

# Laparoscopic Management of Giant Ovarian Cyst

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## ABSTRACT

**Introduction:** Giant intraabdominal cysts are very rare, and conventional treatment is full midline laparotomy. We present a case of complete laparoscopic extirpation of a giant ovarian cyst.

**Case Report:** A 16-year-old female presented with progressive abdominal distension for 1-year along with early satiety, constipation, and significant weight loss. A CT scan showed a giant multiseptated cystic mass in the abdomen measuring 22.5x30x40.5 cm with significant mass effect causing intrahepatic ductal dilatation and right hydronephrosis. The mass was decompressed via a mini-laparotomy in a controlled fashion, removing 15 liters of fluid. A laparoscopic left oophorectomy was then performed. The postoperative course was uneventful, and the patient was discharged home on postoperative day 1 with minimal pain and tolerating a regular diet. Pathology examination revealed a mature cystic teratoma.

**Conclusion:** Giant ovarian cysts can be managed laparoscopically when a normal tumor marker profile and benign imaging appearance exclude the possibility of malignancy.

**Key Words:** Giant ovarian cyst, Teratoma, Laparoscopy, Adolescent.

## INTRODUCTION

Giant intraabdominal cysts in adolescents are very rare entities and arise most commonly from the small bowel mesentery, the omentum, or the ovary. Although they are almost always benign, full midline celiotomy has been the conventional surgical approach for resection. We present a case of complete laparoscopic extirpation of a giant ovarian cyst.

## CASE REPORT

A 16-year-old African American female presented to us with progressive abdominal distension over 1 year. She had no abdominal pain, nausea, or emesis. She had early satiety, constipation, and significant weight loss. On physical examination, she appeared cachectic with a markedly distended, very tense, nontender abdomen along with dilated collateral veins on the chest wall and upper thighs (**Figure 1**). The remainder of her physical examination was unremarkable.

CT scan of the abdomen and pelvis showed a giant multiseptated cystic mass in the abdomen measuring 22.5x30x40.5 cm (**Figure 2**). This cyst had a significant mass effect on the adjacent organs, causing mild intrahepatic ductal dilatation and severe right-sided hydronephrosis. A laboratory workup overall was normal, including b-HCG, CEA, AFP, and CA 19-9, except for an elevated CA 125 (152 U/mL). Karyotype was 46XX. A bowel preparation was performed, and the patient was taken to the operating room for laparoscopic management.

## METHODS

A 3-cm umbilical incision was made and carried down into the peritoneal cavity. A pursestring suture was placed in the cyst wall, then the cyst entered at the center of the pursestring and decompressed with careful attention to avoid spillage; 15 liters of murky brown fluid were aspirated. The cyst wall opening was closed, the midline fascia was partially closed, a Hasson cannula was introduced, and the abdomen was insufflated. Three additional operating trocars were inserted. The cyst was noted to be arising from the left ovary; the right ovary was grossly

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**Figure 1.** Patient on operating room table.



**Figure 2.** Computed tomographic scan of the abdomen showing the giant cystic mass along with the mass effect and right hydro-nephrosis.

normal. The left ureter was identified. The left round ligament was divided with electrocautery, and the leaves of the broad ligament were separated, opening the pelvic sidewall. A window was created below the infundibulopelvic ligament. The ovarian artery was divided with a Harmonic scalpel; then the dilated ovarian vein was clipped and divided. The fallopian tube was divided with an endoscopic vascular linear stapler. The cyst was still attached to the omentum superiorly, so the patient was placed in a reverse Trendelenburg position, and the omentum was dissected free by using a Harmonic scalpel. A remaining loculation required laparoscopic drainage,

and the cystic mass was removed through the umbilical incision.

## RESULTS

Operative time was 135 minutes. Estimated blood loss was minimal. The postoperative course was uneventful, and the patient was discharged home on postoperative day 1 with minimal pain and tolerating a regular diet. Pathology revealed a mature cystic teratoma (2851 grams) containing intestinal mucosa, smooth muscle, and mucinous cystadenoma.

## DISCUSSION

Giant intraabdominal cysts in children and adolescents may arise from different sources, including most commonly ovarian, gastrointestinal, urological, and lymphatic processes. Ovarian cysts are traditionally labeled as large when they are over 5 cm and giant or voluminous when they are over 15 cm; a better designation for giant cysts may however relate the size of the cyst to the size of the peritoneal cavity in these growing young patients.

Ninety percent of large ovarian cysts in children (simple or complex) will either decrease in size or resolve and may be safely followed with serial pelvic ultrasonography,<sup>1</sup> although some recommend cystectomy when the size is over 5 cm.<sup>2</sup> Giant ovarian cysts however always require resection, usually oophorectomy, because of the associated symptoms, the complications due to mass effect, the doubt about ovarian origin despite imaging studies, or for all of these reasons.

Management of these giant intraabdominal cysts has traditionally required a full midline laparotomy.<sup>3</sup> Minimally invasive surgical techniques have been applied to the management of these giant cysts, but only a few cases have been reported; all reported techniques include decompression of the cyst to allow for room to work, facilitate manipulation of the cyst and ovary, and prevent inadvertent perforation and spillage.

Salem reported an experience with 15 cases of large ovarian cysts reaching above the level of the umbilicus. All cysts were benign, and aspiration of the cyst fluid was done after puncture of its wall, then the cyst was removed as usual. No conversions and no other complications were recorded.<sup>4</sup> Nine cases were mucinous, and 6 were serous cystadenomas. Two additional cases of giant ovarian cysts, 21 cm and 22 cm, managed laparoscopically have been reported; one patient underwent prelaparoscopy cyst drainage with a suprapubic catheter followed by

laparoscopic cystectomy, the other had paracentesis performed during diagnostic laparoscopy, followed by laparoscopic removal of the cyst and left adnexa.<sup>5,6</sup>

To our knowledge, the 40-cm ovarian cyst reported on herein is the largest intraabdominal cyst managed laparoscopically reported to date. We suggest drainage of these cysts via a minilaparotomy, which allows for a more controlled approach to minimize spillage as compared with percutaneous techniques; in addition, prelaparoscopy decompression is necessary to allow establishment of pneumoperitoneum when these cysts become so voluminous.

Although slow-growing cysts that reach this giant size are almost always benign, suspicion of malignancy based on preoperative imaging and tumor markers should preclude this laparoscopic approach. As was the case in our patient, the origin of these giant cysts is very difficult to determine preoperatively. Decompression of the cyst followed by diagnostic laparoscopy will easily determine the source of the cyst, and laparoscopic techniques can still be used to manage the pathology at hand; laparoscopic management of giant mesenteric and omental cyst has been reported.<sup>7,8</sup> This approach should provide all the benefits of laparoscopic techniques including less pain, shorter hospital stay, in addition to a significantly better cosmetic result in these adolescent patients.

## CONCLUSION

Giant ovarian cysts can be managed laparoscopically regardless of the size of the cyst when a normal tumor

marker profile and benign imaging appearance excludes the possibility of malignancy.

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