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Laparoscopic excision of large mesenteric cyst from the small bowel mesentery in adult male patient

Naif Abdullah Alenazi, Khaled S. Ahmed, Mohamed S. Essa, Wael I. Abusiam, Abdulbaset M. Al-Shoaibi

ABSTRACT

Introduction: A mesenteric cyst is a cystic lesion that arises in the mesentery of the gastrointestinal tract from the duodenum to the rectum but most commonly developed in the small bowel mesentery. They develop in both adults and children but usually diagnosed during the fifth decade of life. Case Report: A 31-year-old male presented to Emergency Department with left iliac fossa pain without any other associated symptoms. His medical, surgical and family history was not significant. No history of previous abdominal operation. Abdominal ultrasonography showed mass in right iliac. Computed tomography revealed a large rounded mesenteric cyst seen in the left lumbar region measuring 10x10x9 cm with thin enhancing wall. The mass was excised by laparoscopy with healthy margins and the specimen was sent for pathological examination. The histopathological findings were suggested of pseudocyst. Conclusion: A mesenteric cyst in adult is extremely rare benign intra-abdominal pathology. Surgical excision is optimal treatment of mesenteric cyst with either laparotomy or laparoscopy.

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INTRODUCTION

Mesenteric cysts are very rare mesenteric tumor that can occur at any age [1]. It was discovered by Benevenni 1507 with about 820 cases reported till now in the literature since then [2]. It is most commonly seen in children under the age of 10 and in adults usually presented in the fourth decade of life. According to Kurtzetal the incidence of mesenteric cyst is equal between males and females and also there was no difference according to race [3].Most of mesenteric cysts discovered by either physical examination or imaging but it can present with symptoms such as recurrent abdominal pain, nausea, anorexia, vomiting, and bowel habits changes. Although most mesenteric cysts are benign in nature, it occasionally leads to complications, such as volvulus and intestinal obstruction [4, 5].

CASE REPORT

A 31-year-old male who presented with intra-abdominal swelling with non-specific symptoms. The patient was admitted to the Department of general

surgery with a history of left iliac fossa pain for one year ago radiated to left thigh. The pain associated with nausea and loss of appetite. No history of fever or weight loss. No family history of malignancy. No history of allergy. On abdominal examination, there was a palpable mass in left lower quadrant of abdomen about 10x10 cm, mobile, with mild pain during palpation but no tenderness.

The patient was investigated by abdominal X-ray which reported as unremarkable bowel gas distribution, no air fluid level, no abnormal radio dense lesion was detected. The abdominal ultrasound done which showed a well-defined rounded lesion almost isoechoic with inferior anechoic area measured about 9.7x11 cm was seen in the left lower quadrant. No detected vascularity was observed by color doppler. Further evaluation was advised with characterization by CT scan with contrast which showed a large rounded mesenteric cyst seen in the left lumbar region measuring 10x10x9cm with thin enhancing wall. There was a fat density content and there was no solid component, suspicion of dermoid cyst/ lymphangioma/ mesothelial cyst (Figure 1). Abdominal solid organs as liver, gallbladder, spleen, pancreas and both kidneys appeared normal. Bowel appeared normal. Cuts of lower chest appeared unremarkable. Bone and soft tissue were also unremarkable. Surgery was recommended. The patient underwent laparoscopic excision of the cyst. During laparoscopy, exploration of the abdominal cavity identified lesion of 10cm within the mesentery of the last jejunal loops. The mass did not appear to infiltrate adjacent structures. No other intra-abdominal pathology was noted. The cyst completely excised by laparoscopy but eventually small perforation occur at the base of the cyst with sebum like fluid drained, this material suctioned and sent for culture, the abdominal cavity irrigated thoroughly and drain inserted (Figure 2).

Histopathology reported the mass as pseudocyst (no epithelial lining and fibro vascular wall with chronic inflammatory cell infiltrate). The patient had an uneventful postoperative course, and he was discharged three days after the operation. He was found to be symptom free after six weeks following.

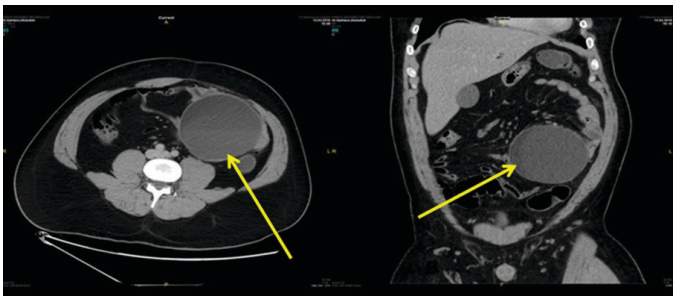

Figure 1: Computed tomography showing single, well defined, mesenteric cystic lesion with thin smooth enhancing wall and fat- fluid level, measuring about 10.5 cm, located in the left side of the mid-abdomen, displacing the adjacent bowel.

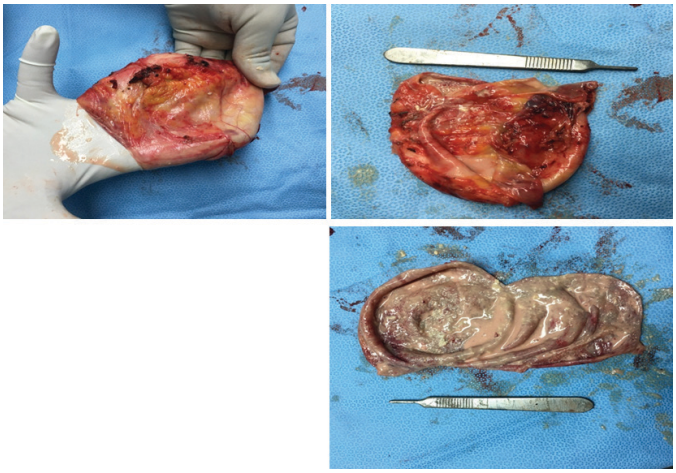

Figure 2: Cyst after excision.

DISCUSSION

Mesenteric cyst can occur at any site in the mesentery of gastrointestinal tract from duodenum to rectum; with or without extension into the retroperitoneum. The lining of mesenteric cyst either endothelium or mesothelial cell [1].

The Italian anatomist Benevieni was the first one who published about mesenteric cyst following an autopsy on an 8-year-old girl. A chylous mesenteric cyst was discovered by von Rokitansky in 1842. Gairdner reported the first case of an omental cyst in 1852. The first successful surgery for a cystic mass in the mesentery was performed by Tillaux in 1880 [2]. The incidence of mesenteric and omental cysts are extremely rare; accounting for 1 per 140,000 general hospital admissions and about 1 per 20,000 pediatric hospital admissions [3]. 30 to 35% of cases occur in children younger than 15 years [4]. The mean age of affected children is 4.9 years [5]. Mesenteric cysts are more common than omental cysts accounting for 4.5 times omental cysts [6]. There are several theories for the development of mesenteric cyst, Gross suggested that mesenteric and omental cysts development are due to ectopic lymphatics proliferations with absence of connection with the normal lymphatic system [7]. Obstruction of lymphatic channels is another proposed theory but experimental studies of lymphatic occlusion in animals does not lead to mesenteric or omental cyst because of lymphatic system rich in collaterals, which sheds doubt on this particular theory [8]. Other theories include the following: (1) Failure of fusion of lymphatic channel with venous system; (2) Failure of fusion of the leaves of mesentery; (3) Trauma, neoplasia and degeneration of lymph nodes [9].

The term cystic mesenteric tumor is mostly referred to cystic lymphangiomas and lymphatic cysts. Cystic lymphangioma occurs with high frequency in the first decade of life, with incidence more common in females. It is usually presented by acute abdominal symptoms. Cystic lymphangioma characterized by presence of

smooth muscle tissue with endothelial lining towards the cavity. Lymphatic cysts developed later in life, also show female predominance, and as a rule are asymptomatic. The lymphatic cysts characterized by absence of smooth muscle tissue in their wall and endothelial lining of the cavity [10]. Hydatid cysts in the mesentery have also been reported; these are extremely rare and present with chronic lower abdominal pain [11]. One of the features of Costello syndrome is mesenteric cyst, which also consists of short stature, redundant skin of the neck, palms, soles, and fingers, curly hair, papillomata around the mouth and nares, and mental retardation [12].

There are many classifications of mesenteric cysts, one of which based on histopathologic characteristics including six groups has been most commonly used: 1) cysts of lymphatic origin--lymphatic (hilar cysts) and lymphangiomas; 2) cysts of mesothelial origin: benign or malignant mesothelial cysts; 3) cysts of urogenital origin; 4) enteric cysts; 5) dermoid cysts; and 6) pseudocysts: infectious or traumatic etiology [13]. Mesenteric cysts can occur anywhere in the mesentery of the gastrointestinal (GI) tract from the duodenum to the rectum, and they may extend from the base of the mesentery into the retroperitoneum. In a series of 162 patients, the distribution of mesenteric cyst was small bowel mesentery in 60% of cases, large-bowel mesentery in 24% of cases, and retroperitoneum in 14.5% of cases. Ileal mesentery is the most common affected small bowel mesentery followed by sigmoid mesentery [14].

Omental cysts are unilocular or multilocular and either single or multiple in number, mostly located in the lesser or greateromentum. Abdominal distention as presentation of congenital omental cyst has been reported. The pathology of omental cysts could be due to dermoid cysts or teratomas. The content of omental or mesenteric cysts may be hemorrhagic, serous, chylous, or infected fluid. The fluid is serous in ileal and colonic cysts and is chylous in jejunal cysts. They can range in size from a few millimeters to 40 cm in diameter [14, 15].

Mesenteric cyst may present in patients of any age. It may present either as non-specific abdominal complains, as an incidental finding, or as an acute abdomen. There are different symptoms of mesenteric cysts but most of them are non specific as abdominal pain (82%), nausea and vomiting (45%), constipation (27%), and diarrhea (6%). Palpable abdominal mass present in up to 61% of patients [16].

Complications of mesenteric cyst are intestinal volvulus, rupture with spillage of infective content, bowel herniation into an abdominal defect, and intestinal obstruction. Malignant cysts is rare and occur in less than 3% of cases [16].

Assessment of mesenteric cyst include complete history and physical examination, blood workup and radiological workup (abdominal X-ray erect, ultrasound abdomen and pelvis (USG) and computed tomography (CT) scan) to reach definitive diagnosis. The final diagnosis is on laparotomy and has to be histologically confirmed [17]. Ultrasound and CT can reveal the location and size of the lesion, septation, debris, fluid levels and the thickness of the wall. CT scan showed that the cyst was not arising from another organ as kidney, pancreas or ovary [18]. Magnetic resonance imaging (MRI) is more precise in the evaluation of cyst [19].

Surgery is the treatment of choice for mesenteric cysts. The aim of surgical treatment is complete removal of cyst. There are many options of surgical therapy that include enucleation, intestinal resection with anastomosis and partial excision with marsupialization which is indicated if enucleation or resection cannot be done because cyst size or the location of the cyst is deep within the root of the mesentery. If marsupialization is performed the cyst lining should be sclerosed or cauterized avoid recurrence. Partial excision alone with or without drainage is better avoided because of high risk of recurrence rate associated with these procedures [20].

Laparoscopic treatment of mesenteric cyst is reported but depending on the available expertise in laparoscopic surgery, laparoscopy can be used to localize the cyst and resection can be done through mini-laparotomy incision or through extended umbilical incision [21].

CONCLUSION

Mesenteric cysts represent a diagnostic challenge and they should be considered when a physician encounters palpable intra-abdominal mass. Abdominal examination and imaging do not always provide a diagnosis and surgical management should be recommended because of the possible complications that may occur. Where possible a laparoscopic approach is more advantageous. Different laparoscopic techniques have been reported, however, the better approach for the best outcome is still unknown due to the rarity of the condition.

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Author Contributions

Naif A. Alenazi – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Khaled S. Ahmed – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Mohamed S. Essa – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Wael I. Abusiam – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Abdulbaset M. Al-Shoaibi – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.