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Infarcted mesothelial cyst: A case report

Fernando Navarro[a], Eric Schmieler[b,*], Walter Beversdorf[b]

[a] University Specialty Clinics, Dept. of Surgery 2 Medical Park, Suite 306,Columbia, SC 2920, United States
[b] University of South Carolina School of Medicine, United States

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ABSTRACT

INTRODUCTION: Mesenteric and omental mesothelial cysts are rare, accounting for only 1 in 100,000 hospital admissions for abdominal pain (Tan Jane et al., 2009) [1]. They are often discovered only on CT imaging, which is frequently non-definitive in identifying an exact tissue source owing to overlapping radiographic features with other masses (Stoupis et al., 1994) [2]. The symptoms manifested by such masses are also nonspecific, favoring consideration of more frequently encountered problems in the scope of general surgery over cystic masses in the differential diagnosis. Definitive diagnosis of a mesothelial cyst in this case was made on histopathologic examination of a surgically resected specimen. This case is reported in line with SCARE criteria (Dragoslav et al., 2007) [6].

PRESENTATION OF CASE: A 41 year-old male patient presented to an academic teaching hospital with several days of abdominal pain with nausea and vomiting. Initial workup was unremarkable, save for abdominal CT revealing a central mesenteric focus of inflammation. Neuroendocrine tumor was excluded by normal serum octreotide, 5-HIAA, and chromogranin A. A 4×2 cm mass was identified and resected on laparoscopy. Histopathologic diagnosis of the specimen was infarcted mesothelial cyst. The patient reported resolution of symptoms and remains well on most recent follow-up.

DISCUSSION: The rapid diagnosis of intra-abdominal cystic masses is obscured by their rarity, nonspecific symptomatology, and radiographic features that overlap among such masses (Stoupis et al., 1994) [2]. The etiology of symptoms is likely owed to local mass effect exerted by the cyst on surrounding tissues. Continued resolution of symptoms on resection of such a cyst supports this conclusion.

CONCLUSION: imaging following an overall unremarkable physical and laboratory workup for this patient's abdominal pain directed our further workup and management efforts towards surgical excision of an intra-abdominal cystic mass. Histopathologic examination of the cyst was ultimately diagnostic of an infarcted mesothelial cyst.

1. Introduction

Mesenteric and omental mesothelial cysts are responsible for only 1 in 100,000 of adult hospital admissions [3], and are thus left low on the list of differential diagnoses for abdominal pain. Small symptomatic cysts are often only detected on CT imaging as nonspecific masses. Further evaluation of such masses is first directed at determining a tissue origin if possible. Lymphangioma accounts for the most commonly reported of such lesions, followed by enteric cyst, enteric duplication cyst, non-pancreatic pseudocyst, and mesothelial cyst [2]. Gastrointestinal leiomyomas (cystic spindle cell tumors) in particular have been reported to undergo central liquefactive necrosis and hemorrhage, appearing as cystic mesenteric or omental lesions on imaging [2].

The pathogenesis of a mesothelial cyst involves failed coalescence of mesothelial-lined surfaces, typically involving the small bowel, mesentery, or mesocolon [3]. Imaging usually demonstrates a fluid-filled cavity without a readily identifiable wall. Unlike lymphangiomas, internal septations are not seen [2].

However, given the overlapping features of such cystic intra-abdominal masses on imaging, definitive diagnosis is made on thorough histopathologic analysis of the resected specimen.

2. Presentation of case

A 41 year-old male presented to our emergency department with periumbilical abdominal pain and associated intermittent nausea and vomiting of several days duration. Other review of systems was significant only for chronic diarrhea preceding his

* Corresponding author.
E-mail address: Fernando.navarro@uscmed.sc.edu (F. Navarro).

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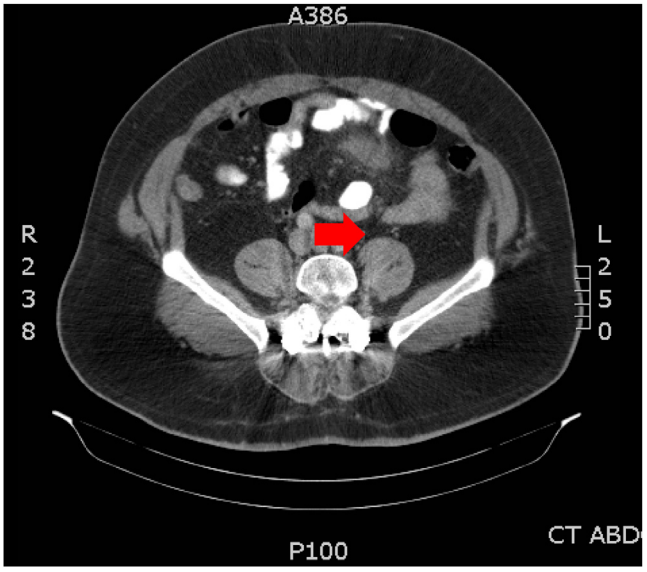

Fig. 1. CT scan showing area of inflammation.

presenting illness. Medical history was significant only for hypertension, and he was noted to have had prior appendectomy and posterior spinal fusion. No family history of neuroendocrine tumors was reported. Social history was unremarkable for drug use.

Physical examination revealed an obese abdomen with localized tenderness to palpation over the mid-abdomen without peritoneal signs. No hernia was appreciated and there was no tenderness over the costovertebral angles. No abdominal pulsation was appreciated. Vital signs were within normal limits. Initial emergency department laboratory workup included CBC and CMP, which revealed a hypokalemic hypochloremic metabolic alkalosis. Transaminases and lipase were within normal limits.

This patient was admitted to the general surgery service and treated conservatively with IV rehydration and empiric antibiotics. Accounting for his chronic diarrhea, chief differential diagnosis at that time included sclerosing mesenteritis, small bowel diverticulitis, and small bowel carcinoid tumor.

Abdominal CT scan demonstrated a central mesenteric focus of soft tissue inflammation (Fig. 1). The only other finding was colonic diverticulosis. No pancreatic abnormality was appreciated. 5-HIAA, octreotide scan, and Chromogranin A were within normal limits, lowering suspicion for neuroendocrine tumor. With conservative management, he initially reported improvement in his abdominal pain; however, his pain never completely resolved and he eventually reported postprandial exacerbation. On hospital day 13, the decision was made to perform diagnostic laparoscopy with potential mass and/or small bowel resection. The procedure was performed by this author.

The mass present on CT was identified intraoperatively in the mid-jejunal mesentery after an adhesion between two adjacent loops of jejunum was separated (Fig. 2). The mass was resected along with a 15 cm segment of the involved jejunum, followed by primary anastomosis. The mass was sent for histopathological examination. His postoperative course was uneventful, and he was discharged shortly thereafter with resolution of his pain. On clinic follow-up, he has remained without pain.

2.1. Histopathologic examination

The resected mass measured approximately 4×2 cm. H&E staining of the specimen demonstrated spindle cells and signs of coagulation necrosis with ghost cells showing prominent

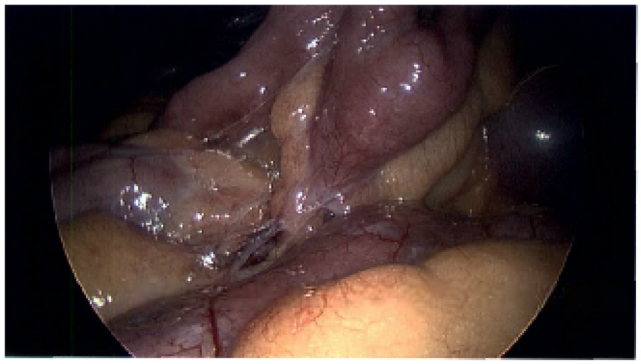

Fig. 2. Mass identified intra-operatively.

eosinophilic staining Fig. 31 and 2). CD117 and DOG1 staining were negative (not shown), excluding gastrointestinal stromal tumor. Negative S100 staining (Fig. 33) likewise excluded a neural-derived source. Positive staining for smooth muscle actin, desmin, and vimentin (Fig. 34–6 respectively) identified the spindle cells seen on H&E as myofibroblasts. These histologic findings are consistent with a mesothelial cyst that has undergone probable infarction.

3. Discussion

Mesenteric and omental cystic masses are uncommon, representing only 1 in 100,000 acute adult hospital admissions [1], although it is possible they occur with greater frequency but are missed or identified incidentally as most remain asymptomatic [5]. Further hindering their rapid diagnosis when symptomatic is their very nonspecific presentation including but not limited to abdominal pain which is often chronic in nature, mass, or distension. This patient presented with the additional complaint of nausea and vomiting, and it is likely that local mass effect was involved, as concluded by other authors reporting on similar intra-abdominal cystic masses [4].

The exact etiology underlying the necrosis of this patient's mesothelial cyst and its contribution to his abdominal pain is unclear. Review of laboratory values demonstrate only an electrolyte disturbance itself associated with vomiting. Nothing in his recent history suggested a precipitating event. It is likely that this patient's cyst simply outgrew its own perfusion, although a possible contribution by some physiologic stressor is worth consideration.

The mainstay of treatment for symptomatic lesions is complete surgical excision [4,5], as recurrence of incompletely excised cysts has been noted by other authors [4]. Fortunately for this patient, surgery seems to have been curative as he remains well on follow-up.

4. Conclusion

Rare etiologies of gastrointestinal upset and abdominal pain, while reasonably left low on the differential list, ought not to be excluded from it completely. Unfortunately however, it appears that mesothelial cyst and other intraabdominal cystic masses often fail to reveal themselves on physical examination and leave no characteristic clues in recent patient history, only becoming apparent nonspecifically on advanced imaging. The routine practice of CT imaging and the low threshold employed at some institutions for its use is a matter of controversy outside the scope of this case report; however In the case of our patient, it was diagnostically important, appropriately directed treatment towards surgical management, and led to a therapeutic outcome. Routine histopathological examination of resected tissue specimens is also of value in excluding

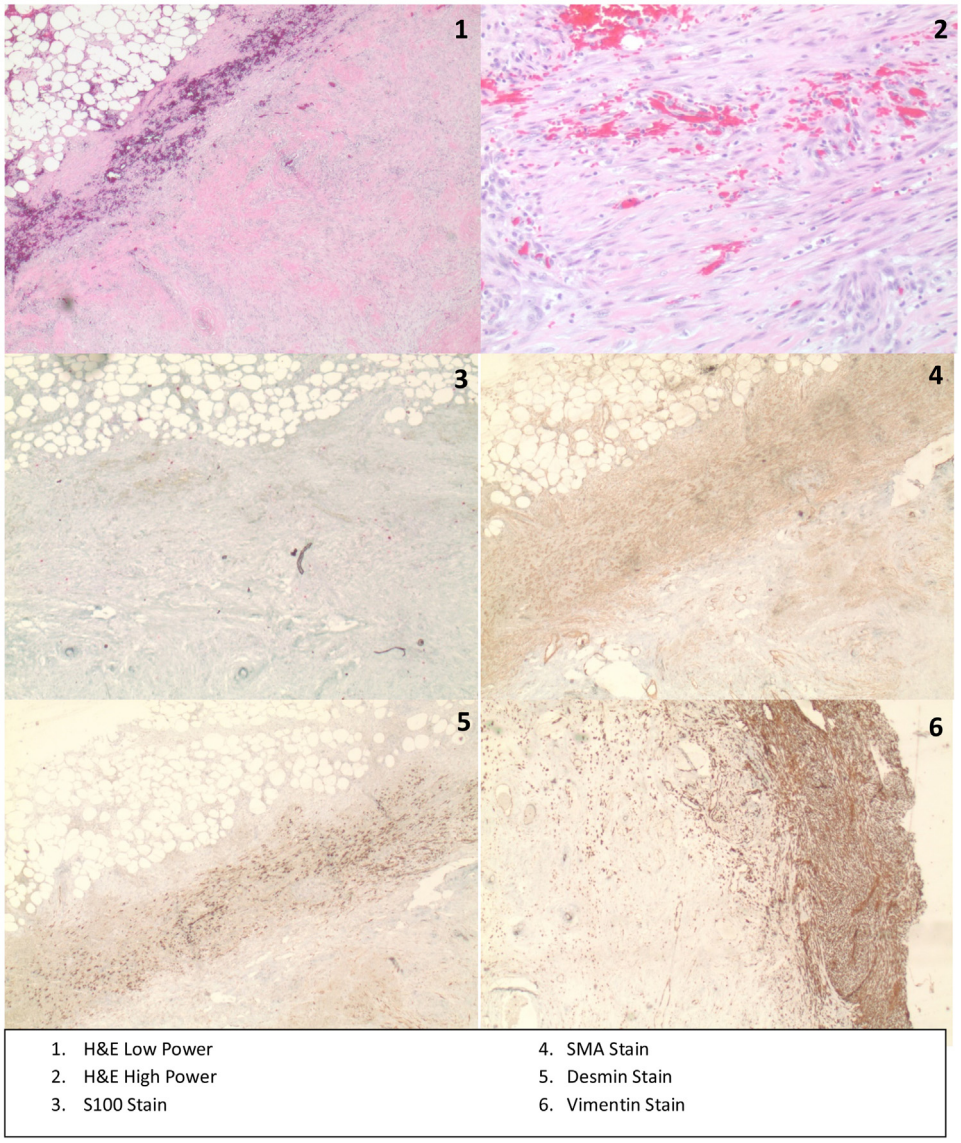

Fig. 3. Tissue histology of specimen.

malignancy, arriving at a specific diagnosis and confirming total resection of lesions that are likely to recur if incompletely excised.

Author contribution

Fernando Navarro, MD: attending physician managing case.
Eric Schmieler, MD: care team participant, writing of case report.
Walter Beversdorf, MS-4: writing of case report, editing, proofing, submitting.
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Ethical approval

Not applicable to case report.

Conflicts of interest

We have no potential conflicts of interest to report.

Consents

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Guarantor

Fernando Navarro, MD, MPH, FACS.

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