

Laparoscopic Excision of an Infected “Egg-shelled” Retroperitoneal Pseudocyst

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Abstract

Primary retroperitoneal pseudocysts are rare entities. Though laparoscopic approach has been described in their treatment, open surgical excision is still the mainstay of treatment for these lesions. We present a case of infected retroperitoneal pseudocyst and its successful laparoscopic excision. The patient was an 80-year old female. Contrast enhanced CT scan of the abdomen and ultrasonography confirmed a large retroperitoneal cyst. Laparoscopic resection was accomplished after puncturing and decompressing the cyst. There were no complications or conversion. The operating time was 176 minutes. The patient was discharged 3 days after surgery. Histopathology revealed a pseudocyst. Retroperitoneal pseudocysts can be resected laparoscopically with careful and meticulous laparoscopic dissection, utilizing the advantages of laparoscopy.

Keywords

Retroperitoneal pseudocysts – calcified – cyst – laparoscopic excision

Introduction

Retroperitoneal cysts are believed to be benign tumors of the retroperitoneum. Primary retroperitoneal cysts, defined as retroperitoneal cystic structures not deriving from any retroperitoneal organs, are rare. They are known to attain large proportions before causing any symptom, and are often discovered accidentally [1]. These rare tumors are derived from remnants of embryonal urogenital apparatus, which include tissues of both epithelial and mesothelial origin [2]. Other hypotheses for these cysts involve lymphatic, traumatic, and parasitic origin [3]. Retroperitoneal cysts that

have no epithelial lining in the wall are called pseudocysts. Though laparoscopic approach has been described, open surgical excision (transperitoneal or extraperitoneal) is still the mainstay of treatment for these lesions. There are few reports of laparoscopic excision of retroperitoneal cysts in the literature, but no reports of pseudocysts.

Case report

The patient was an 80-year old female, presented with a vague ‘dragging’ pain in the left upper quadrant of two months duration. The patient did not have any recent history of trauma. Her bowel and bladder habits were normal; and there was no fever or weight loss. There was no history of stroke or palpitation, though she was a hypertensive that was under control. Abdominal physical examination revealed a large mass in the left hypochondrium, which was mobile and nontender. The mass was in the retroperitoneal plane. Left renal angle was free and the mass was not ballotable but bimanually palpable. Its margins were well defined and soft/cystic in consistency. Ultrasonography of the abdomen showed a large retroperitoneal, cystic mass measuring 19 x 17 cm with a calcified wall. The mass was bounded superiorly by the diaphragm, the spleen inferiorly, stomach and the lateral abdominal wall. The left kidney was displaced posteromedially. Contrast enhanced CT scan of the abdomen (Figs.1, 2) confirmed the ultrasound findings. Relevant hematological and biochemical investigations were normal. She was diagnosed as a case of calcified retroperitoneal cyst (probably adrenal) and laparoscopic excision was planned.

Under general anesthesia, the patient was placed in a reverse Trendelenburg position with a 35° right lateral tilt. Pneumoperitoneum was achieved via a Veress needle and intra-abdominal pressure maintained at 12mmHg. The monitor was placed to the left of the patient, directly opposite the surgeon. The operating surgeon stood to the right of the patient and the camera assistant stood at the right hand side of the operating surgeon.

A total of four ports were placed in the abdomen: 10mm port 2cm above the umbilicus; 5mm port (right working hand) in the left lumbar area, at the level of the midclavicular

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Fig 1. Saggital section CT scan showing a large cyst (arrow) with calcified wall occupying the left upper quadrant.

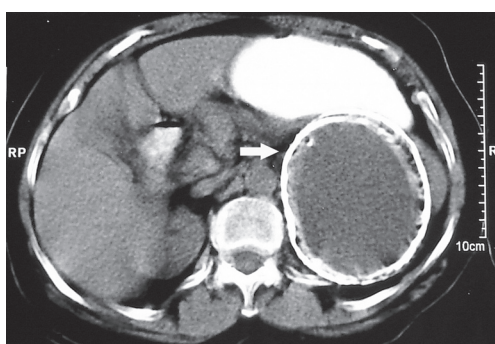


Fig 2. Cross section CT scan (gut contrast) showing a large cyst with calcified wall (arrow) occupying the left upper quadrant and its relations.

line; 5mm port (left working hand) in the left upper quadrant, at the level of the midclavicular line; 10mm port (for stomach retraction) in the epigastrium.

On laparoscopy, the cyst was clearly seen, with the fascial planes being well preserved (Fig. 3). Dissection was commenced on the superior wall of the cyst by dividing the adhesions with the stomach and diaphragm using ultrasonic shears. Laterally, the splenic flexure of the colon was mobilized to expose the lateral border of the cyst and medially adhesions to the stomach were divided. Inferiorly, adhesions to the spleen and tail of pancreas were dissected out. The texture of the left adrenal gland and pancreas were normal. There were adhesions to the lateral border of Gerota's fascia and the adrenal gland, which were mobilized. Up to this point the cyst wall was preserved. We inadvertently punctured the cyst wall, which was thick and calcified (Fig. 5). The cyst contained thick, dirty-white fluid with debris. Due to the calcified cyst wall, it did not collapse even after decompression. A specimen of the cyst wall was sent for frozen section to rule out carcinoma. Once the report was negative, we proceeded with a complete excision of the

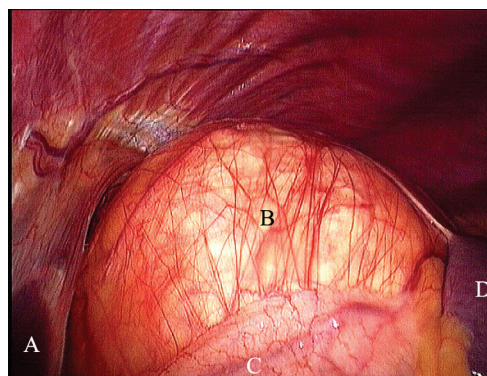


Fig 3. View of the cyst on laparoscopy: A – tip of left lobe, B – cyst, C – stomach, D – spleen.

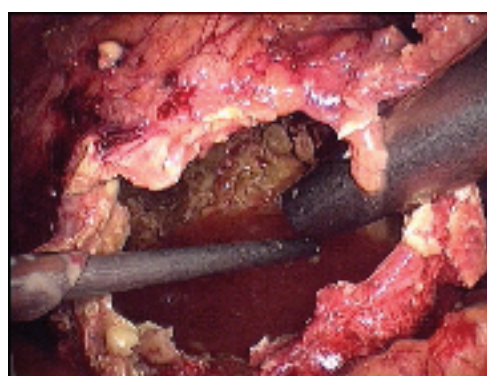


Fig 4. Dissection at the inferior aspect of the cyst, Arrow – inferior aspect of the cyst; A - spleen.

cyst using a combination of blunt and sharp dissection. The specimen was extracted via a minilaparotomy incision (Fig. 5). All wounds were closed after a thorough wash and hemostasis.

Total operating time was 176 minutes and blood loss was about 230 ml. The postoperative period was uneventful. She was discharged on the 3rd postoperative day. Histopathology of the fluid revealed acellular cyst fluid, necrotic material with no malignant cells or epithelial cells. Microscopic examination showed that the cyst wall was devoid of lining epithelium with extensive calcification and chronic



Fig 5. Specimen being removed in an endobag through a minilaparotomy.

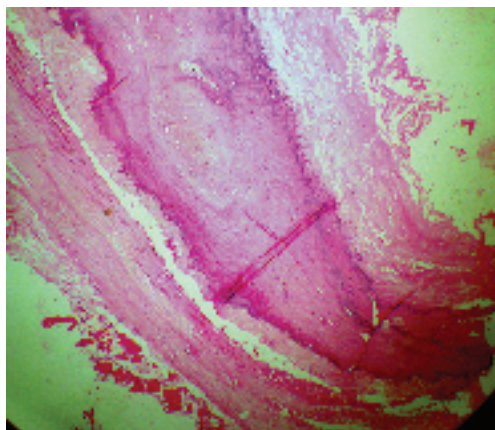


Fig 6. Features of calcified pseudocyst – cyst wall devoid of lining epithelium with extensive calcification and chronic inflammation (hematoxylin eosin, x 100).

inflammatory cells, confirming the diagnosis of a pseudocyst (Fig. 6). There was no evidence of pancreatic or adrenal tissue, or malignancy. The patient was followed up for 23 months, first at the third month and later every six months. She has remained asymptomatic and there has been no evidence of recurrence.

Discussion

The potentially large retroperitoneal space contains organs derived from the ectoderm and endoderm that are all embedded in a loose network of connective tissue. This allows both primary and metastatic tumors to grow silently before the appearance of signs and symptoms. Simple retroperitoneal cysts rarely present as abdominal masses. If they are derived from the Wolffian duct, they are filled with clear fluid, and if teratomatous they are filled with sebaceous material. Rarely, lymphangiomas and bronchogenic cysts can also occur in the retroperitoneum [4, 5].

There are no classical clinical signs of retroperitoneal cysts, though vague abdominal pain and distension are present in 50% of cases [6]. They may occasionally present with acute abdominal pain if they become hemorrhagic or infected. Ultrasonography and CT scan are usually diagnostic of the condition. These cysts may be unilocular or multilocular and need to be distinguished from hydronephrosis or giant ovarian cysts [7, 8]. Depending on their origin, the cyst may be lined either by the cells of mesothelial or mesonephric origin. Pseudocysts are rarer in the retroperitoneum and are characterized by the absence of any lining epithelium [9].

These findings were similar to that of our patient, who also had extensive calcification of the cyst wall with chronic inflammatory changes. When we accidentally punctured the cyst wall, it 'cracked' almost as an eggshell does. The content was a thick, white-colored fluid. Ideally, these cysts of doubtful origin should be resected in toto, as any spillage could cause tumor seeding in cases when these are malignant. In spite of the spillage of the fluid in our patient, there was no danger of spread, as malignancy was ruled out by the frozen section.

The treatment of choice for these retroperitoneal cysts is complete excision with, if necessary, resection of a portion of the adherent bowel. Marsupialization and partial excision of the cyst are less satisfactory procedures, as recurrence is common. The conventional methods of surgery are laparotomy, an extraperitoneal approach, or a transperitoneal flank approach [9]. The open extraperitoneal approach avoids entry into the peritoneal cavity and has advantages like reduced intraoperative fluid and heat loss, a brief postoperative ileus, and avoids manipulation of gut and subsequent development of adhesions. Laparoscopic excisions of retroperitoneal cysts have been published, though they are all only case reports [10]. Even though the laparoscopic approach is transperitoneal, all the advantages of the extraperitoneal approach like no bowel handling and no postoperative adhesions can be made use of. Also, heat loss is minimal as there is no large laparotomy incision.

Laparoscopic excision of a retroperitoneal pseudocyst has never before been reported, as far as we know. Recurrence following excision of retroperitoneal cyst can occur if excision is incomplete. The true incidence of recurrence is not known; however, in one series a figure of 25% was quoted [11]. In our case, the excision was complete and there has not been any evidence of recurrence after 23 months of follow up.

In conclusion, retroperitoneal pseudocysts of non-pancreatic origin are very rare lesions and have to be distinguished from malignancy. Adrenal pseudocysts are known to occur and have been reported in the literature [12]. Laparoscopic excision, though tedious, is definitely beneficial for the patient, as they usually require large incisions to remove. Laparoscopic excision entails small incisions, better cosmesis, less pain and early recovery.

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