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Mesenteric Cyst: A Different Diagnostic and Therapeutic Approach; A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. Author RP designed the study, interpreted the results, analyzed the data and drafted the manuscript. Authors RP, BB and MB followed the patient. All authors critically revised the manuscript, approved the final version to be published and agreed to be accountable for all aspects of the work. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: A mesenteric cyst is defined as a cyst which is located in the mesentery of the gastrointestinal tract; it may extend from the base of the mesentery into the retroperitoneum. The incidence of mesenteric cysts is 1:102,500 to 1:250,000 hospital admissions.
Case Report: We report a case of a female patient with a mesenteric cyst which was successfully treated with endoscopic ultrasound-guided *fine needle* aspiration, because the patient refused surgical excision.
Conclusion: To the best of our knowledge, this is the first case in which the approach was echoendoscopic: the cystic lesion completely disappeared and did not recur at following CT scan follow-up.

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Keywords: Mesenteric cyst; computed tomography; magnetic resonance imaging; endoscopic ultrasound; fine needle aspiration; CEA.

1. INTRODUCTION

Mesenteric cysts and cystic mesenteric tumors are a rare abdominal condition. The location of these cysts can be anywhere in the mesentery, from the duodenum to the rectum [1]. Until now, only a few cases have been described according to the literature. Mesenteric cysts are often asymptomatic; however, they may present with acute abdominal pain in case of mass effect on the adjacent abdominal structures or complications of the cysts (such as infection, rupture or haemorrhage). Imaging modalities such as ultrasonography, computed tomography (CT) scan and magnetic resonance imaging (MRI) play a pivotal role in the diagnosis of mesenteric cysts. Surgical excision of the cyst is the treatment of choice either by laparotomy or laparoscopy [2]. We report the case of a mesenteric cyst located near the pancreas in which the definitive treatment has been echoendoscopic. To the best of our knowledge, this is the first case successfully treated with a non-surgical approach.

2. CASE REPORT

A 52-year-old female came to our outpatient Department with 3-months history of persistent abdominal discomfort accentuated by meals and partially relieved by fasting; she also sometimes had nausea. Her past medical history was unremarkable. She had never smoked and she had no history of significant alcohol consumption. Physical examination revealed normal body mass index (21.5 Kg/m^2), blood pressure (120/70 mmHg) and hearth rate (80 bpm). Abdominal palpation elicited pressure pain in epigastrium and left hypochondrium. She underwent transabdominal ultrasound that showed in epigastrium a large anechoic lesion of suspected pancreatic origin. A following abdominal contrast-enhanced CT scan (Fig. 1) revealed an unilocular cystic lesion of 5 x 3.5 cm located between the stomach and the pancreatic body; the cyst presented a *homogeneous fluid content, a thin regular non-enhancing wall and a* well-preserved cleavage plan with the surrounding structures. A subsequent magnetic resonance cholangiopancreatography (Fig. 2) confirmed previous CT findings and did not show a communication between the cyst and the main pancreatic duct, which presented normal caliber. Finally, the patient underwent endoscopic ultrasound (Fig. 3), which confirmed the extra-pancreatic origin of the cyst. Since the patient refused surgical excision, a simultaneous complete aspiration of the cyst with a fine needle (19-gauge) was performed, resulting in the release of about 40 cc of clear, non-mucinous

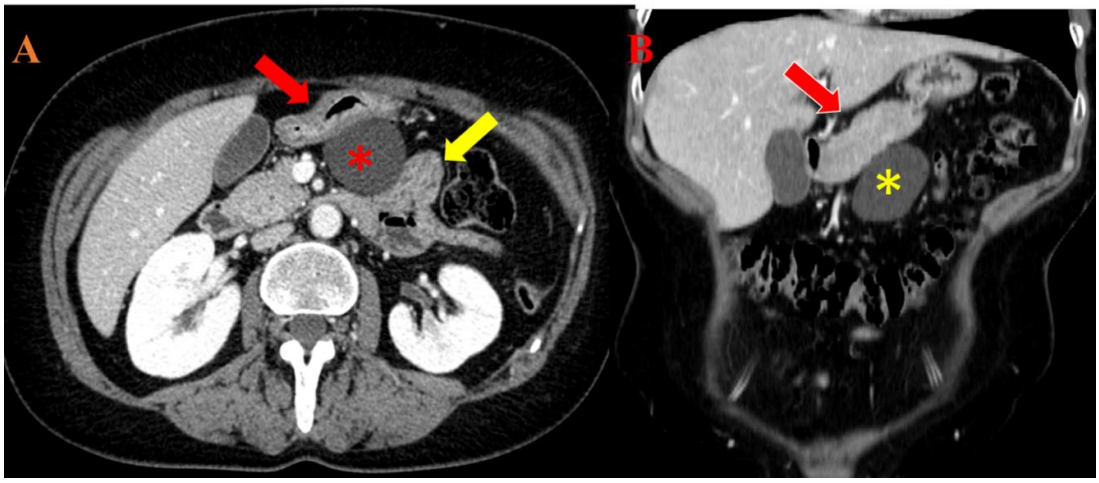

Fig. 1. Panel A: axial contrast-enhanced computed tomography scan of the abdomen showing an unilocular cystic lesion with a *homogeneous fluid content and a thin regular non-enhancing wall (red asterisk); the cyst presents a* well-preserved cleavage plan with the stomach (red arrow) and the bowel loops (yellow arrow). Panel B: coronal contrast-enhanced computed tomography scan of the abdomen showing that the *cyst (yellow asterisk) also presents a* well-preserved cleavage plan with the pancreatic body (red arrow)

fluid. Cystic fluid analysis revealed normal glucose and amylase values, while CEA levels were markedly increased (627,7 ng/ml); cytological examination showed the presence of inflammatory cells, *predominantly* macrophages, in the absence of neoplastic ones.

After cyst aspiration, patient's abdominal discomfort disappeared and there were no immediate or long-term complications. Two abdominal contrast-enhanced CT scans, carried out respectively after 5 and 8 months, showed the complete disappearance of the cyst (Fig. 4). Routine blood analyses, carried out before follow-up imaging, revealed that CEA (1,1 ng/ml) and CA 19.9 (6,1 U/ml) levels were normal as well as hepatic and pancreatic function tests.

3. DISCUSSION

Mesenteric cysts were first described by Benivieni, a Florentine anatomist, in 1507 during an autopsy on an 8-year-old boy [3]. The incidence of mesenteric cysts is 1:102,500 to 1:250,000 hospital admissions [4].

The origin of these cysts is unclear: some Authors claim that they are due to a congenital malformation of the lymphatic tissue, while others suggest that they may be caused by lymph node degeneration or trauma in which mesenteric cysts develop secondarily [4].

Mesenteric cysts can be located anywhere in the mesentery, from the duodenum to the rectum [1].

These cysts usually appear in the fifth decade and they show female predominance [5], as confirmed in the present case. They are generally asymptomatic and may present as an incidental finding [5]. However, patients may report nonspecific symptoms, like pain (82%) and abdominal mass (61%), nausea and vomiting (45%), constipation (27%), and diarrhea (6%) [6]. These clinical manifestations depend on size, localization and mass effect on the adjacent abdominal structures, as in the present case, in which the patient presented with persistent abdominal discomfort accentuated by food ingestion.

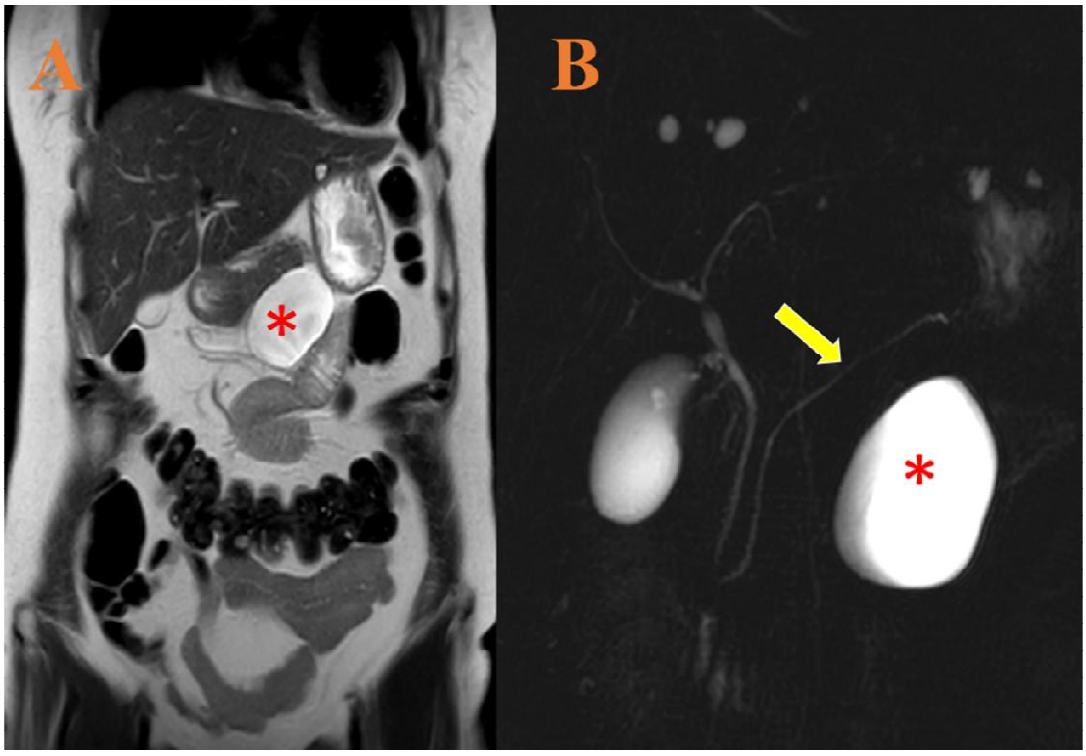

Fig. 2. Panel A: Coronal T2-weighted magnetic resonance image of the abdomen showing an unilocular cystic lesion with a *homogeneous fluid content and a thin regular wall (red asterisk).* Panel B: Magnetic resonance cholangiopancreatography showing a lack of communication between the cyst *(red asterisk)* and the main pancreatic duct (yellow arrow)

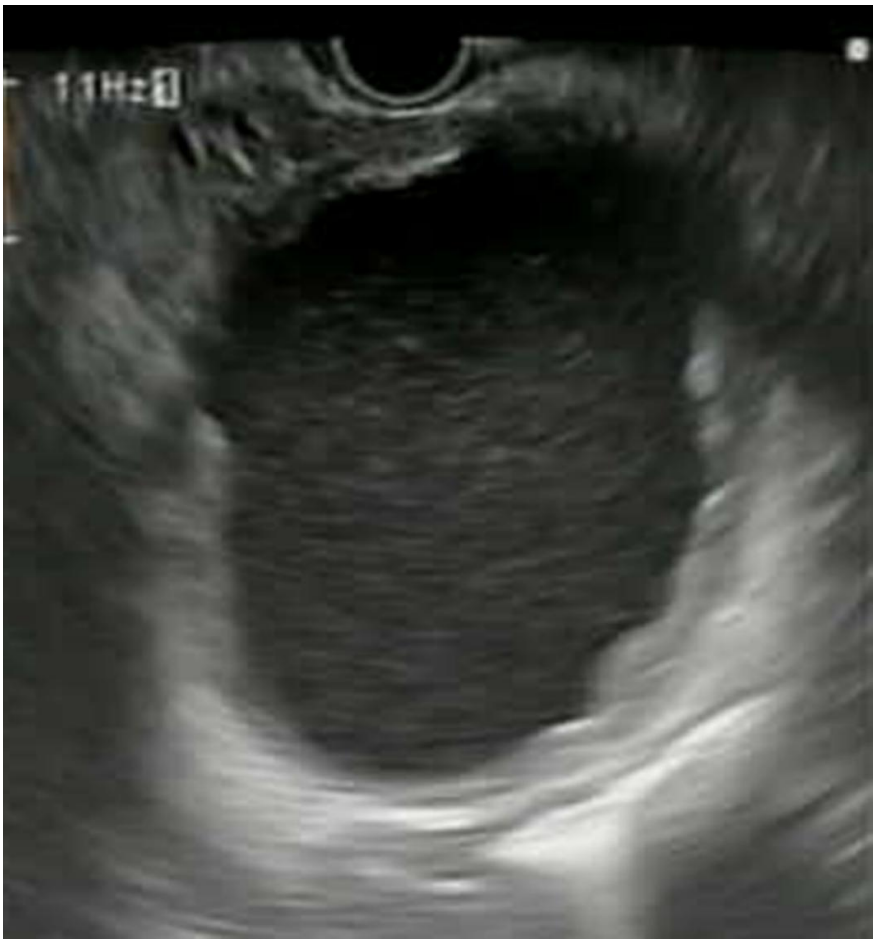

Fig. 3. Endoscopic ultrasound showing an unilocular cystic lesion with a *homogeneous* anechoic *content and thin (about of 2 mm) regular* hyperechoic *wall*

As in the present case, ultrasonography has a pivotal role in the first-line assessment of mesenteric lesions, while CT scan may delineate the relationship of the cyst to adjacent organs and help planning treatment approach [2,7].

Based on their etiology, Beahrs et al. in 1950 classified mesenteric cysts into four groups: embryonic and developmental cysts (enteric, urogenital, lymphoid and dermoid cysts), traumatic or acquired cysts, neoplastic cysts (benign and malignant cysts), and last infective and degenerative cysts (mycotic, parasitic or tuberculous origin) [8]. Another more recent classification, proposed by De Perrot et al. in 2000 and based essentially on histopathological features, divided mesenteric cysts into six groups: cysts of lymphatic origin (simple lymphatic cyst and lymphangioma), cysts of mesothelial origin (simple mesothelial cyst, benign cystic mesothelioma and malignant cystic mesothelioma), cysts of enteric origin (enteric cyst and enteric duplication cyst), cysts of urogenital origin (derived from vestigial remnants of the urogenital apparatus), mature cystic teratomas (formerly named dermoid cysts) and non-pancreatic pseudocysts (infectious and traumatic origin) [9].

Mesenteric cysts can be single or multiple, unilocular or multilocular; based on their content, they may be serous, chylous, haemorrhagic, chylolymphatic or infected [10]. Malignancy has been reported with an incidence of less than 3% [1].

Complete surgical excision (laparotomic or laparoscopic) usually is the treatment of choice for mesenteric cysts [2]; however, further studies are needed to evaluate the outcome of this new therapeutic approach in those patients who are not fit for surgery or refuse surgical excision.

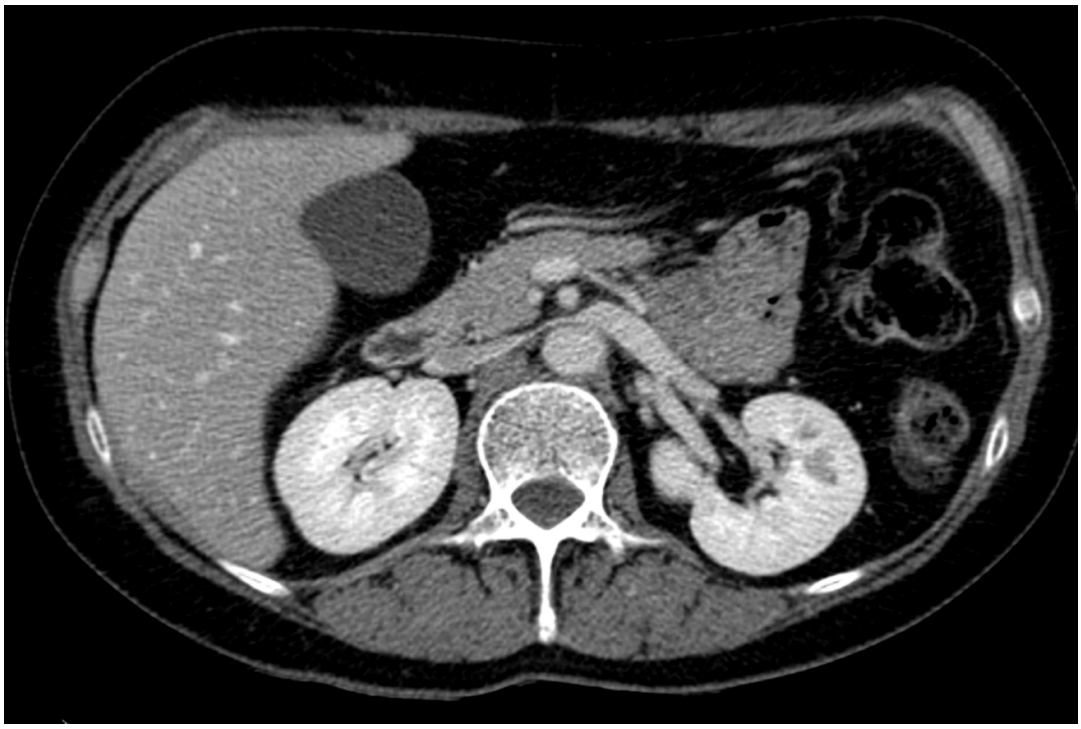

Fig. 4. A follow-up axial contrast-enhanced computed tomography scan of the abdomen showing the complete disappearance of the cyst after endoscopic ultrasound-guided *fine needle* aspiration

4. CONCLUSIONS

The case that we reported here presents two main characteristics: The analysis of cystic fluid content and the non-surgical approach. Regarding the first aspect, we found normal cystic fluid glucose and amylase levels, being therefore able to exclude a serous cystadenoma of the pancreas and a pancreatic pseudocyst [11]. Cystic fluid CEA levels were increased: It has been reported that CEA is able to differentiate mucinous from non-mucinous cystic neoplasms of the pancreas, but both its sensitivity and specificity are low [11]; moreover, cytological examination of the cystic fluid did not show the presence of neoplastic cells. Regarding the treatment strategy, to the best of our knowledge, this is the first case in which the approach was echoendoscopic: the cystic lesion completely disappeared and did not recur at following CT scan follow-up.

CONSENT

As per international standard informed and written participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard written ethical permission has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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