

Laparoscopic Management of Giant Ovarian Cyst in an Adolescent Girl: A Case Report

Vineet V Mishra¹, Rohina Aggarwal², Ushma Patel³, Tanvir Tanvir⁴

¹Professor and Head, Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Center, Dr. HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Civil Hospital Campus, Asarwa, Ahmedabad, India, ²Associate Professor, Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Center, Dr. HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Civil Hospital Campus, Asarwa, Ahmedabad, India, ³Clinical Fellow, Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Center, Dr. HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Civil Hospital Campus, Asarwa, Ahmedabad, India, ⁴Senior Resident, Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Center, Dr. HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Civil Hospital Campus, Asarwa, Ahmedabad, India

ABSTRACT

The management of giant ovarian cyst in an adolescent age group possesses a great challenge for the surgeon. Ultrasound-guided veress needle aspiration reduces the size of the cyst making it possible for laparoscopic cystectomy. Here we present the case of a 16-year-old girl with a giant ovarian cyst measuring 20 × 15 × 21 cm, confirmed by computed tomography scan and managed successfully by ultrasound-guided veress needle aspiration followed by laparoscopic cystectomy. The laparoscopic approach was preferred for cosmetic reasons. Histological diagnosis of papillary serous cystadenoma confirmed the benign nature of the cyst. A laparoscopic cystectomy is a safe option even in giant benign ovarian cyst with proper patient selection and good surgical skill.

Keywords: Adolescence, Cystectomy, Giant benign ovarian cyst, Laparoscopy, Ultrasound, Veress needle aspiration

Corresponding Author: Dr. Vineet V Mishra, Professor and Head, Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Center, Dr. HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Civil Hospital Campus, Asarwa, Ahmedabad, India. Phone: +91-7922687038, Fax: +91-7922685454. E-mail: vineet.mishra.ikdrc@gmail.com

INTRODUCTION

The definition of huge ovarian cysts is not well described in the literature. Some authors define large ovarian cyst as those of more than 10 cm in diameter as measured by pre-operative ultrasound or that reaching above the umbilicus.¹ The incidence of an adnexal mass in the adolescent age group is 2.6 per 100,000 girls.² Giant ovarian cysts are very rarely observed in the adolescent population. They cause anxiety to both the patient and her family. Ovarian masses present clinically in many ways including abdominal pain, palpable abdominal mass, nausea, vomiting, increasing abdominal girth, and precocious puberty. A review by Kanizsai, *et al.* demonstrated that in the adolescent population, cysts are most likely to be associated with irregular menstrual cycles.³ Malignant ovarian tumors are rare in children and adolescent age group, accounting for 0.9% of all age groups in this age group. Increased probability of malignancy, technical problems related to the removal of such cysts, and perioperative problems related to cardiorespiratory functional changes may

complicate surgery for such cysts.⁴ The diagnostic study of choice for an adnexal mass in the adolescent is ultrasonography.⁵ Very large ovarian cysts are conventionally treated by laparotomy. Anatomic differences in young and adolescent females versus adults should be considered in surgical interventions (i.e., short stature, thinner abdominal wall around the umbilicus, higher upper margin of the bladder, smaller uterine fundus, relatively elongated cervix, and small ovarian volume), along with preservation of fertility. Currently, the popularity of laparoscopic techniques is increasing due to their prominent advantages, such as decreasing post-operative pain, length of hospital stay, wound infection, and improved cosmetic results. Hence laparoscopy can be a better option in young age group. However, in the adolescent population, it can be challenging to manage a giant ovarian cyst laparoscopically because of the possibility of cyst rupture due to a restricted operating field. Moreover, only a few small studies have been conducted to evaluate the efficacy and safety of laparoscopic adnexal surgery in children and adolescents.⁶ The recurrence of ovarian cysts in adult literature has been cited as 4% with cyst

excision versus 84% with simple aspiration. It should be noted that cytologic evaluation of aspirated fluid of ovarian cysts has proven to be unreliable.⁷ In a review of 2126 pediatric patients undergoing treatment of benign ovarian masses, use of laparoscopy increased from 32.1% in 2000 to 57.9% in 2010.⁸ Herein, we present the case of a presumptive giant ovarian cyst in which ultrasound-guided percutaneous drainage using veress needle was done followed by laparoscopic cyst wall excision.

CASE REPORT

A 16-year-old unmarried girl presented to the Obstetrics and Gynecology Outpatient Department of this hospital with complaints of abdominal pain and extreme abdominal distension. A detailed history was noted and clinical examination done. She attained menarche at the age of 12 years and has regular menstrual cycles. On general examination, she has normally developed secondary sexual characteristics. Abdominal examination revealed a mobile, smooth, non-tender cystic mass measuring 22 × 20 cm with regular margins arising from the pelvis extending beyond umbilicus. Per vaginal examination was deferred due to her unmarried status. Abdomino-pelvic ultrasonography revealed a large cystic lesion (Figure 1) of 20 × 15.4 × 21 cm arising from pelvis reaching up to epigastrium suggesting an ovarian origin without any evidence of internal echoes, septa or solid nodules. Both ovaries could not be visualized separately. Uterus was normal in size. Abdominal computed tomography demonstrated a smooth ovarian cyst surface that was predominantly consistent with a benign mass measuring 22 × 11 cm.

Laboratory tests revealed hemoglobin: 7.8 g/dl; peripheral smear: Microcytic, hypochromic anemia. Pre-operative blood transfusion (packed cells two units) was given to correct anemia. Serum markers are within normal limits (Serum CA-125 -13.6 U/ml [0-35]; AFP - 4 ng/ml; β- Hcg - 2.5 mIU/ml; CEA -1.5 ng/ml).

The clinical findings, radiological examination, biochemical parameters, and tumor markers suggested the presence of a benign cystic mass ruling out malignancy. Considering the age of the patient and for good cosmetic results, laparoscopic cystectomy was preferred. Under general anesthesia, ultrasound-guided veress needle was inserted through a supraumbilical incision percutaneously directly into the cyst. Around 5l intracystic straw, colored fluid was drained and sent for cytology. Then proceeded with laparoscopic cystectomy. Pneumoperitoneum created and four ports introduced. Laparoscopic examination confirmed the benign nature of the cyst (Figure 2), which originated from the right ovary. Right fallopian tube, round ligament, and ovarian ligament were stretched out over the cyst. The cyst wall

was excised in toto using ovarian-preserving surgery with an energy device (Bipolar) (Figures 3 and 4). Specimen retrieved through 3 cm abdominal incision in an endobag and sent for histopathological examination (Figure 5). The surgery lasted for an hour. The post-operative recovery period was uneventful, and the patient was discharged on 7th post-operative day after confirming histopathological examination showing papillary serous cystadenoma and cytology showing benign cells. The patient had no complaints on follow-up visit, and follow-up ultrasonography revealed bilateral normal ovaries (Figure 6).

DISCUSSION

Ovarian cysts are common and involve all age groups, occurring in both symptomatic and non-symptomatic females. These cysts can be physiologic (follicular/corpus luteal cyst) or neoplastic - either benign, borderline (having low malignant potential), or frankly

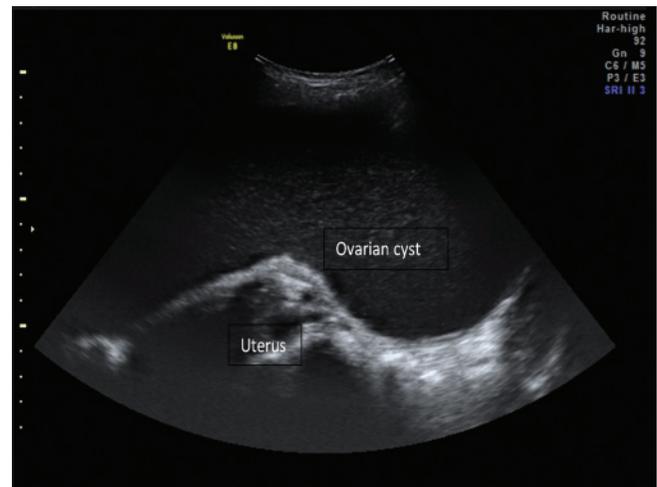


Figure 1: Ultrasonographic appearance of the cyst

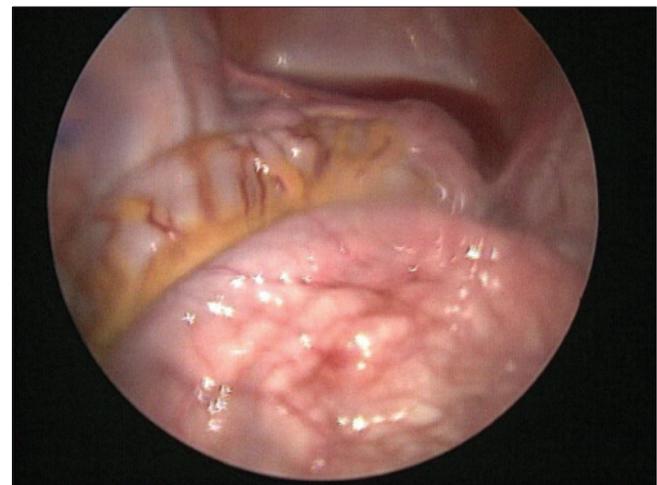


Figure 2: Laparoscopic image of the ovarian cyst

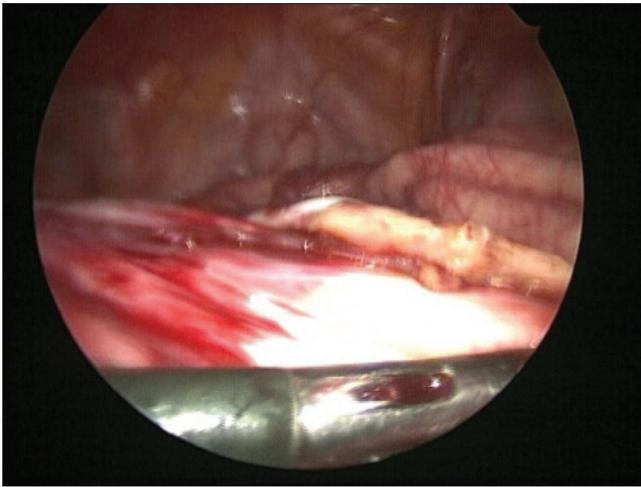


Figure 3: Laparoscopic cyst wall excision



Figure 5: Post-operative ultrasound appearance of the right ovary



Figure 4: Gross appearance of the cyst wall



Figure 6: Post-operative ultrasonographic appearance of bilateral normal ovaries

malignant. Determination of histological pattern is of paramount importance in the diagnosis, prognosis, and treatment of ovarian tumors. Primary tumors are classified as surface epithelial tumors, germ cell tumors, sex-cord stromal tumors, germ cell sex-cord stromal tumors, tumors of rete ovarii, and miscellaneous tumors. The majority of them are surface epithelial tumors such as serous cystadenoma, mucinous cystadenoma, and endometriotic cyst. Among the benign tumors, mature teratoma and serous cystadenoma are seen in all age groups.⁹

The acknowledged management modalities include: The percutaneous drainage of the cyst under ultrasonographic guidance, decompression of the cyst with the aid of minilaparotomy and its excision, and laparoscopic excision of the cyst after its ultrasound-guided drainage.¹⁰ Certain authors prefer cyst size reduction prior to laparoscopy and it may be obtained using different techniques such as ultrasound-guided aspiration or with the use of Bonnano catheter.¹¹ We preferred ultrasound-guided aspiration by veress needle followed by laparoscopic cystectomy. Minilaparotomy, decompression of the cyst, and its excision are alternatives.

Laparoscopy may be considered as the gold standard approach in the management of benign ovarian cysts. However, there is no consensus regarding the size of the ovarian cyst. With the advancing techniques, appropriate patient selection, and availability of experts in laparoscopic surgery; it is feasible to remove the giant ovarian cyst by laparoscopy. The advantages of laparoscopic surgery are well studied and include reduced post-operative pain, length of hospital stay, and wound infection, and early return to work. A laparoscopic approach may reduce post-operative adhesions that may be associated with clinically significant benefits such as improved fertility, reduction in pelvic pain, perfect cosmetic results and improved quality of life.¹²

It can be challenging to manage a giant ovarian cyst laparoscopically because of the possibility of cyst rupture and spillage due to a restricted operating field. An incidence of unsuspected ovarian cancer at laparoscopy has been shown to be only 0.04%.¹³ Hence, proper patient selection is mandatory to minimize the risk of draining malignant masses. Previous reports indicate

that meticulous clinical and ultrasound examinations of ovarian cysts can exclude most cases of ovarian malignancies.⁸ The addition of tumor markers levels and intraoperative cyst inspection prior to the drainage of the cyst should reduce this risk further.

Unfortunately, there are no randomized trials available regarding the management of giant ovarian cyst for more than 20 cm; only few case series and case reports are available. As this approach is relatively new, further trials and studies are needed to improve knowledge and provide improved advance operative care.

CONCLUSION

With proper patient selection, ultrasound-guided veress needle aspiration followed by laparoscopic cystectomy can be safely applied in a select group of patients with giant, benign ovarian cysts.

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How to cite this article: Mishra VV, Aggarwal R, Patel U, Tanvir T. Laparoscopic Management of Giant Ovarian Cyst in an Adolescent Girl: A Case Report. *Int J Adv Health Sci* 2015;2(3):19-22.

Source of Support: Nil, **Conflict of Interest:** None declared.