Mesenteric cyst

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SUMMARY

Mesenteric cysts are rare abdominal findings. Due to absent or unspecific clinical presentation, very low incidence, and lack of adequate classification these cysts may sometimes represent a diagnostic and therapeutic challenge. We report a case of 37-year-old man with vague palpatory tenderness in left hypochondrium and paraumbilically and with palpable large intra-abdominal mass in whom mesenteric cyst was diagnosed using US and CT imaging. He was operated and cyst was extirpated in toto. Histopathological examination revealed a thick fibrous cyst wall with the signs of chronic inflammation and without inner epithelial lining, which suggested its traumatic origin. Considering the possibility of malignancy mesenteric cysts should be radically resected (with resection of adjacent organs if necessary) due to their strong relapsing potential and a tendency for sudden, progressive local enlargement if not removed in toto,

Key Words: *Mesenteric Cyst*

Arch Oncol 2007;15(3-4):91-3.
UDC: 616.383:616-003.4
DOI: 10.2298/AOO0704091M

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Received: 04.10.2007
Provisionally accepted: 22.10.2007
Accepted: 02.11.2007

INTRODUCTION

Mesenteric cysts are rare abdominal tumors with an incidence of 1/105000-250000 hospitalized adult surgical patients (1). These cysts may occur in every part of the mesentery, from duodenum to rectum. Most frequently cysts are localized in small bowel mesentery (ileum in 60%) and mesocolon (ascending colon in 40%). Mesenteric, omental, and retroperitoneal cysts are often considered as one group of entities, because of their same embryological origin. However, although some of mesenteric cysts are well defined (for example chylous cysts) there is still a controversy about the etiology and classification of most of these cystic tumors. Mesenteric cysts have similar pathogenesis, but may have different histopathological origin and structure. Most often they represent ectopic lymphatic tissue – lymphatic, chylous cysts.

There are several suggested classifications of mesenteric cysts, but clinically accepted classification is the one based essentially on histopathological features. It includes 6 groups of mesenetric cysts (Table 1) (2).

Simple lymphatic and mesothelial cysts usually remain stable and as a rule are asymptomatic over the time, whereas lymphangiomas and benign cystic mesotheliomas may have invasive properties and aggressive evolution. The only genuine malignant tumor in this classification is malignant cystic mesothelioma which may, although rarely, simulate the gross appearance of benign cystic mesothelioma and therefore lead to misdiagnosis.

The etiology of mesenteric cysts is various. Simple lymphatic and mesothelial cysts are most likely congenital, while the origin of lymphangiomas and benign cystic mesotheliomas is not yet clear (3). The occurrence of benign cystic mesotheliomas is frequently associated with a history of previous pelvic inflammatory processes and/or surgery and endometriosis (4).

Mesenteric cysts rarely cause abdominal symptoms and are mostly accompanied by physical finding of palpable, partly movable and painless abdominal mass. In symptomatic cases diverse unspecific symptoms may occur: most frequently present symptom is chronic undefined abdominal pain. The preoperative diagnosis of mesenteric cysts is achieved with imaging examination of the abdomen (ultrasonography, CT, MRI) and surgical enucleation of the cyst is therapeutic method of choice.

Table 1. Classification of mesenteric cysts

1. **Cysts of lymphatic origin**
   1a) Simple lymphatic cysts
   1b) Lymphangiomas
2. **Cysts of mesothelial origin**
   2a) Simple mesothelial cysts
   2b) Benign cystic mesotheliomas
   2c) Malignant cystic mesotheliomas
3. **Cysts of enteric origin**
   3a) Enteric duplication cysts
   3b) Enteric cysts
4. **Cysts of urogenital origin**
5. **Mature cystic teratomas (dermoid cysts)**
6. **Nonpancreatic pseudocysts**
   6a) Cysts of traumatic origin
   6b) Cysts of infectious origin
7. **Cysts of lymphatic origin**
   1a) Simple lymphatic cysts
   1b) Lymphangiomas
8. **Cysts of mesothelial origin**
   2a) Simple mesothelial cysts
   2b) Benign cystic mesotheliomas
   2c) Malignant cystic mesotheliomas
9. **Cysts of enteric origin**
   3a) Enteric duplication cysts
   3b) Enteric cysts
10. **Cysts of urogenital origin**
11. **Mature cystic teratomas (dermoid cysts)**
12. **Nonpancreatic pseudocysts**
    6a) Cysts of traumatic origin
    6b) Cysts of infectious origin

CASE REPORT

A 37-old male patient was admitted to Surgical Clinic, Clinical Center in Nish for vague intermittent upper abdominal pain, mainly in epigastrium and left hypochondrium, accompanied by periodical nausea and intermittent fever (up to 38.5ºC). Patient had no previous illnesses, allergies, or operations except for a car accident three years ago when his injuries were ambulatory

treated. On his physical examination we found palpatory tenderness in left hypochondrium and paraumbilically without guarding and palpable large compressible, partly movable, and painful intra-abdominal mass. Laboratory investigation revealed elevated leukocyte count (11000 mm^3), increased serum alanine aminotransferase activity (ALT=57U/L) and increased serum concentration of C-reactive protein (CRP=9.1 mg/L). Other analyzed parameters (renal and liver function tests, electrolytes, alpha-fetoprotein, urinalysis) were normal.

Ultrasound (US) of the abdomen showed oval cystic tumor (11x14 cm) in left hypochondrium, partially filled with liquid content, with thickened wall and with its superior part compressing spleen and gastric antrum. With the posterior part of its wall the cyst laid partly on pancreatic tail and body, without signs of fistulization with and/or infiltration of surrounding structures. There were no enlarged lymph nodes and liquid collections intra-abdominally. Axial CT-scans confirmed the presence of oval hypodense cystic tumor with hyperdense capsule localized paraumbilically, left of the medial line. The largest diameters were 14x15 cm and it had identical topographic features as obtained with ultrasonography (Figure 1). The cyst was filled with liquid content whose densimetric values were up to 15 H.U., and with small amount of gas.

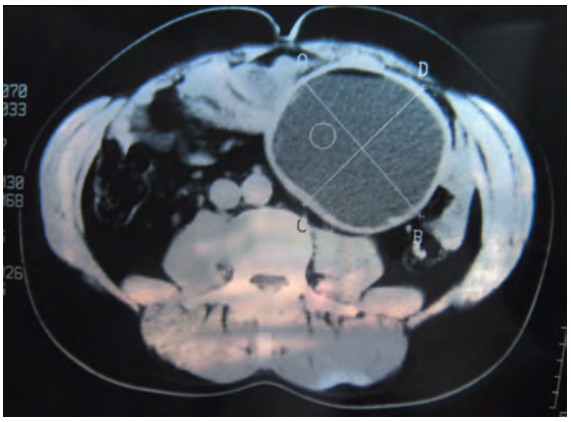
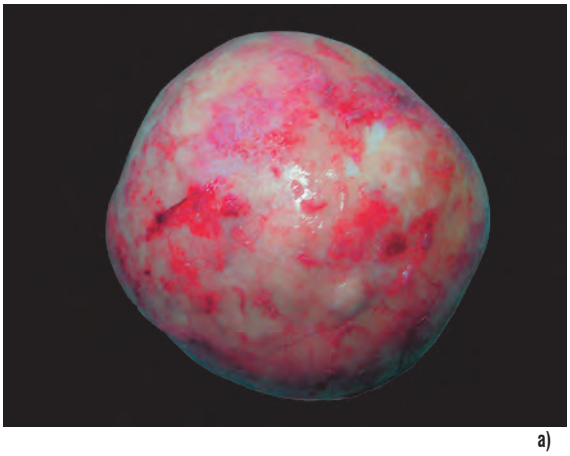


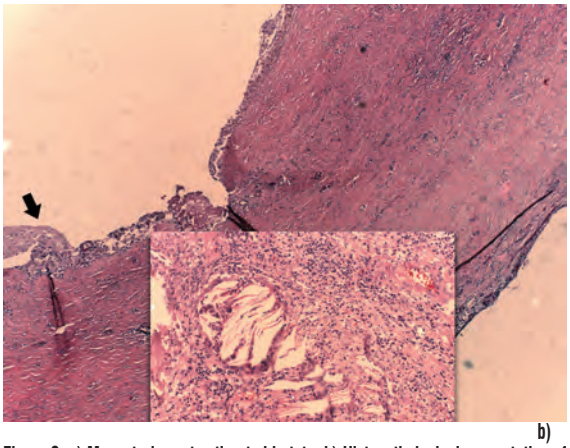
Figure 1. CT-scan of the abdomen presenting cystic tumor

After standard preoperative preparation patient was operated in general endotracheal anesthesia. Upper and middle left pararectal laparotomy was performed. Exploration of abdominal cavity revealed the presence of firm cystic tumor of jejunal mesentery, 12x14 cm in size whose proximal part was about 10 cm below duodenal suspensory ligament of Treitz. A moderate fibrous reaction and alteration of surrounding peritumoral mesenteric fat tissue and local peritoneum were present. The cyst was extirpated in toto: simple enucleation from the surrounding adherent layers of mesenteric tissue was performed without technical difficulties and incidents (Figure 2a). The procedure was finished with single drainage of abdominal cavity and multilayer closure of laparotomy. Postoperative course was normal.

Histopathological examination showed a thick fibrous wall of a cyst imbued with chronic inflammatory cells (lymphocytes and plasma cells), tightly adhered to mature fat tissue of mesentery. The thickness of the cyst's wall varied and was the smallest on its free parts, opposite to the site of its insertion to mesentery. Inner epithelial lining was not found. On the inner side of cyst's wall multiple aggregates of foamy macrophages were focally present. These cells contained dark granular pigment (hemosiderin). In one part of the cyst's wall a cholesterin granuloma was found (Figure 2b).



a)



b)

Figure 2. a) Mesenteric cyst extirpated in toto, b) Histopathological presentation of mesenteric cyst: The wall of mesenteric cyst with foamy macrophages (arrow). HE x 25. Insert: Cholesterinic granuloma in the cyst's wall. HE x 40

DISCUSSION

Primary mesenteric cysts are rare abdominal finding. This entity was first described in 1507 by Benevieni, Florentine anatomist, during the autopsy on an 8-year-old girl (1, 5). However, it was not until 1842 when Rokitansky gave the first description of a chylous mesenteric cyst (3). In 1880 Tillaux performed the first successful resection on a cystic mesenteric tumor (3). After him, Pean reported the first marsupialization of a mesenteric cyst in 1883. Even today the literature reports on primary cystic tumors of mesentery are relatively rare. This lack of clinical experience in treatment of this rare surgical entity is probably the cause of controversies about its etiopathogenesis and histopathological classification. Mesenteric cysts occur with very small incidence, mainly later in life (fifth decade) and with female predominance in occurrence (6,7). The exception are cystic lymphangiomas which mostly occur in the first decade of life (up to 12 years of age), with incidence of 1/20000 hospitalized children (3, 7) and with male predominance.

Mesenteric cysts are mostly asymptomatic (8) and if present symptoms are quite unspecific. Contrary to adults, in children mesenteric cysts become symptomatic very often, especially lymphangiomas (9). Compared to simple lymphatic and mesothelial cysts, lymphangiomas and benign cystic meso-

theliomas become symptomatic more often over time because of progressive enlargement. The size of cyst and age of patient can influence the clinical presentation (8,10). In the cases of inflammatory and/or purulent complications and rupture mesenteric cysts may have a clinical presentation of circumscript or diffuse peritonitis, i.e. acute abdomen and septic shock. A precise preoperative diagnosis can usually be established by systematic physical examination and radiography. US and CT of the abdomen can distinguish between solid and cystic characteristics of abdominal mass. It is rarely necessary to perform additional diagnostic procedures (NMR, fine needle aspiration and cytological analysis and explorative laparoscopy) that may help differentiate between cystic and solid tumor and further characterize the cyst.

In case of large mesenteric cyst, especially symptomatic, surgical extirpation is mandatory in order to exclude malignant alteration and prevent the development of complications such as inflammation, hemorrhage, torsion or rupture. The preferred mode of treatment is enucleation of mesenteric cyst (11), that is atraumatic separation of the cyst from surrounding leaves of mesentery. However, sometimes enucleation can not be performed safely because of firm adhesions of the cyst wall to surrounding mesenteric tissue and/or other structures. This is mostly the case with lymphangiomas and benign cystic mesotheliomas which can strongly adhere to surrounding vital structures and impede or disable their safe extirpation. Contrary, enucleation of simple lymphatic and mesothelial cysts is usually easy feasible. In order to perform complete excision of these cysts a resection of adjacent organs may occasionally be necessary (bowel, spleen, pancreatic tail). A bowel resection is necessary in only 1/3 of adults, but becomes necessary in up to 50%-60% children with mesenteric cyst (11).

CONCLUSION

The results of preoperative diagnostic examination of presented patient strongly suggested the presence of inflamed mesenteric cyst. The possibility of ectopic (extrapancreatic) pseudocyst of pancreas was ruled out on the basis of negative acute pancreatitis history and relatively normal laboratory findings (except unspecific parameters of inflammation – elevated white blood cells count and CRP). Intraoperatively, the position and size of the cyst corresponded to preoperative radiographic findings. In addition to the data about car accident, intraoperative finding of cystic mesenteric tumor with thickened fibrous wall which can easily be shelled out from surrounding mesenteric fat tissue and peritoneum suggested the traumatic origin of the cyst. This was confirmed by histopathological examination. The findings such as the presence of thick fibrous wall of the cyst imbued with chronic inflammatory cells, the presence of multiple aggregates of foamy macrophages with hemosiderin, the presence of cholesterin granuloma on the cyst's wall and the absence of epithelium clearly demonstrate posttraumatic origin of mesenteric cyst complicated with chronic inflammation. Traumatic mesenteric cyst emerges as a sequela of a mesenteric hematoma, i.e. as a result of its resorption. Such cyst may be considered as and classified in category of nonpancreatic pseudocysts.

Acknowledgment

The authors wish to thank to Miroslav Jeremić for its crucial expert support during the operation as well as for significant help in writing the paper.

Conflict of interest

We declare no conflict of interest.

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