International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kunnaiah A. Int J Reprod Contracept Obstet Gynecol. 2025 Jan;14(1):262-266
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20243965

Case Report

Management of giant complex multiloculated ovarian cyst in a young female through minimal invasive laparoscopic surgery-a case study

Anitha Kunnaiah*

Department of Obstetrics and Gynecology, Obstetrician, Yashoda Hospital, Hitech City, Hyderabad, Telangana, India

Received: 01 November 2024
Accepted: 03 December 2024

***Correspondence:**
Dr. Anitha Kunnaiah,
E-mail: Anithak11422@gmail.com

ABSTRACT

Giant ovarian cysts are tumors characterized by diameters exceeding 10 cm. In recent times, these cysts have become exceedingly rare, attributed to their early diagnosis and management, facilitated by advancements in imaging technology. A 24-year-old woman presented in the Gynecology Department with the complaints like abdominal distention with mild pain and unexplained weight gain. Her medical history included a previous laparoscopic cystectomy, on the right side. An ultrasound examination disclosed a significant abdominopelvic multiloculated cystic lesion. Blood tests showed that the levels of markers CA-125, CA 19-9, alpha fetoprotein, LDH and HCG were within normal ranges, indicating no signs of malignancy. This benign giant complex multiloculated cyst has been effectively managed by means of 4 port laparoscopic technique. In premenopausal women, the occurrence of ovarian cysts is notably prevalent, with the majority being benign and functional. These cysts can attain significant sizes. Ultrasound imaging may also lead to misdiagnosis, necessitating the employment of advanced imaging modalities like MRI. Persistent complex ovarian cysts measuring more than 10 cm in diameter, especially if they present with symptoms, warrant consideration for surgical intervention. The presence of progressive abdominal distension in younger women should prompt a heightened suspicion of an ovarian tumor, specifically one of the benign varieties, such as a mucinous cystadenoma. In spite of being non-cancerous, their significant size can lead to complications, potentially rendering their surgical excision a life-threatening procedure.

Keywords: Laparoscopy, Premenopausal, Multiloculated, Benign Ovarian cyst, Giant ovarian cyst

INTRODUCTION

The majority of abdominal cysts originate from the ovary, ranging from benign to malignant neoplasms, with their complexity varying from simple to functional. Giant ovarian cysts (GOCs) are tumors with diameters exceeding 10 cm or those that protrude above the umbilicus.[1] Reports of giant ovarian cysts, though rare, have been sporadically documented in the medical literature.[2] Ovarian cysts are typically asymptomatic in their early stages, only manifesting symptoms once they have reached significant sizes. As a result, they are frequently diagnosed at a later stage.[3] As the size of ovarian cysts increases, they may manifest symptoms such as abdominal, pelvic, or lumbar discomfort or pain, progressive abdominal distension, organ compression, characterized by constipation, vomiting, and frequent urination.[4] Giant cysts are seldom misdiagnosed, attributed to their ambiguous symptoms and lack of specific diagnostic indicators.

The management of ovarian cysts is contingent upon several factors, including the patient's age, the dimensions and composition of the cyst, and the individual's menopausal status.[5] The majority of ovarian cysts are non-malignant and are typically managed through surgical removal. The surgical approach to treating cysts can be either open or laparoscopic, involving either cystectomy or salpingo-oophorectomy.[6] In recent years, laparoscopy emerges as the preferred method for the management of benign ovarian cysts, although the size of these cysts can impose certain limitations. The presence of large ovarian cysts escalates the complexity and difficulty associated

with laparoscopic procedures. In this case study, we have detailed the successful management of a giant complex ovarian cyst in a 24-year-old unmarried female through minimal invasive laparoscopic surgery.

CASE REPORT

A 24-year-old unmarried female (gravida 0, para 0), presented with complaints of abdominal distension over the past few months. She reported experiencing mild abdominal pain, as measured by VAS score 1. She also reported pedal oedema and weight gain over the past few months. The patient's menstrual history was consistent, characterized by regular cycles from 3 years when maintained on Tab Krimson, and her last menstrual period (LMP) was on 05/07/2024. No reports of disturbances in bowel or bladder function were observed. She had a previous surgical history of laparoscopic cystectomy on the right side in November 2020.

During her physical examination, the patient was found to be afebrile with the vital signs being normal. She exhibited significant abdominal distension, with visible striae marks. The abdomen was soft and non-tender, with a girth measurement of 115 cm. Blood tests came back within normal limits, with no significant past medical history noted. The results of the cardiorespiratory and urogenital examinations did not reveal any abnormalities. The levels of tumor biomarkers, namely alpha fetoprotein (AFP), carcinoembryonic antigen (CEA), cancer antigen 19.9 (CA19.9), and cancer antigen 125 (CA 125) were within the normal range. A transabdominal ultrasound examination uncovered a significant abdominopelvic multiloculated complex cystic lesion, distinguished by its thin septa, with dimensions 26×22×13 cm (Figure 1). The right ovary lacked distinctiveness and cannot be observed separately. There was no indication of a solid component within the cyst. The findings were suggestive of a large abdominopelvic complex cyst with the right ovarian origin. The left ovary appeared normal.

For further diagnosis, magnetic resonance imaging (MRI) of the abdominopelvic region was performed. These findings also revealed a large thin-walled multilocular abdominopelvic cystic lesion, measuring about 28×25×24 cm (Figure 2). The lesion was characterized by multiple thin internal septations, devoid of any solid component, and lacked enhancing mural nodules or calcifications. The contents of the cyst exhibited a hyperintense signal on T1 W and a hypointense signal on T1 W. The uterus appeared to be elongated and slightly deviated to the right side. The right ovarian vascular pedicle was observed to be extended along the right lateral aspect of the cystic lesion, which extended cranially up to the epigastric region. The patient was admitted for subsequent management.

Surgical intervention

During the surgical procedure, the patient was held in supine position and appropriately prepped and draped in conventional sterile manner. The abdominal mass was delineated as in (Figure 3A). A laparoscopic procedure utilizing the four-port technique was performed (Figure 3B, 3C). The procedure revealed a large abdominopelvic mass that occupied the entirety of the abdominal cavity, extending up to the xiphisternum and characterized by multiple loculations. The mass was not visualized through the pod. Initially, the uterus, tubes, and ovaries were not visible. The ovarian cyst was punctured and aspirated, yielding a straw-colored fluid of approximately four liters, originating from multiple loculations. The uterus, left fallopian tube, and ovary were subsequently visualized. The right ovary was not separately identified. The right fallopian tube was found to be extended over the ovarian cyst. The right-side ligaments were observed to be stretched along the right cystic lesion. The right fallopian tube and ovarian ligament were cauterized and subsequently cut. Also, the right infundibulopelvic ligament was cauterized and cut. The specimen skeleton was extracted through a mini laparotomy scar located above the pubic area. The procedure was completed with suction irrigation to ensure hemostasis.

The peristalsis of the ureter was observed, followed by the placement of a drain. The mini laparotomy was then closed using subcuticular sutures with monocryl thread and simple sutures were employed to close the port entries. The intra and postoperative period was uneventful. The patient was subsequently discharged with instructions to avoid constipation, lifting heavy weights, and to refrain from squatting for a period of 4-6 weeks. The progression of surgical events was depicted in Figure 4. The preoperative weight of the patient was 105 kilograms while the post-operative weight was recorded as 101 kilograms (Figure 5).

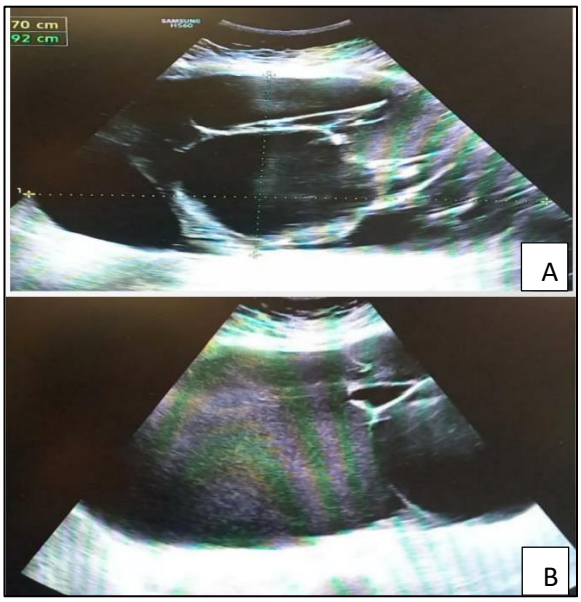

Figure 1 (A and B): Transabdominal ultrasonographic examination revealing the presence of large complex cystic lesion distinguished by thin septa, in the abdominopelvic cavity.

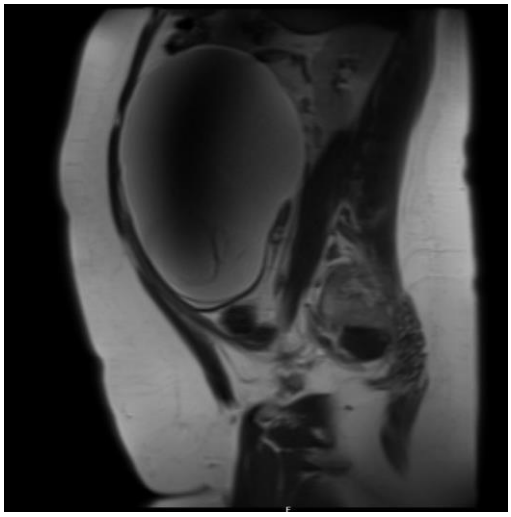

Figure 2: Magnetic resonance imaging of the abdomen and pelvis showing large thin-walled multilocular abdominopelvic cystic lesion.

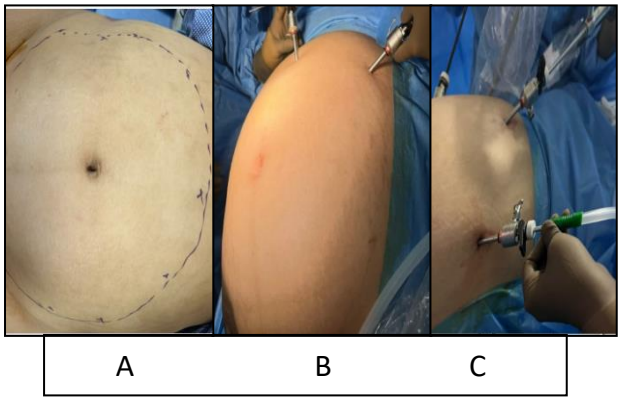

Figure 3: (A) abdominal marking of the abdominopelvic mass. (B, C) Placement of trocar, cannula, and drain through four port method.

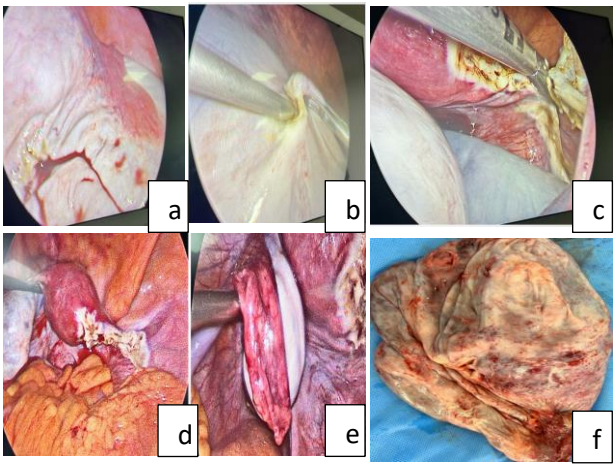

Figure 4 (a-f): Photographs illustrating the progression of procedures conducted during the laparoscopic surgery. The final image depicts the excised large complex ovarian cyst following the surgical intervention.

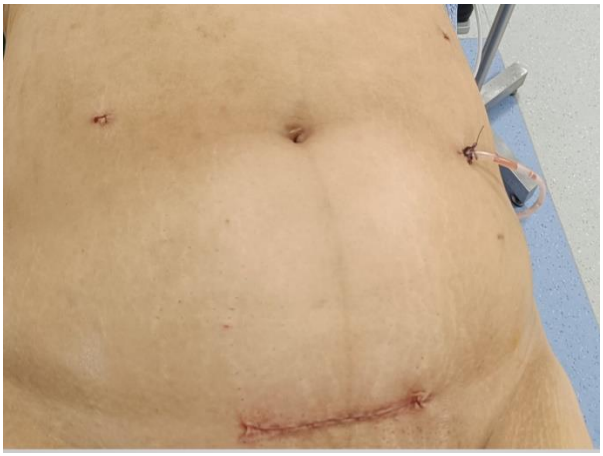

Figure 5: Post operative photograph of the patient showing incisions sealed with subcuticular sutures, intertwined with monocryl thread, straightforward knots to bridge the portal accesses.

DISCUSSION

Giant ovarian cysts (GOC) present a significant challenge in primary care due to their non-specific clinical manifestations and the diverse array of differential diagnoses encompassing intra-abdominal pregnancies, pelvic endometriosis, hydronephrosis, extreme obesity etc.[7] Our patient reported severe degree of obesity, characterized by a weight of 105 kilograms and a body mass index (BMI) of 40 kg/m2. The large ovarian masses may exhibit a variety of symptoms, including abdominal pain, pelvic or back pain, menstrual irregularities, swelling of the lower extremities and an enlarged abdomen.[8]

Our patient exhibited symptoms like mild abdominal pain, lower extremity edema, back pain with weight gain. It was studied that the majority of complex cysts are benign and have the potential to grow to considerable sizes. Ursula Nemec et al, have reported that these cysts are predominantly observed in women between the ages of 20 to 40 years as in case of our patient who is 24 year old.[9]

In cases where fertility preservation is a priority and the tumor is benign, laparoscopic cystectomy without spillage, is considered as the preferred management strategy.[10] In our case, the aspiration of the cyst was achieved through trocarization, which was performed in a nondependent area, thereby minimizing spillage.

Computed tomography (CT) exhibits a higher sensitivity but a reduced specificity in the detection of ovarian cysts compared to ultrasound (US).[11] In comparison to ultrasound (US), computed tomography (CT) and magnetic resonance Imaging (MRI), which surpasses CT in efficacy, represent the most effective methods for the analysis of cysts.[12] In our case both ultrasound and MRI were conducted which were successful in determining the precise origin of the cyst in our patient. In the context of complex, multiloculated cysts, the probability of

malignancy reaches its peak to 36%.[13] Consequently, it is imperative to conduct blood tests to assess the levels of CA 19-9, CA-125, LDH, alpha fetoprotein, HCG and are crucial for evaluating the risk of malignancy.[14] In our case, these markers were within the normal range and showed no indications of malignancy. In the recent years, there has been a growing body of literature reporting on the laparoscopic-assisted excision of these large cysts but a significant challenge is the prevention of fluid leakage from the cyst, bleeding, infection, cyst rupture, and an elevated risk of peritoneal adhesion.[15]

Hence, in such procedures, aspiration of the cyst contents is typically performed prior to its removal.[16] A four-port laparoscopic surgery was opted and approximately four liters of straw-colored fluid were aspirated from multiple locules of the complex cyst, prior to the procedure. One significant advantage of the four-port laparoscopic technique is the absence of an infraumbilical incision thus preventing the wound infection. In addition, this is often the most painful cut of all the port entry points, so avoiding it would be beneficial, as it was in our case.[17]

The duration for laparoscopic surgery for larger cysts is notably longer than the typical time required for procedures involving small or moderate-sized cysts.[18] However, this extended duration might be deemed reasonable when taking into account the benefits of a brief hospital stay, reduced dependence on painkillers and antibiotics and lack of major incisions.[19] The anticipated benefits of laparoscopic surgery include enhanced cosmetic results with smaller, barely noticeable scars compared to the more noticeable scarring that comes with traditional surgery.[20]

Additionally, laparoscopic surgery reduces complications like hematomas seromas, wound dehiscence and tissue damage, which speeds up recovery.[21] Our patient had fast recovery period with low bleeding, reduced pain, with no infections and side effects and reduced the reduce morbidity. The patient had regular follow-up appointments and demonstrated no recurrence of the condition or any additional health complications subsequent to the surgery.

CONCLUSION

In conclusion, giant complex multilocular ovarian cysts are rare, presenting significant diagnostic and management challenges. The majority of ovarian cysts are observed during the hormonally active phases of childhood and adolescence. Laparoscopic excision is favored in the treatment of large ovarian cysts that extend to the level of the umbilicus, primarily as it offers the minimal invasive procedure, superior cosmetic outcomes, and a reduced duration of hospitalization.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Kunnaiah A. Management of giant complex multiloculated ovarian cyst in a young female through minimal invasive laparoscopic surgery-a case study. Int J Reprod Contracept Obstet Gynecol 2025;14:262-6.