 2 years of intermittent abdominal pain of the colicky type located in the periumbilical region, associated with episodes of constipation without any other associated signs.

The clinical examination was almost normal, but the abdominal CT scan with injection of contrast medium showed distension of the small intestines, with individualization of a peritoneal sac encapsulating the grouped small intestines with no enhancement defect (FIG. 1), the patient was operated on by median laparotomy straddling the umbilicus; exploration revealed a peritoneal sac surrounding most of the small intestine with no intestinal malrotation or lymphadenopathies (FIG. 2), the excision of the sac revealing adhesions and flanges which were completely freed (FIG. 3).

Postoperative follow-up was without anomalies, and discharge was authorized on the second postoperative day.

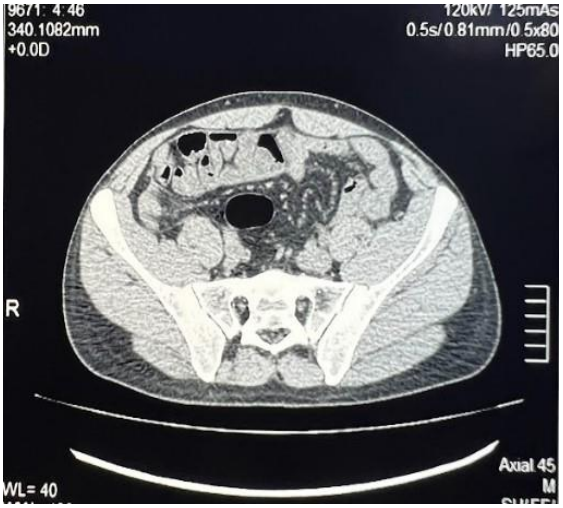

FIG. 1. **Scannographic section showing the accessory peritoneal sheet encapsulating the gallbladder.**

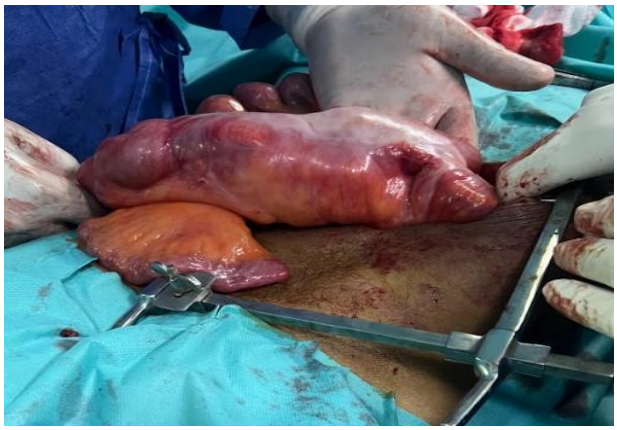

FIG. 2. **Intestinal loops surrounded by an accessory peritoneal bag.**

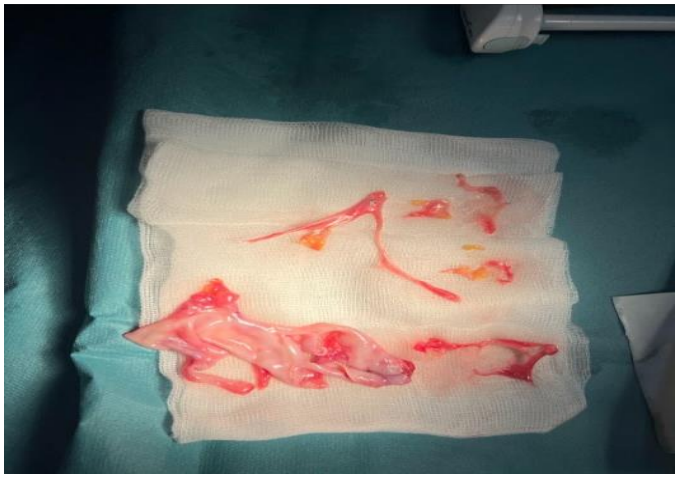

FIG. 3. **Excised peritoneal bag.**

3. Discussion

PE is a rare congenital malformation due to the presence of an accessory peritoneal sheet encapsulating the intestinal ansae [6], the term PE was first described by Cleland in 1868 [3]; discovery is often incidental in young male subjects and may be associated with intestinal malrotation [1,4].

The pathology is often asymptomatic, discovered incidentally during surgery for other reasons [5]; the most frequent signs are abdominal pain and acute intestinal obstruction [6]; in the event of obstruction, two specific signs characterize PE: asymmetric abdominal distension and disparity in consistency of the abdominal wall, with the presence of a firm flat zone (fibrous capsule) and a soft distended zone (intestinal distension) [7].

Standard radiography is often without abnormality, sometimes revealing non-specific abdominal distension [3], CT may show dilated small intestines enveloped by an accessory peritoneal sac [8], and the helix sign may be highly suggestive of the disease [9].

Treatment of PE is exclusively surgical, with excision of the accessory peritoneal sac [10] and adhesiolysis to prevent recurrence. Laparotomy is considered the preferred approach, but laparoscopy is possible if the disease is correctly diagnosed preoperatively [11].

4. Conclusion

EP is a rare congenital anomaly whose diagnosis is suspected in the presence of chronic abdominal pain and confirmed by abdominal CT scan.

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