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CASE REPORT

Drainage by Direct Aspiration and Resection of a Giant Ovarian Cyst Through a Laparoscopic Minimal Invasive Procedure

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Abstract
Giant ovarian cysts are a rare and mostly benign finding. The use of the laparoscopic approach versus the open approach for management is still highly controversial and drainage prior to pouch resection has only been reported in a few articles. We present in the following report an 18-year-old woman who attended the outpatient consulting room for diffuse, mild, sporadic abdominal pain associated with progressive abdominal distention for 1 year. In the past 3 months she reported nausea, early fullness, and constipation. Thus, a minimally invasive procedure was performed through an incision and subsequent aspiration by direct visualization with subsequent extraction of the sac by laparoscopy with three ports with favorable results and evolution. When there are no clinical signs of malignancy and tumor markers and images indicate signs of benignity, the laparoscopic approach becomes a promising option in the surgical management of these patients, providing the patient with a favorable cosmetic recovery accompanied by shorter hospital stays and without complications.

Keywords Laparoscopy · Giant · Ovarian cysts

Background

The giant ovarian cyst in adolescents is a rare gynecological pathology with an incidence to date not reported. The voluminous and most common forms are serous-type cystadenomas with 75% of cases being benign in a similar proportion [1].

The definition of a large ovarian cyst has not yet been standardized; some authors define it as a large cyst that is greater than 10 cm in diameter measured by preoperative imaging study and/or that cyst located above the umbilicus observed on inspection and abdominal palpation. Likewise, a giant cyst is considered one with a diameter greater than or equal to 15 cm [1, 2]. The form of surgical management is still controversial. Although laparoscopy is the gold standard of management for small cysts, some authors recommend laparotomy management for cases of large cysts or with criteria of malignancy due to space limitations or due to the probability of rupture of the cystadenoma and exit of malignant cells [2].

Laparoscopy currently occupies a fundamental place in the management of surgical abdominal pathologies. Some lines of research recommend its use due to lower morbidity, reduction of invasion, reduction in hospitalization days, rapid return to daily activities, improvement in fertility, reduction in pelvic pain, and favorable aesthetic recovery [2, 3]. However, few cases have been reported about the benefit of drained management followed by laparoscopic excision compared with laparotomy or the isolated laparoscopic technique [3, 4].

Case Presentation

An 18-year-old woman, single, with no history of sexual intercourse and with menarche at 11 years of age, went to the outpatient consulting room of the General Surgery Service, reporting that for a year she has had mild and sporadic diffuse abdominal pain associated with progressive abdominal

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distention. Three months before the admission, she reported having nausea, a feeling of early fullness, and constipation. She had no history of illnesses, allergies, or previous surgeries. On physical examination, her abdomen was globular, tense, and not painful on palpation. The rest of the exam are without alterations. Pulse rate (PR): 70 bpm; blood pressure (BP): 120/80 mmHg; respiration rate (RR): 18 BPM; oxygen saturation (SpO_2): 100%. Weight: 49 kg; size: 152 cm; body mass index (BMI): 21.21 kg/m^2.

A complete analysis was requested showing as results hematocrit (Hct): 39%; blood group: B; rhesus factor (Rh): positive; glycemia: 73 mg/dl; prothrombin time (PT): 13.7 "; international normalized ratio (INR): 1.12; partial thromboplastin time (PTT): 33 "; CA 125: 2 U/ml, AFP 1 UI/ml, CEA 0 ng/ml, and liver profile within normal values. An abdominal computed tomography (CT) scan was taken, which was consistent with a supergiant abdominopelvic cystic mass that covered the entire peritoneal cavity with upward displacement of all intra-abdominal structures (Fig. 1).

Surgical Technique

After general anesthesia, an umbilical incision was made, dissecting the subcutaneous cell, fascia until reaching the peritoneum, exposing the cystic wall immediately. Under direct vision, a cystic wall was punctured and then a total of 7200 cc of clear fluid was aspirated. Then a 10-mm trocar (Fig. 2A) was inserted through the umbilical incision and the laparoscope there, which allowed visualizing the peritoneal cavity, identifying an empty mass whose origin was in the right ovarian region (Fig. 2B); we inserted two additional 5-mm trocars in the left and suprapubic flank. We excised the empty cystic mass respecting the ipsilateral fallopian tube and the ovary. The left ovary and fallopian tube were examined and found to be normal. There was no free fluid in the peritoneal cavity. Externally, a 30 × 30-cm empty cystic bag was observed (Fig. 3).

The surgical specimen was sent to histopathology. The pathological anatomy confirmed the simple benign serous

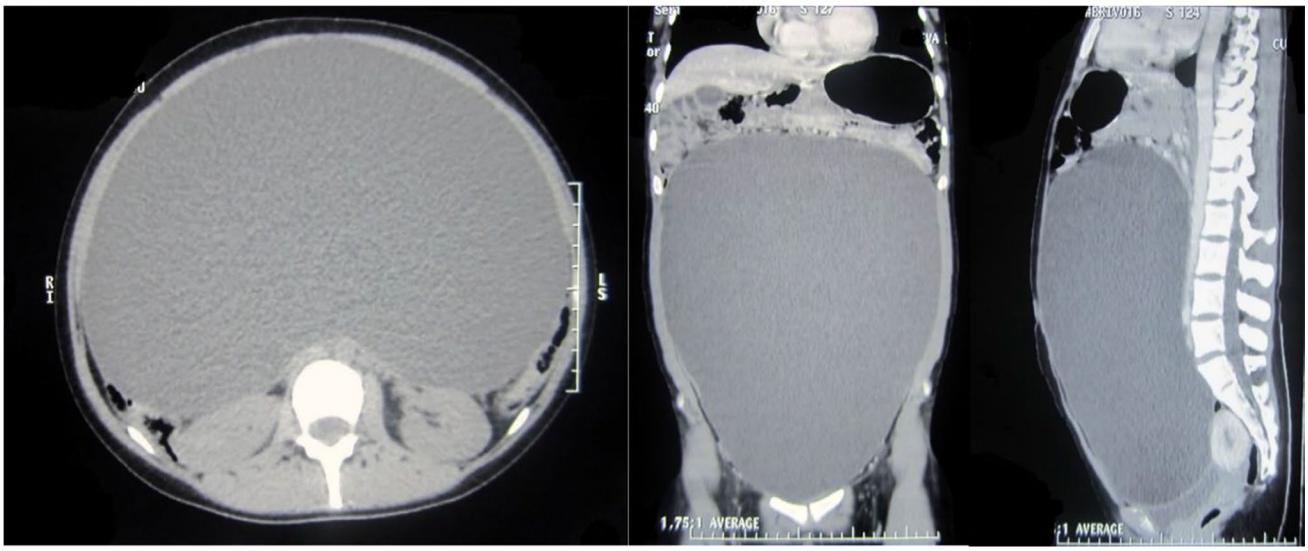

Fig. 1 Computerized axial tomography where the giant ovarian cyst can be seen in the transverse, sagittal and coronal sections covering the entire abdominal cavity

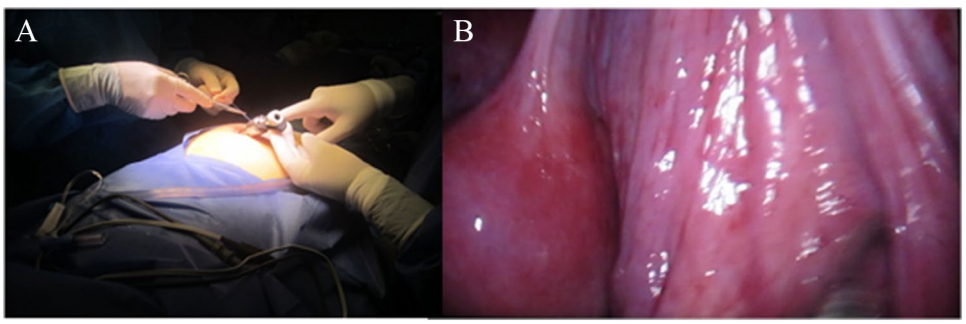

Fig. 2 **A** Placement of the 10-mm trocar at the umbilical level where the cyst was previously drained. **B** Laparoscopic view of part of the uterus, right fallopian tube, and suspended empty right cystic wall

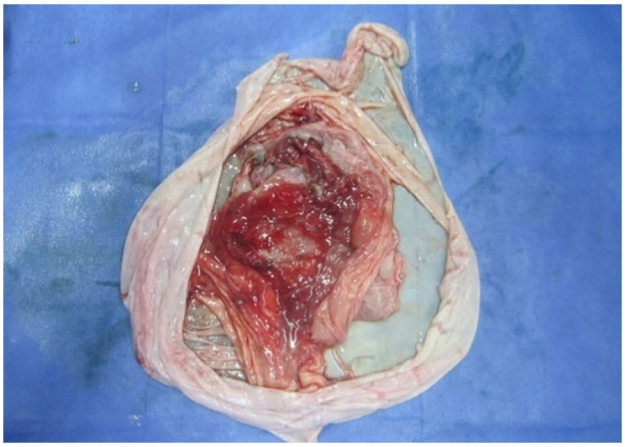

Fig. 3 Vacuous ovarian cyst removed

cyst of the ovary. The postoperative period was uneventful and the patient was discharged on the second day after surgery. She came to the control a week and a month after surgery without any discomfort.

Discussion and Conclusions

Giant-type ovarian cysts are extremely rare due to their early detection thanks to available imaging tests. Most of these have benign histopathological characteristics [5]. During the first stages, they are asymptomatic, eventually presenting gastrointestinal symptoms such as nausea, abdominal pain, feeling of fullness, bloating, abdominal distension, and in many cases massive ascites when it is not treated in time, due to the large dimensions and the compressive effect that these can achieve [2, 5].

Images play an important role in diagnosis. Pelvic and/or transvaginal ultrasound are extremely useful auxiliary imaging methods in the diagnosis of small ovarian masses [6]; however, in the case of a giant ovarian cyst, they go into the background. Computed tomography (CT) and magnetic resonance imaging (MRI) are the best methods for the evaluation of large cysts [7]. Histopathologically, serous cystadenoma is the most frequent microscopic finding. Other benign serous tumors include cystadenomas, adenofibromas, and superficial papillomas; they represent approximately 25% of all benign ovarian tumors and 58% of all serous ovarian tumors [8]. Reviews of the literature and other reported cases with lesions of more than 20 kg confirmed a low rate of malignancy [6].

The review of the available literature led us to identify three different surgical procedures that have been reported in the management of patients with giant ovarian cysts. These include: 1. Conventional exploratory laparotomy with or without hysterectomy, oophorectomy or salpingectomy; 2. drainage plus laparoscopy through three ports 3; drainage plus laparoscopy through one port [7, 9, 10]. For a long time, open midline laparotomy was the standard surgical procedure for ovarian masses, however, laparoscopy has now replaced it thanks to the advantages compared to open surgery, leaving the previous one only in the context of a suspicion of malignant neoplasm [6, 11], or in the presence of complications such as obstruction, perforation, or hemorrhage.

The advantages for which laparoscopic excision is preferred in the management of the giant ovarian cyst that extends above the navel are mainly: less invasiveness, less postoperative pain, favorable cosmetic evolution, shorter hospital stay, less formation of adhesions, less time operative, less estimated blood loss, less change in hemoglobin levels, less report of tumor effusions [3, 12], and the latter, when the procedure of drainage and aspiration of the content is carried out before the removal of the cystic sac.

Although the evidence is still limited, the techniques reported by laparoscopy include decompression of the cyst prior to removal of the sac. This is with the intention of facilitating the manipulation of the cyst and the ovary and thus preventing their perforation or dissemination to the abdominal cavity and preserving their reproductive capacity, hormonal function, and an aesthetic appearance in a young woman.

Finally, the management approach will depend on multiple factors. Among them: the size of the cyst, equipment, and the level of experience of the surgeon. Although it is true, some lines of research affirm that aspiration of the cyst content should be avoided due to complications that may appear such as infection, bleeding, rupture of the cyst, or increased risk of peritoneal adhesions. The vast majority only recommend that laparoscopy or drainage should not be performed when malignancy is suspected due to the risk of cancer cell dissemination [10, 13, 14].

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Author Contribution Caballero A, Lau V and Lozano K compiled the information in the manuscript.

Zavaleta C and Muente A were in charge of the correction of the language and writing.

Declarations

Ethics Approval and Consent to Participate Approved.

Conflict of Interest The authors declare no competing interests.

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