

# Laparoscopic ovarian cystectomy for a huge ovarian cystic mass : A case report and review of literature

## Case Report

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## ABSTRACT

**Introduction:** Huge ovarian cystic lesions are rarely encountered in modern practice due to the marked development in health care services and technology on both the diagnostic and therapeutic levels, in addition to the continuous rise of awareness of women's health issues. Laparoscopic management seems to be the ideal line of intervention.

**Case Report:** An 18-year-old, virgin female, was presented with abdominal distension. Physical examination and ultrasonography revealed a huge pelvi-abdominal cystic mass. A laparoscopic ovarian cystectomy was performed. A follow up for 12 months and was unremarkable. The technique of the operation as well as tips in such a heroic surgery were described.

**Conclusion:** Huge ovarian cysts might be successfully and safely treated by laparoscopic excision. There seem to be no size-related limits for laparoscopic intervention for ovarian cysts; however, experience is a crucial factor.

**Key Words:** Huge, laparoscopy, ovarian cyst.

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## INTRODUCTION

Ovarian cysts are common and share in many presentations at the gynecology clinic regardless of the patient's age. They mostly follow a benign course; however, some might grow to reach considerable sizes that make surgical intervention inevitable. Huge ovarian cysts are rare in modern practice due to the outstanding development in both diagnostic and interventional technology. Laparoscopic approach is preferred over laparotomy in terms of better less blood loss, less pain, shorter hospitalization time and better cosmetic outcome<sup>[1]</sup>. Limitations of laparoscopic route are mainly related to the size of the mass that if it is above the level of the umbilicus (i.e. larger than 24 weeks of gestation-uterine size), it would make laparoscopic intervention difficult and time-consuming<sup>[2]</sup>. We present a case of laparoscopic management of a huge left ovarian cyst. To our knowledge, only few cases with similar sizes, that were successfully managed by laparoscopy, were reported.

## CASE REPORT

An 18-year-old virgin, was referred to our tertiary Gynecologic Endoscopy Center, with huge abdominal distension, developing gradually over the past year, causing pelvic heaviness and disfigured abdomen. She had no past medical or surgical history.

Vital signs were normal. Abdominal examination suggested a painless pelvi-abdominal cystic mass, mostly to the left side, reaching up to the left costal margin and a few centimeters below the xiphisternum in midline. Laboratory investigations were all normal. Serum CA-125 was 20 U/ml.

Ultrasonographic abdominal scan revealed a huge, pelvi-abdominal cyst (size: 27 x 16 x 11 cm) reaching up to the epigastrium, with a single, serous fluid-filled loculus. No papillary, or solid parts nor ascites were detected. (Fig. 1). Right ovary was seen normal. A picture of suspected left ovarian benign cystic neoplasm.



Fig. 1: Pre-operative ultrasound image of the cyst.

The patient was counseled on the risks and benefits of laparoscopic intervention in such a case and was scheduled

for a laparoscopic procedure by the first author. General anesthesia and endotracheal intubation was used. Veress needle was inserted 3 cm below the costal margin at the mid-clavicular line (Palmer's point) for a very short distance deep to the peritoneum, with caution not to hit the mass, to ensure adequate pneumoperitoneum. A five-mm trocar was then inserted at the same point of entry. A zero degree, 5-mm endoscope was placed after 12 mmHg pneumoperitoneum was established. The cystic lesion was seen extending from the pelvis to the diaphragm, measuring 28 x 15 x 15 cm. Three ancillary trocars were inserted : A 10-mm at the umbilicus, a 5-mm to the left and right of the umbilical port. This was based on the assumption that after aspiration of the fluid content, the cyst size will regress to the level below the umbilicus. After exploring

the mass, the liver, omentum and stomach and taking free fluid samples for cytology, the midline trocar was used to puncture the cyst, then a suction cannula was introduced through the same port to aspirate the fluid content which was about 6 liters of straw-colored clear fluid, a sample of which was sent for cytology. The cyst was explored by the scope revealing nothing suspicious then widening the incision was done by scissors. Excision of the cyst wall (stripping technique) was undertaken using traction and counter traction by 3 good-grip instruments. Intracorporeal suturing of the ovarian tissue by Vicryl 0 suture. The cyst wall was retrieved via the midline 10-mm port, without the need of a power-morcellator. The procedure duration was 98 minutes.

**Tips for surgery: (Fig. 2)**



**A:** Entry: huge cyst



**B:** Direct trocar puncture



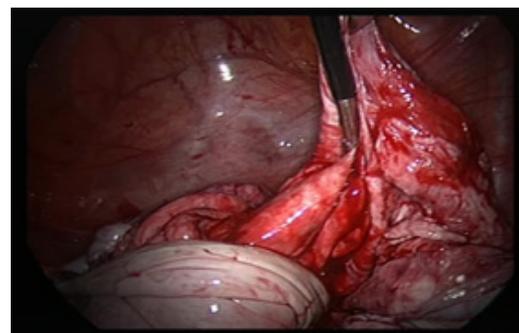
**C:** Suction from within



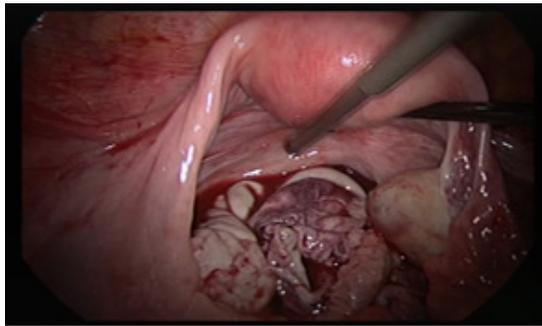
**D:** Starting dissection



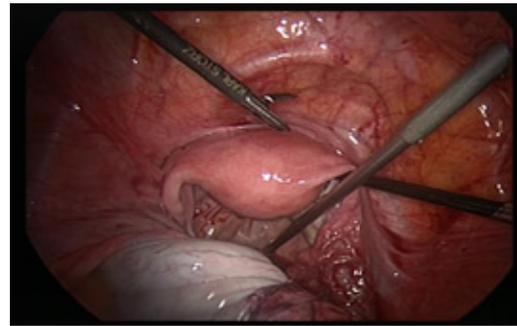
**E:** Continuing dissection (stripping)



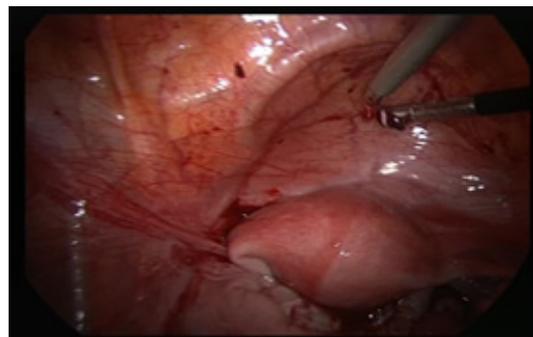
**F:** Cyst wall almost out



G: Left ovary back to pelvis



H: Cleaning by suction / irrigation



I: Final view

Fig. 2 (A-I): Laparoscopic surgical steps.

A 30-degree scope would have been a better option for huge cysts; however an experienced camera-driver is needed.

Insertion of the Veress needle should be sensible and slow, for its inadvertent introduction into the cyst would not only prevent gas insufflation and hence delay the procedure, but it would also lead to leak of fluid content into the peritoneum with potential risk of spread.

Three ancillary trocars should be used, at least one of which should be 10 mm. the level of the ancillary ports should be at or above the line of the umbilicus and should be planned according to the estimated size of the cyst after aspiration of the contents.

The best way to minimize recurrence is the stripping technique. Choosing the right plane for cystectomy depends on the choice of the right, good-grip, instruments as well as readjusting the 2 instruments at shorter distances as we proceed in traction and counter traction.

After excision of the cyst, The ovary may be returned to its normal anatomical place and observed irrigated with normal saline solution. Only active bleeding may be controlled by electrosurgery. The ovary usually shrinks and shows a good self-hemostatic potential.

Suturing the ovarian tissue in such big cysts may be necessary; however, a single purse string suture to pull it all together would be enough.

Leave an 18 Fr. drain for 6 – 12 hours.

The postoperative course was uneventful. There were no complications. The patient was discharged after 24 hours. Histopathology revealed left ovarian benign serous cystadenoma. Cytology for peritoneal fluid as well as cystic fluid aspirates was negative.

Amazingly, the left ovary restored its normal size and ultrasonographic texture after 1 month of surgery. Follow up at 3, 6 months and at 12 months did not prove any suspicious clinical, imaging, laboratory or biochemical markers changes. The young lady is healthy and happy

## DISCUSSION

Huge ovarian cysts are rare and management of such cases by laparoscopy is difficult and challenging<sup>[3]</sup>. The largest ovarian tumor documented weighed 149 kg and removed by Spohn in 1905 by laparotomy<sup>[4]</sup>. Ishikawa H *et al.* reported a huge endometriotic cyst managed by laparotomy in 1997, however it was smaller in size than the one we are currently reporting<sup>[5]</sup>.

The etiology of ovarian cysts varies. Ovarian cysts may be benign or malignant. The non-neoplastic ovarian cysts are usually of functional origin. The benign cysts are most frequently endometriotic or simple cysts. Serous and mucinous cystadenomas usually arise from neoplastic changes in germinal epithelium. The most common cystic ovarian neoplasms are serous tumors, 60% of which are benign, 25% are malignant and 15% are

borderline cases. Clinically, patients with serous tumors present with huge abdominal mass with size reaching even up to 40-45 cm<sup>[6]</sup>. Most of bigger cysts are benign or of low grade malignancy<sup>[5,6]</sup>. Small ovarian cysts are usually asymptomatic and found incidentally clinically or on ultrasound. They may cause pain or discomfort, digestive symptoms like nausea and vomiting<sup>[9]</sup>. Giant cysts lead to increase in intraabdominal pressure which may compromise cardiac and respiratory functions. It may cause supine hypotension secondary to compression of the inferior vena cava and aorta<sup>[6]</sup> which was not reported in the current case<sup>[5]</sup>. Ultrasonographic imaging is important in diagnosis. It confirms the ovarian origin of the mass and provides information on cystic nature and wall structure<sup>[10]</sup> and can distinguish between benign and malignant tumors. Anechoic fluid and thin walls denote a simple cyst, which in turn signifies a benign tumor. A malignant cyst is characterized by thick septations and solid components in the mass<sup>[11]</sup>. Tagliabue F, reported a similar huge left ovarian cyst with laparoscopic management, however, their management entailed extraction of the cyst through Pfannenstiel incision with partial aspiration of the cyst, which was not our choice of management, as we preferred the entire management to be by laparoscopy<sup>[12]</sup>. A. Alobaid reported a similar cases, however, the entry was via open laparoscopy and the cases underwent oophorectomy, unlike our management and approach in the present case<sup>[13]</sup>.

Persistence of the cyst beyond 2 months may justify surgical intervention; however, the majority of the ovarian cysts regress spontaneously. Symptomatic or larger than 7 cm or complex cysts are other indications for surgery<sup>[13]</sup>. Management of giant cysts has traditionally required a midline laparotomy<sup>[14]</sup>. This can be accomplished by enbloc removal of the tumor, with controlled drainage of the tumor fluid to decrease the risk of spilling malignant cells<sup>[15]</sup>. Recently, Laparoscopy became the preferred approach for ovarian cysts with sizes not exceeding the umbilicus<sup>[16]</sup>, but only few cases have been reported. There is a limit in the working space during laparoscopy that we could overcome by aspirating the fluid content within the cyst through the port as described by Salem HA, who reported laparoscopic management of ovarian cysts reaching the level of the umbilicus but not up to the size we are reporting<sup>[17]</sup>. The most significant risk of drainage is the possibility of contents spillage in the peritoneum with the subsequent seeding<sup>[18]</sup>. Although several authors stated that giant ovarian cysts are usually benign, there have been reports of malignant tumors or tumors of low malignant potential<sup>[19, 20]</sup>. The excision of giant ovarian cysts by laparotomy requires larger incision.

The literature, to our knowledge, did not define a maximum size of a cyst to be as contraindication for laparoscopic intervention as it is mainly dependent on the experience of the operator. Conservative surgery is always preferred in young females at reproductive age group<sup>[21,22]</sup>.

## CONCLUSION

Huge ovarian cysts might be successfully treated by laparoscopic excision. To our knowledge, not many ovarian cysts of that size, managed by laparoscopy, has been reported in the literature. There seem to be no size-limits for laparoscopic intervention for ovarian cysts; however, experience is a crucial factor.

## CONFLICT OF INTEREST

There are no conflicts of interest.

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