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Mesenteric cyst in 11-year old girl: A technical note. Case report

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ABSTRACT

We report on a case of a mesenteric cyst occurred in an 11-year-old girl referred to our institution after a period of 2 months of recurrent abdominal pain. The girl underwent laparoscopic surgery after abdominal Ultrasound Scan (US) and Magnetic Resonance Imaging (MRI) demonstrated a voluminous cyst of about 18 cm × 10.7 cm × 5.8 cm, occupying principally left abdomen. The cyst's root extended into retroperitoneum (Losanoff type 3) so the majority was excised and the remaining was marsupialized with good results. Laparoscopic excision of the mesenteric cyst has been facilitated by rolling the isolated cyst progressively around a grasper obtaining a constant control of the structure: the "spaghetti maneuver". As confirmed by our experience, a mesenteric cyst can be easily and safely managed by laparoscopy, and the "spaghetti maneuver" is a feasible and effective surgical tool to facilitate the excision.

Mesenteric cysts can occur anywhere in the mesentery of the gastrointestinal tract, from the duodenum to the rectum, and may extend from the base of the mesentery to the retroperitoneum [1,2]. In a review series of 162 patients, 60% of mesenteric cysts occurred in the small-bowel mesentery, 24% in the large-bowel mesentery, and 14.5% in the retroperitoneum [3,4].

Its incidence is about 1 per 20,000 pediatric hospital admissions [1], with no more than approximately 830 cases reported in the literature [5]. The rarity of these conditions is one of the reasons why the correct preoperative diagnosis is seldom made.

Approximately one third of cases occur in children younger than 15 years. The mean age of affected children is 4.9 years [6]. The presenting symptoms are generally recurrent abdominal pain associated or not with abdominal palpable mass. The most common mode of acute presentation in children is small-bowel obstruction, which may be associated with intestinal volvulus or infarction [7–9].

1. Case report

An 11-year-old girl, was referred to our institution with a diagnosis of abdominal mass and recurrent abdominal pain lasting 2 months. During the previous week, the patient had complained of increasingly frequent vomiting and abdominal colic pain.

At the physical examination we found palpatory tenderness in the left hypochondrium and paraumbilically, mildly painful intraabdominal mass. The abdominal Ultrasound Scan (US) showed an oval fluid-filled cystic tumor (20 cm × 11 cm) in left hypochondrium, located mainly in the left abdominal cavity, with its superior part compressing the spleen and gastric antrum.

Magnetic Resonance Imaging (MRI) revealed a thin-walled, fluid-filled mass, of about 18 cm × 10.7 cm × 5.8 cm, in the upper-mid left quadrant, which compressed the adjacent bowel (Fig. 1). A large oval mass, with a fluid content, engaged the hypogastrium, mesogastrium, epigastrium and left hypochondrium. The mass displaced posteriorly the spleen and the transverse colon, resting on the bladder dome.

The patient was operated by laparoscopic three-trocar approach. At the exploration, a huge mass filled with yellow clear fluid occupied the abdominal cavity principally on the left side of the bladder dome (Fig. 2a). To better handle the cyst a small amount of liquid was evacuated through a small window formed on its dome, and the cyst was then separated from the omental sheet. The dissection was gently made, using alternately the hook and Ligasure. The cyst was then progressively rolled around the grasper with the "*spaghetti maneuver*" [10,11]. In this way a mild lateral or upward/downward traction was applied to allow the dissection (Fig. 2b). The whole structure remained under visual control at all time, reaching its root, which extended into retroperitoneum. This allowed the remaining cyst to be marsupialized into the abdominal cavity. Operative time was 75 min.

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Fig. 1. MRI shows a thin-walled fluid-filled mass, about 18 cm × 10.7 cm × 5.8 cm.

Drainage was left for 48 h and then removed. The post-operative course was unremarkable. The histopathological examination confirmed the diagnosis of mesenteric cyst, showing a single-layered mesothelial coat imbued with chronic inflammatory cells.

2. Discussion

Mesenteric cysts were first described in 1507, in his post-humously published, by Italian pathologist Antonio Benivieni (Florence 1443–1502) (Fig. 3), during the autopsy on an 8-year-old girl [3,12]. Mesenteric cyst size may range from a few centimeters to over 10 cm [1]. The cysts can be located in the mesentery or the omentum of any portion of the gastrointestinal tract and may extend, as in our case, to the retroperitoneum. Clinical presentations include common symptoms of the gastrointestinal tract and only rarely are they be complicated by rupture, torsion or intestinal obstruction causing acute and intense symptoms. In our case however, the presenting symptoms were quite vague, and in the last period the cyst had turned toward an acute clinical presentation, making surgery necessary.

Mesentric cysts can be classified in many ways [13]. More useful, in our experience, is the Losanoff pathological classification [14], which correlates the pathologic situation to surgical options, regardless of the nature of the cyst. According to this Author, mesenteric cysts can be classified into four types: type 1, pedicled cyst – easy to remove; type 2, sessile in leaves of the mesentery – requires bowel resection; type 3, extending into retroperitoneum – often incompletely resected; type 4, multicentric – may require complex surgery, sclerotherapy or both [14]. The treatment standard of mesenteric cyst is excision, which in some cases can require bowel resection [9]. In other cases, as in our experience, the cyst is very large and extending to retroperitoneum: in this case the choice of resecting most of the cyst leaving only the last small portion that extends to the retroperitoneum may be the safest solution. This procedure is the most suitable surgical option in approximately 10% of patients [3]. Since the early '90 the laparoscopic approach has become the treatment of choice [15]. The great advantage of laparoscopy is the optimal view that allows the identification of the whole abdomen, with a very helpful magnification during dissection [16]. The only disadvantage is the fact that instruments cannot be maneuvered easily as the cyst is progressively isolated. One of the solutions can be the use of loops applied progressively in depth as the dissection proceeds [17]. By the use of the "*spaghetti maneuver*" [10,11], instead, the isolated structure remains within the operator's visual field; this avoids what in laparoscopy is defined as the "*blind zone*", i.e., the lack of the operator's visual control of the work space. In fact, the dissection, ligation or induction of hemostasis, especially in case of long structures as sometimes mesenteric cyst are, requires traction; this inevitably brings both the laparoscopic instruments and the cyst itself outside the visual field, with the dangers represented by the absence of the operator's visual control.

In one of our previous reports [10] we hypothesized that this maneuver could be useful in a large number of laparoscopic procedures: isolation and resection of mesenteric cysts can fall within this category.

3. Conclusion

As confirmed by our experience, a mesenteric cyst can be easily and safely managed by laparoscopy, and the "*spaghetti maneuver*" is a feasible and effective surgical tool that facilitates the excision.

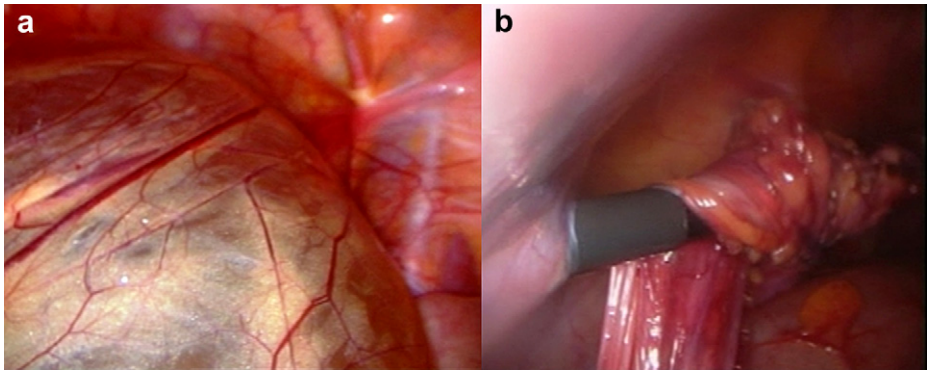

Fig. 2. Laparoscopic view upon entry into the abdominal cavity (a) and after partial decompression using the "*spaghetti maneuver*" for progressive retraction (b).

Fig. 3. Florentine pathologist Antonio Benivieni (Florence 1443–1502). Portrait. Ceiling of the third corridor. Uffizi gallery. Florence. Italy.

Conflict of interests

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Authors' contribution

All authors contributed equally to this work.

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