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Case report of a retroperitoneal cyst

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Abstract: This paper highlights retroperitoneal cysts, its clinical diagnosis, and treatment from a retrospective analysis of clinical data of a 49-year-old female patient diagnosed with retroperitoneal cyst treated in our department. The patient was admitted after an abdominal mass that was discovered on the lower left quadrant for more than six months, showed clinical manifestations. B-mode ultrasound and computed tomography (CT) examinations diagnosed it as a retroperitoneal cyst. A laparotomy was performed for a complete excision of the cyst. Intestinal cysts are rarely reported but retroperitoneal cysts are even more so. Its clinical symptoms are atypical, and therefore easily misdiagnosed before surgery. The best treatment is surgical excision of the cyst, whereby postoperative pathological examination can confirm the diagnosis.

Keywords: Retroperitoneum; Intestinal cyst; Surgical treatment

Introduction

1. Clinical information

UA 49-year-old female patient was admitted after a mass was found on the lower left quadrant of her abdomen for more than six months. The mass was about the size of an egg. Initially, the patient did not complain of any pain, discomfort, nausea, vomiting, chills, fever, bloating, and diarrhea. In the past six months, the mass was getting larger with mild tenderness. When symptoms began to manifest, she came to our hospital for diagnosis and treatment. Outpatient B-mode ultrasound showed left abdominal cystic mass; while there were no obvious abnormalities from the uterine graphics and dual attachment area. Computed tomography (CT) examination showed that there was a low density abdominal mass at the left iliac fossa and therefore, she was admitted to our department. Examinations showed a flat belly and a presence of abdominal breathing. No gastrointestinal and peristaltic waves as well as abdominal varicose veins were observed. There was a mass of about 6 × 7 cm at the lower left quadrant, with poor activity, medium density, light tenderness, and no rebound tenderness. Liver and spleen ribs were untouched, while Murphy' s sign was negative. No percussion pain at the liver and kidney areas, while shifting dullness was negative. Bowel sounds were at 3–5 times/min, the sound of air over water could not be detected. A review of the enhanced CT of the abdominal and pelvic areas after admission showed cystic mass in the lower left quadrant. Ultrasound B-mode indicated the overall uterus condition, while CT scan showed no abnormalities for kidneys, bladder, and bowel. *Figure 1* showed

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that gynecological conditions have been excluded by gynecologists. After comprehensive assessment showing no contraindications for surgery, laparotomy was carried out with a 10 cm incision on the left area under general anesthetics. No obvious abnormalities were observed on the small intestines, descending colon, and left attachment after abdominal examinations. A mass of about 10 × 10 cm can be seen at the left side of the retroperitoneal colon, which has medium density, cystic, and no obvious adhesion to the surrounding tissues. After carefully freeing the mass, it was completely resected. Pathological review after surgery showed that the retroperitoneal mass was consistent with an intestinal cyst (*Figure 2*). After surgery, the patient recovered well and was discharged after seven days.

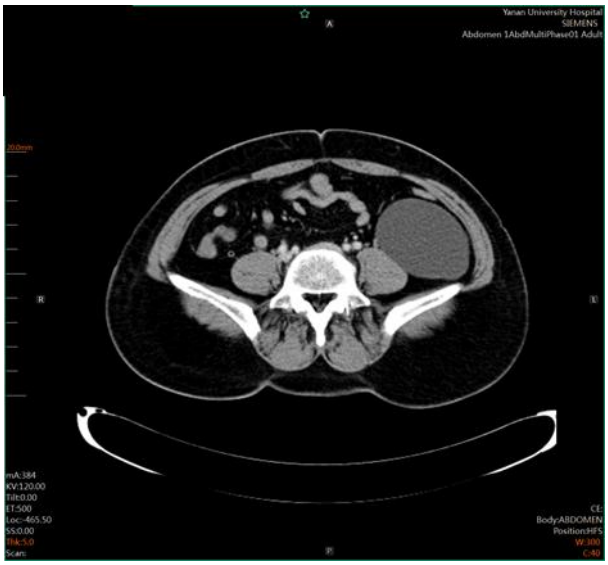

Figure 1. Enhanced CT of the abdomen

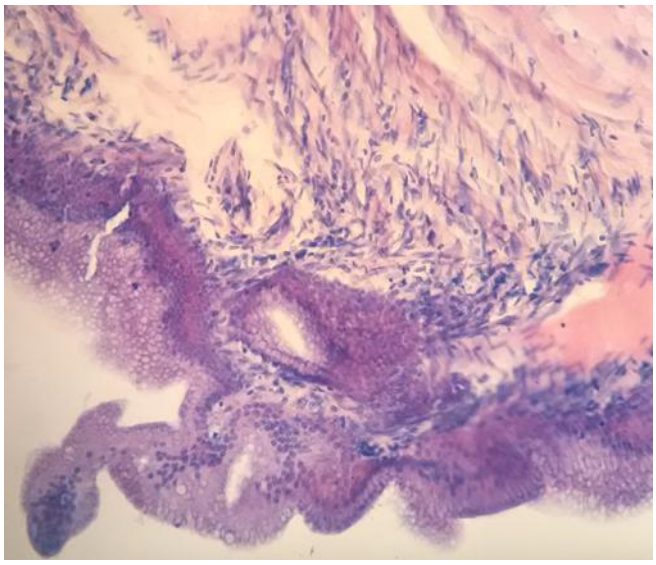

Figure 2. Pathological examination of the cyst

Discussion

2.1 Pathogenesis

Intestinal cyst is a very rare congenital malformation—its pathogenesis is still unclear. WHO defined it as a cystic wall that has an epithelium similar to the gastrointestinal tract which is able to secrete mucus. It is a rare congenital malformation derived from ectopic embryonic residual tissue of the foregut during embryonic development[1]. Most researchers believe that separation barrier of the neural and gastrulation tubes during the third week of embryonic development lead to the evolution of residual or ectopic tissues. It could be caused by indistinct embryonic primordia during the embryonic development process[2]. Retroperitoneal cysts are even more rarely found. Most researchers believe that many are diverticulum outgrowths from the intestinal wall during embryonic intestinal development. Each diverticulum falls from the intestinal wall in between the mesentery or retroperitoneum, before developing into intestinal cysts containing layers of intestinal tissues[3].

2.2 Preference of age and location of intestinal cyst occurrence

Intestinal cysts can occur at any site, but it mostly occurs within the spinal canal, brain, and mediastinum—rarely does it occur in the abdomen. It is usually prevalent among children and adolescents, while occurrence rates for males are higher than in females[1]. Differing from intestinal cysts in the spinal canal or brain, intraperitoneal cysts can occur at a later age. This is because the volume of the abdominal cavity is larger and abdominal organ activity is higher than the spinal canal or brain. Therefore, the corresponding symptoms caused by cyst oppression of the surrounding tissues can appear later[3]. The patient in this case study was a 49-year-old female with an intestinal cyst located at the peritoneum. She came to the hospital for treatment when she felt pain and discomfort after the cyst had oppressed the intestinal and abdominal walls. Signs and symptoms appeared later.

2.3 Clinical manifestations

Clinical manifestations of retroperitoneal cysts may vary depending on the shape, size, and location of the cyst. Clinical manifestations of the mass would affect the corresponding parts[4]. Symptoms would not be apparent at an early stage; it would appear after the oppression of adjacent organs due to an increasing volume of the cyst. Often, the observed symptoms are abdominal and lumbosacral pain. Initially, patients may experience nausea, vomiting, abdominal distension, other gastrointestinal non-specific symptoms, and painless abdominal mass. For some cases, disease progression may cause symptoms such as intestinal obstruction, intussusception, obstruction of the urinary tract, *etc*.[3]. In addition, some inner parts of the cysts would contain gastric mucosa that can secrete large amounts of hydrochloric acid, which can cause ulcers, bleeding, perforation, *etc.* on the cyst itself, and on the adjacent tissues and organs[5,6]. The patient experienced a gradually increasing painless mass in the lower left abdomen. She felt pain and discomfort after some time, while other specific clinical manifestations were not observed.

2.4 Diagnosis and differential diagnosis

There are no specific laboratory tests and imaging examinations involved in diagnosing retroperitoneal cysts[4]. The use of B-ultrasound, CT, magnetic resonance imaging (MRI), etc. could assist in identifying the tumor location, size, scope, relationship with adjacent organs, and determine its nature; CT scans especially can confirm the location of the cyst and provide the basis for developing treatment programs[7,8]. Diagnosis of the disease depends on its pathological examination, bearing the characteristics of a thick bladder wall. The outer layer consists of fully developed smooth muscles and fibrous connective tissues, while the inner layer is made up of intestinal epithelium. Intestinal ciliated cells

secrete mucus, while intestinal atresias continue to secrete cystic fluid causing the cyst to gradually increase in size. Carinoembryonic antigen (CEA) test results can return positive[2,9,10].

Signs and symptoms of retroperitoneal cysts are not typical and are clinically rare; therefore, it could be easily misdiagnosed as other diseases. It should be distinguished with other cysts such as retroperitoneal stromal tumor, cystic teratoma, pancreatic cysts, pancreatic cystadenoma, pelvic tumors, kidney tumors, *etc*.[3,8]. Among female patients, it should also be differentiated with ovarian cancer, uterine cancer, and other gynecological diseases. It was more difficult to diagnose the patient in this case study before surgery. By compiling results from laboratory examinations, multi-disciplinary consultation comments, followed by complete laparotomic resection of the cyst, and pathological diagnosis; it can finally be identified.

2.5 Treatment method

The first choice of treatment for retroperitoneal cysts is surgical excision[11]. The patient should be treated surgically after diagnosis, in order to avoid ileus, intussusception, urinary tract obstruction, ulcer of the surrounding organs, bleeding, perforation, and other complications. The choice of surgical approaches need to be determined based on the location of the cyst—complete resection of the cystic wall is important[4]. The patient in this case study underwent a complete excision of the cyst and given full support and treatment after the surgery. She was discharged after she fully recovered.

Conclusion

Retroperitoneal cyst is a very rare congenital malformation—its pathogenesis is still unclear. It mostly occurs in adults with a late onset of clinical symptoms; indicated by clinical manifestations of the mass affecting the corresponding areas. Diagnosis is difficult and the final diagnosis would depend on pathological examinations. The preferred treatment is complete surgical excision of the cyst, of which the disease prognosis is good.

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