Laparoscopic Cystectomy of an Ovarian Mucinous Cystadenoma in a 12-Year-Old Girl : A Possible Role of Operative Laparoscopy for a Huge Benign Adnexal Mass

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Abstract

The case of an obese 12-year-old girl with a huge and mobile pelvic cystic mass is presented. After ultrasonography and determination of tumor markers, a right huge benign adnexal mass was suspected. In order to avoid exploratory laparotomy because severe pain and a large operative scar were expected, an operative laparoscopy was performed. No intra-operative and post-operative complications were observed. With the uneventful recovery, only a one-day hospital stay was needed. Neither residual nor recurrent evidence was suspected after 2-, 6-, 12-, 18- and 24-months follow-up. With proper case selection, good pre-operative counseling and the operation performed under familiarity and good training in laparoscopy, laparoscopic management of a huge suspected benign adnexal mass is technically feasible. The benefits are reducing hospital stay, lowering morbidity, especially less pain and cosmetic acceptance of the operative scar.

Key word : Operative Laparoscopy, Benign Adnexal Mass, Ovarian Mucinous Cystadenoma

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The appropriate management of adnexal masses is one of the most controversial problems facing gynecologists today. The combination of benign findings of pelvic examination, ultrasonographic appearance and normal level of CA-125 indicates a benign origin in practically all cases[1]. As a rule, a

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unilocular cystic tumor of all sizes is benign. Herrmann et al showed that the incidence of malignant involvement was 2 per cent for cysts larger than 10 cm, whereas all cysts smaller than 10 cm were histologically benign.[2] In the present study, all of the 74 cases of pre-operative suspected benign adnexal mass under combination of benign findings of pelvic examination and ultrasonographic study had histological benignity [3]. Because the benefits of the laparoscopic route are shorter recovery period, less pain, shorter hospital stay, less blood loss and adhesion formation, more cosmetic acceptance of operative scar, as well as fewer respiratory complications and thrombo-embolic events due to early ambulation, numerous reports have legitimized the use of operative laparoscopy for the management of a suspected benign adnexal mass after these pre-operative determinations showed no evidence of malignant disease[4-7]. Here the authors report a huge ovarian mucinous cystadenoma in a 12-year-old girl successfully managed by laparoscopic cystectomy with a 24-months follow-up.

CASE REPORT

An obese 12-year-old girl who had been in a good health most of her life with 70-kg weight and 159 cm height, presented to her physician with a complaint of a movable 20-week size pelvic mass without any symptoms. Due to the fear of malignancy, exploratory laparotomy with low midline incision was suggested by her physician. Her parents, working as health care providers and having some knowledge about laparoscopy, came to see the authors with the hope of avoiding an exploratory laparotomy and asked for the option of operative laparoscopy. Without pelvic examination, trans-abdominal ultrasonography was performed and blood for tumor markers was obtained. By ultrasonography, a huge uniloculated cyst, containing homogeneously clear fluid content and a few thin septa and extending to the level of the umbilicus, was found (Fig. 1). No ascites were noted. Doppler study of the cystic wall artery revealed a resistant index of 0.53 (Fig. 2).

Tumor markers showed no significant rise: β HCG = 0 ImU/ml, AFP = 0.56 IU/ml, CEA = 2.91 ng/ml, CA-199 = 3.0 U/ml and CA-125 = 8.9 U/ml. According to these results, a low risk of malignancy was predicted. No abnormality of pre-operative laboratory check up was found. After counseling about the following aspects, namely the steps of laparoscopic procedure, type of operation, the conversion to laparotomy, risks and benefits, especially change of staging in the case of stage 1a of ovarian malignancy and development of pseudomyxoma peritonei due to spillage of mucinous cystadenoma, other operative complications, including the risk of residual and recurrent tumor, the patient and her parents opted for operative laparoscopy. Routine pre-operative preparation was carried out without vaginal douche. Diagnostic laparoscopy was carefully performed with a 12-mm intraumbilical port and 5-mm left iliac and suprapubic ports under general anesthesia. No uterine manipulator was used. To avoid puncture into the cyst

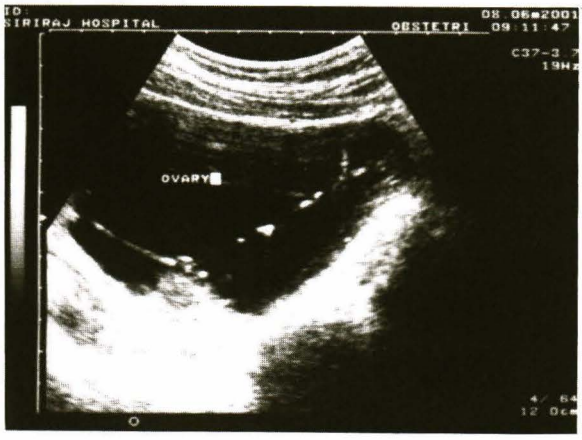

Fig. 1. Transabdominal ultrasonography, showing a huge uniloculated cyst containing homogeneously clear fluid content and a few septa.

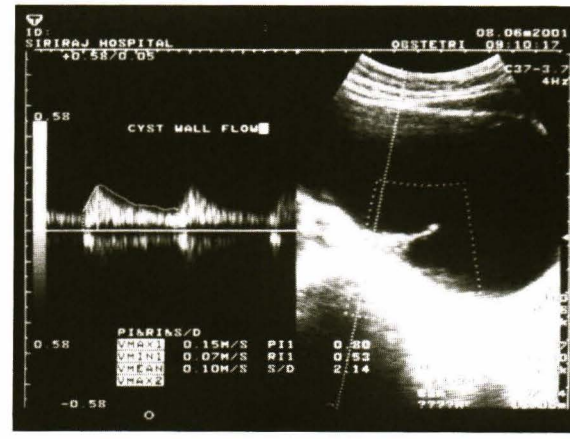

Fig. 2. Transabdominal ultrasonography, showing Doppler study of the cystic wall artery with a resistant index of 0.53.

which could cause large spillage of cystic content, the Veress needle, inserted intraumbilically, was directed more vertically and more laterally to the left than usual. At the same time, the anterior abdominal wall was elevated manually. The primary trocar was inserted in a similar manner after the intraabdominal pressure reached 15 mmHg with approximately 3 liters of CO2 pneumoperitoneum. A 5-mm left iliac and a 5-mm suprapubic ports were made respectively under direct visualization. A movable translucent bluish-whitish gray smooth ovarian cyst, about 25 cm in diameter, was found at the right adnexa (Fig. 3). The uterus and the left adnexa were unremarkable. No sign of metastatic lesions or ascites were found. Peritoneal washing for cytology was carried out with 300 ml of NSS. After opening of the ovarian capsule by scissors, the cystic wall was intentionally punctured and almost all of the cystic content was immediately aspirated by laparoscopic needle connected to a suction system.

Cystic content was brownish-tinged and thin to viscous. Irrigation of the cystic cavity with 2,000 ml of NSS was performed. Biopsy of the cystic wall for frozen section was then carried out. While waiting for the result, right ovarian cystectomy was successfully performed (Fig. 4). After the specimen was removed using an Endosac *via* intraumbilical port, suction and irrigation of the peritoneal cavity was done with 3,000 ml of NSS. The result of frozen section then arrived, showing no evidence of malignancy. All instruments were removed. No intra-operative complication was evident. The operation took 120 minutes and 80 ml of blood loss was estimated. All incisions were subcuticularly closed. No immediate complication was detected. Only 2 tablets of paracetamol (500 mg) were needed for pain-relief and 1-day hospital stay was needed after surgery. The final pathological report revealed a mucinous cystadenoma of the right ovary. With uneventful recovery after being discharged, the patient was able to go back to school within one week. Neither residual nor recurrent evidence was suspected after 2-, 6-, 12-, 18- and 24-months follow-up periods.

DISCUSSION

In general, the advantages of laparoscopic surgery compared with exploratory laparotomy are a shorter recovery period, less pain, shorter hospital stay, less blood loss, less adhesion formation and especially much less operative scar. Currently, laparoscopic procedures have been fully integrated into the routine gynecologic care. Neoplastic ovarian cysts, either benign or malignant, can be detected in female patients of all ages and are managed surgically. The patient's age, the size of the cyst, the ultrasonographic appearances and tumor markers are helpful in determining which ovarian cysts necessitate exploratory laparotomy or operative laparoscopy. The combination of benign findings of pelvic examination, ultrasonographic appearance and normal level of tumor markers indicate a benign origin in practically all cases. Thick septa, solid area, irregularities of the inner wall, poorly defined margins and ascites are findings suggestive of malignancy[1]. In a study, overall

Fig. 3. Laparoscopy revealed a large translucent bluish-whitish gray smooth ovarian cyst, about 25 cm in diameter.

Fig. 4. The right ovary, on which the cystectomy is being performed.

accuracy for detection of ovarian malignant disease did not differ significantly among pelvic examination (76%), ultrasonographic findings (74%), and CA-125 level (77%)[8]. The possibility of malignancy at laparoscopy in patients with a pre-operative diagnosis of benign adnexal mass based on pelvic examination, ultrasonography, and CA-125 has been reported to be 0.4-1.9 per cent[9]. The likelihood of malignancy in the presence of a benign appearing adnexal mass during surgery is much lower, approximately 1 : 700 [9]. In addition, in case of malignancy, the evidence from reports with multivariate analysis indicates that rupture of ovarian cancer stage I is not an independent prognostic factor and does not adversely affect the prognosis[9-11]. Tumor grade remains the most important prognostic factor for patients with stage I epithelial ovarian cancer[10,11].

The authors did not do a pelvic examination because this patient was a 12-year-old girl. However, she had benign ultrasonographic appearances and no significant rising of tumor markers. By ultrasonographic findings, the most likely benign cystic neoplasm of this ovary was a mucinous cystadenoma. Although serous cystadenomas are more common than the mucinous type of tumor, as a rule they do not become huge. Mucinous cystadenomas have been reported to weigh 100 to 300 pounds[12].

From the aforementioned reasons, operative laparoscopy was decided upon with the benign finding of the initial diagnostic laparoscopy. Before surgical procedure, however, the deleterious effects of accidental rupture and spillage of an ovarian cyst had been much discussed concerning pseudomyxoma peritonei which was a possible serious complication developing due to spillage of mucinous cystadenoma. However, large spillage of cystic content could be prevented with several strategies. Insertion of the Veress needle, the primary trocar and both accessory trocars had to be performed as aforementioned. Following opening of the ovarian capsule, the cystic wall was intentionally punctured with a laparoscopic needle connected to a suction system. Therefore, the cystic content was immediately aspirated without any spillage. Irrigation and suction in the cystic cavity with a large amount of solution was subsequently performed. Finally, all cyst wall specimens were removed using the Endosac followed by suction and irrigation of the peritoneal cavity with a large amount of solution at the end of the operation.

Technically, points of note in the reported case were pre-operative preparation without vaginal douche, the uterine manipulator not being used and the use of a 12-mm intraumbilical port. Firstly, because the patient was very young, any injury by vaginal douche and uterine manipulator should be avoided. Secondly, instead of 10-mm, a 12-mm intraumbilical trocar was used because removing large specimens through this port was anticipated. In the authors' experience, more post-operative pain is found at the large accessory port than the intraumbilical port. The authors prefer small trocars (5 mm) for the accessory port and frequently remove large specimens *via* 10- to 12-mm intraumbilical port instead of a large 10- to 12-mm accessory port. Although a mucinous cystadenoma was most likely, peritoneal fluid or peritoneal washing for cytology and a biopsy of the cystic wall for frozen section were still necessary to rule out malignancy especially potential malignancy and for staging. In a young woman desirous of further childbearing whose provisional diagnosis is a mucinous cystadenoma which has a low incidence of bilaterality. Surgical evaluation of the opposite ovary is not needed if it is normal in size, shape, and configuration[12]. In the presented patient who was very young, the authors even tried to preserve her right ovary by doing a cystectomy instead of salpingo-oophorectomy. However, it was also kept in mind that this might result in incomplete cystectomy. Long-term follow-up, therefore, was crucial. After 2-, 6-, 12-, 18- and 24-month follow-up periods, neither residual nor recurrent evidence was encountered.

In conclusion, laparoscopic management of a large suspected benign adnexal cyst is technically feasible with the benefit of reducing hospital stay, lowering morbidity especially less pain, and cosmetic acceptance. However, proper case selection, good pre-operative counseling, and operating under familiarity and good training in laparoscopy are necessary.

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REFERENCES

1. Magrina JF, Cornella JL. Official management of ovarian cysts. Mayo Clin Proc 1997; 72: 653-6.
2. Herrmann UJ Jr, Locher GW, Goldhirsch A. Sonographic patterns of ovarian tumors: Prediction of malignancy. Obstet Gynecol 1987; 69: 777-81.
3. Chalermchockcharoenkit A, Chaisilwattana P, Sirimai K, Techatraisak K. Laparoscopic findings of suspected benign adnexal masses. Thai J Obstet Gynecol 2002; 14: 137-45.
4. Nezhat F, Nezhat C, Wellander CE, Benigno B. Four ovarian cancers diagnosed during laparoscopic management of 1,011 women with adnexal masses. Am J Obstet Gynecol 1992; 167: 790-6.
5. Mann W, Reich H. Laparoscopic adnexectomy in postmenopausal women. J Reprod Med 1992; 37: 254-6.
6. Mecke H, Lehmann-Wille E, Brock E, Ibrahim H, Semm K. Pelviscopic treatment of ovarian cysts in premenopausal women. Gynecol Obstet Invest 1992; 34: 36-42.
7. Canis M, Mage G, Pouly JL, Wattiez A, Manhes H, Bruhat MA. Laparoscopic diagnosis of adnexal cystic masses: A 12-year experience with long-term follow-up. Obstet Gynecol 1994; 83: 7-12.
8. Schutter EM, Kenemans P, Sohn C, et al. Diagnostic value of pelvic examination, ultrasound, and serum CA125 in postmenopausal women with a pelvic mass: An international multicenter study. Cancer 1994; 74: 1398-406.
9. Steege JF. Laparoscopic approach to the adnexal mass. Clin Obstet Gynecol 1994; 37: 392-405.
10. Dembo AJ, Davy M, Stenwig AE, Berle EJ, Bush RS, Kjorstad K. Prognostic factors in patients with stage I epithelial ovarian cancer. Obstet Gynecol 1990; 75: 263-73.
11. Vergote IB, Kaern J, Abele VM, Pettersen EO, De Vos LN, Trope CG. Analysis of prognostic factor in stage I epithelial ovarian carcinoma: Importance of degree of differentiation and deoxyribonucleic acid ploidy in predicting relapse. Am J Obstet Gynecol 1993; 169: 40-52.
12. DiSaia PJ, Creasman WT, editors. Clinical gynecologic oncology. 6th ed. Philadelpia: Mosby Year Book; 2002: 259-88.

การผ่าตัดเลาะเนื้องอกรังไข่ที่เป็นถุงน้ำชนิดมิวซินผ่านกล้องในเด็กหญิงอายุ 12 ปี : ความเป็นไปได้ในการผ่าตัดเลาะก้อนที่ปีกมดลูกขนาดใหญ่ชนิดที่ไม่เป็นเนื้อร้ายผ่านกล้อง

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ผู้ป่วยเป็นเด็กหญิงอายุ 12 ปี มีลักษณะอ้วน มาพบแพทย์เนื่องจากตรวจพบว่ามีก้อนถุงน้ำที่ท้องน้อยขนาดใหญ่จากการตรวจหน้าท้องพบว่าก้อนสามารถเคลื่อนที่ได้ เมื่อใช้อัลตร้าซาวด์ร่วมกับตรวจหาระดับร่องรอยของเนื้องอกในกระแสเลือด (tumor marker) พบว่าน่าจะเป็นเนื้องอกรังไข่ที่เป็นถุงน้ำขนาดใหญ่และไม่เป็นเนื้อร้าย เพื่อลดความเจ็บปวดหลังผ่าตัดและหลีกเลี่ยงแผลเป็นขนาดใหญ่ที่เกิดจากการผ่าตัดแบบเปิดหน้าท้อง จึงได้ตัดสินใจทำการผ่าเนื้องอกรังไข่ดังกล่าวผ่านกล้อง ซึ่งไม่พบภาวะแทรกซ้อนใด ๆ ทั้งในขณะผ่าตัดและหลังการผ่าตัด หลังผ่าตัดผู้ป่วยฟื้นตัวดีและกลับบ้านได้หลังผ่าตัดเพียง 1 วัน จากการติดตามผู้ป่วยหลังผ่าตัดอย่างต่อเนื่องเป็นเวลานาน 2 ปี ไม่พบหลักฐานว่ามีการหลงเหลือ หรือการเกิดขึ้นซ้ำของเนื้องอกดังกล่าว โดยสรุป การผ่าเนื้องอกรังไข่ชนิดที่เป็นถุงน้ำขนาดใหญ่ผ่านกล้องสามารถกระทำได้ด้วยความปลอดภัย ถ้าผู้ป่วยได้รับการคัดเลือกอย่างเหมาะสม ได้รับคำปรึกษาก่อนผ่าตัดที่ดีและผ่าตัดโดยผู้เชี่ยวชาญในการใช้กล้องเพื่อส่องตรวจและรักษาทางนรีเวชวิทยา

คำสำคัญ : การผ่าตัดผ่านกล้อง, ก้อนที่ปีกมดลูกชนิดที่ไม่เป็นเนื้อร้าย, เนื้องอกรังไข่ที่เป็นถุงน้ำชนิดมิวซิน

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