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Laparoscopic Resection of a Primary Giant Retroperitoneal Cyst : A Case Report

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Abstract **Primary retroperitoneal cystic tumors are extremely rare, and the histogenesis remains uncertain. Traditionally, transabdominal laparotomy and enucleation of the cyst is the treatment of choice.**

This paper presented a case of 66-year-old woman in whom a primary retroperitoneal cystic mass 20 cm in diameter was successfully resected through the use of laparoscopic technique.

Pathological examination revealed a benign retroperitoneal cyst. The patient had prompt and uneventful recovery. Prevention of cystic fluid spillage during laparoscopic manipulation is important especially when the pathology of retroperitoneal cyst is unclear at the time of surgery.

We reported herein the case of 66-year-old woman in whom laparoscopic resection of a primary retroperitoneal cyst was successfully performed. Establishing preoperative diagnosis of this type of lesion is very difficult. However, some authors suggested that cytological examination and carcinoembryonic antigen (CEA) levels of the cystic fluid may be useful. Although laparoscopic resection of this tumor may provide a useful alternative with better recovery and lower postoperative morbidity, it is recommended that complete enucleation be performed through an open laparotomy if malignancy is seriously suspected prior to the operation.

Case Report

A 66-year-old Thai woman was admitted to Ramathibodi Hospital on June 26, 2002, with postprandial fullness for 5 months duration. She had hysterectomy for postpartum bleeding since 1980.

Physical examination revealed a distended abdomen with a huge cystic mass occupying nearly the entire abdomen and a well-healed lower mid-line surgical scar. Per vaginal examination showed no remarkable finding. Abdominal CT revealed a 20-cm diameter homogeneous cystic mass occupying nearly the entire abdominal cavity (Figure1).

The preoperative diagnosis of a huge mesenteric cyst was made and laparoscopic excision of the tumor was performed on June 26, 2002. The findings at laparoscopy revealed a large, well demarcated retroperitoneal cystic mass that appeared to originate independently along the mesenteric aspect of the ascending colon without any apparent connection with adjacent structures. Both ovaries were surgically absent.

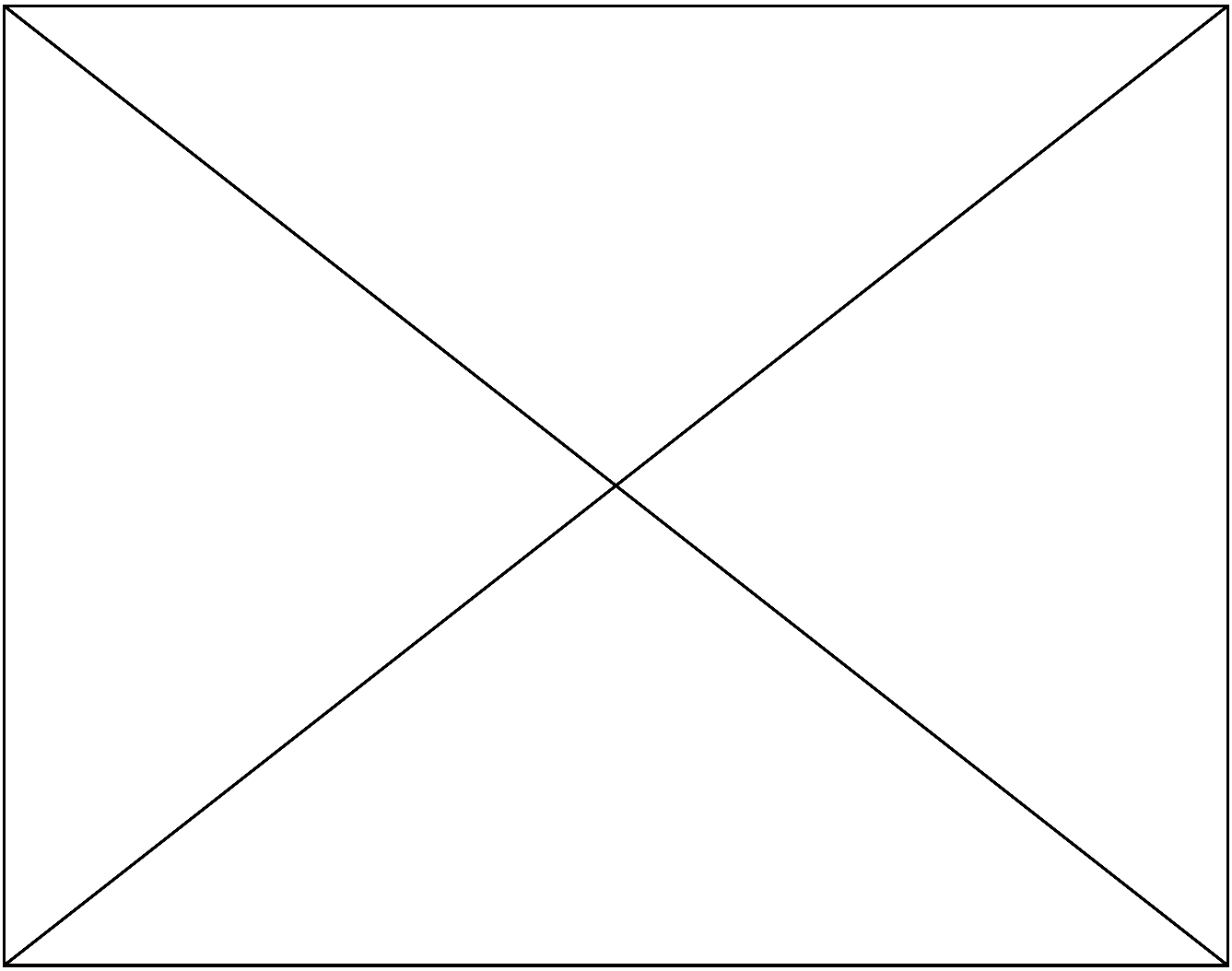

Fig. 1 Computerized tomography images showing the huge thin-walled cyst occupying the lower abdominal cavity with massive displacement of the abdominal and pelvic organs.

Then a purse-string suture was placed on the cystic wall to prevent spillage and approximately 6,000 ml of transparent, clear cystic fluid was drained by laparoscopic suction. After decompression, the entire cyst was completely enucleated from the mesocolon, abdominal wall, and pelvic wall. The surgical specimen was removed through the 11-mm umbilical port inside a sterile plastic bag. The patient had an uneventful postoperative course and left the hospital in three days. Upon her last follow-up in October 2003, she had been doing well.

Pathology

Gross pathological examination of the specimen (Figure 2) revealed that the large cystic mass from retroperitoneal cavity was completely removed. It measured $18.5 \times 10.5 \times 2.5$ cm in dimensions and 0.6 cm to 0.1 cm in thickness. The external surface showed brownish yellow color with several areas of dark brown spots. There was one smaller daughter cyst measuring $4 \times 3 \times 3$ cm. On section, the inner surface of the cyst was largely smooth with brownish spots of thicken mucous materials.

Microscopic findings revealed the cyst wall composed of stromal cells and fibromuscular tissue. The lining epithelium consisted of predominantly single cell layer with focal pseudostratification of benign ciliated columnar epithelium and focal cuboidal cells without mucin producing cells (Figure 3). There was no cellular atypia. No ovarian stromal tissue was identified. Special stain for mucin (mucicarmine) was negative. The mucous appearance seen on gross

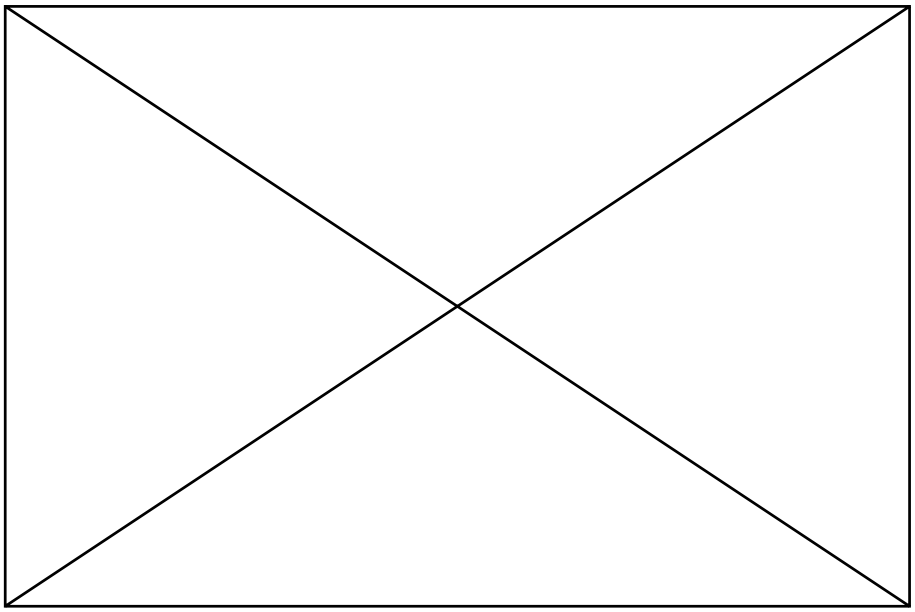

Fig. 2 Photograph of the specimen of giant thin-walled retroperitoneal cyst that was completely removed.

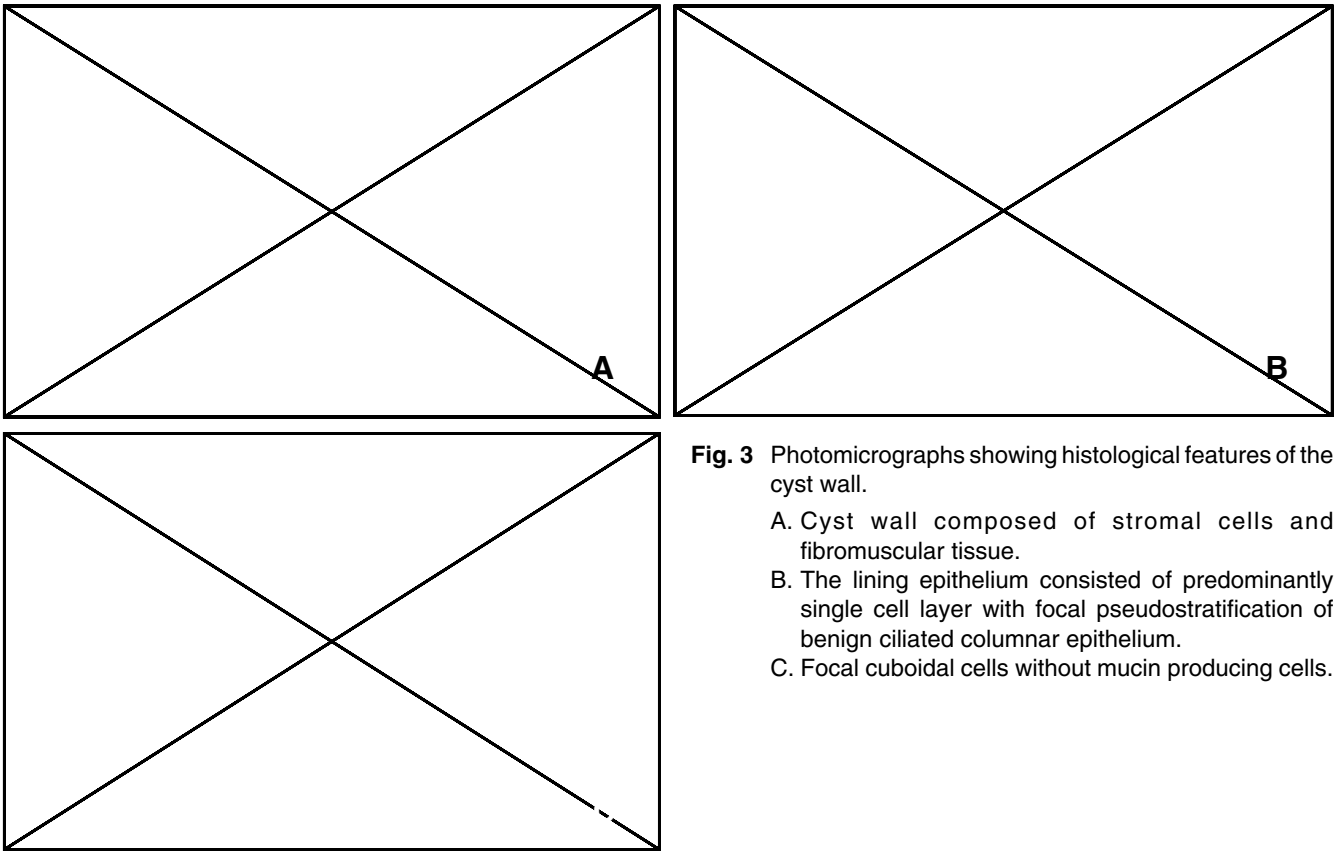

Fig. 3 Photomicrographs showing histological features of the cyst wall.

A. Cyst wall composed of stromal cells and fibromuscular tissue.
B. The lining epithelium consisted of predominantly single cell layer with focal pseudostratification of benign ciliated columnar epithelium.
C. Focal cuboidal cells without mucin producing cells.

examination was some tenacious and thicken protein precipitation of the cyst fluid. The definitive diagnosis was benign retroperitoneal cyst of Mullerian type.

DISCUSSION

Primary giant retroperitoneal cyst is a rare retroperitoneal lesion. In fact, since Bassini's initial description in 1889 of a lesion with similar characteristics,[1] to our knowledge, no more than 20 such cases have been documented in the literature.[2,3] The histogenesis remains unclear; however, two hypotheses[5] have been proposed to explain the pathogenesis of retroperitoneal cyst. First, this tumor may arise from ectopic ovarian tissue[3,5] although the presence of ovarian tissue is rarely documented. Also there is no ovarian tissue recognized in this case because of hysterectomy and bilateral oophorectomies 22 years ago. The second is secondary Mullerian system from ectopic endometrial tissue or endometriosis transplanted during pelvic surgery.[3,5] This case had previous hysterectomy 22 years ago, so the second hypothesis is the most likely pathogenesis.

Although some authors have proposed that aspiration is a good method to delineate the nature of the cyst, but cytology of the aspirated fluid frequently fails to reveal the cell type of the epithelial cells of the cyst lining. The CEA level of the aspiration may be measured as reported by Motoyama et al[6] in 1994 who demonstrated elevation of the CEA level in two patients with retroperitoneal mucinous tumors.

Traditionally, exploratory laparotomy with complete enucleation of the cyst is usually indicated for both diagnosis and treatment. However the advancement of laparoscopic surgery offers the surgeon a useful option to remove retroperitoneal cystic lesions, with further advantages including less postoperative pain, lower morbidity, shorter hospitalization and earlier recovery.

Laparoscopic excision of extremely large retroperitoneal cystic lesion may associate with some technical problems. Establishing a precise preoperative diagnosis, though difficult, should be attempted whenever possible. When malignancy is suspected, then laparoscopic excision may not be appropriate as decompression of the cystic mass is inevitable before specimen removal. Duing laparoscopic excision, it is important to prevent spillage of the cystic fluid and avoid trimming of the cystic wall to minimize the incidence of peritoneal implantation and tumor recurrence, especially when the pathology of the cyst is still unknown. However, laparoscopic resection of benign giant retroperitoneal or even an intra-abdominal cyst is certainly feasible and useful.

REFERENCES

1. Hansmann GH, Budd JW. Massive unattached retroperitoneal tumors. An explanation of unattached retroperitoneal tumors based on remnants of the embryonic urogenital apparatus. Am J Pathol 1931; 7: 631-7.
2. Handfield- Jones RM. Retroperitoneal cysts: their pathology, diagnosis, and treatment. Br J Surg 1924; 12: 119-134.
3. De Peralta MN. Benign retroperitoneal cysts of mullerian type. A clinicopathologic study of three cases and review of the literature. Int J Gynecol Pathol 1994; 13 : 273-8.
4. Donnelly BA. Primary retroperitoneal tumors. A report of 95 cases and a review of the literature. Surg Gynecol Obstet 1946; 83: 705-17.
5. Rosai J. Benign retroperitoneal cysts, chapter 26, Peritoneum, retroperitoneum, and related structures. In: Ackerman's Surgical Pathology. 8th ed. Mosby; 1996. p. 2155.
6. Motoyama T, Chida T, Fujiwara T, Watanabe H. Mucinous cystic tumor of the retroperitoneum. A report of two cases. Acta Cytol 1994; 38: 261-6.