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Ovarian-sparing local mass excision for ovarian fibroma/fibrothecoma in premenopausal women

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ABSTRACT

Objectives: To evaluate the recurrence rate of ovarian fibroma/fibrothecoma and reproductive outcomes following ovarian-sparing local mass excision in premenopausal women.
Study design: A retrospective cohort study was performed at two gynecologic surgery centers using data collected between January 2005 and December 2011. It included premenopausal patients treated with ovarian-sparing local mass excision and pathologically proven ovarian fibroma/fibrothecoma who were followed up for at least 6 months. The recurrence of fibroma/fibrothecoma and pregnancy outcomes in those who wanted to conceive after local mass excision were collected and analyzed.
Results: The mean age of the patients ($n = 50$) was 33.3 ± 6.9 years (range, 20–50 years), and the mean follow-up duration was 26.6 ± 19.2 months (range, 6–88 months). Fibroma was present in 40 patients, fibrothecoma in 7, and cellular fibroma in 3. Natural conception occurred in 11 of the 12 patients who became pregnant during the follow-up period. On follow-up ultrasonography, one patient experienced recurrent disease, 50 months after initial surgery, resulting in a crude overall recurrence rate of only 2%.
Conclusion: Given the 2% recurrence rate of ovarian fibroma/fibrothecoma following ovarian sparing local mass excision, local mass excision appears to be an effective surgical option in women of reproductive age.

Introduction

Ovarian fibromas/fibrothecomas are solid tumors of the ovary that account for 1–4.7% of all ovarian neoplasms. They are classified as sex cord-stromal tumors and are characterized by overgrowth of the ovarian stroma [1–5]. They can occur at any age, but most frequently are identified during middle age (mean, 48 years), with a recent study reporting that, of 97 patients diagnosed with fibroma/fibrothecoma, 49.5% were <40 years old [6]. However, <10% occur in young women before the age of 30 years, and they occur rarely in children: when they do occur, they are associated with genetic syndromes such as Gorlin–Goltz, Maffucci, and Sotos syndromes [4,5,7–11].

With the recent trend of delayed childbearing, there has been an increased demand for ovarian-sparing surgery to preserve reproductive potential or ovarian hormonal function. However, accurate preoperative diagnosis of ovarian fibroma/fibrothecoma is challenging: instead, malignancy is often diagnosed, owing to the presence of ascites or pleural effusions (reported in 10% of the ovarian fibroma patients), elevated serum CA125 levels (positive association with tumor size), and the solid nature of the tumor [4,12]. As a consequence, salpingo-oophorectomy or oophorectomy is commonly planned. It has been shown, however, that the prognosis of ovarian fibroma/fibrothecoma is extremely good and recurrence is uncommon [12,13]. Favorable clinical outcomes are seen even in mitotically active cellular fibroma (histologic criteria are dense cellular proliferation of fibroblasts with mild to moderate nuclear atypia, a mitotic count of ≤3 mitotic figures (MFs)/10 high power fields (HPFs), and low malignant potential), which is distinct from fibrosarcoma (moderate to severe nuclear atypia, a mitotic counts of ≥4 MFs/10 HPFs, and clinical

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malignancy) [14,15]. For these reasons, when ovarian fibroma/fibrothecoma is suspected, ovarian-sparing surgery could be a feasible option, especially for young patients of reproductive age.

Little is known, however, about the recurrence rate and reproductive outcomes after ovarian sparing local mass excision for treatment of ovarian fibroma/fibrothecoma. Therefore, in the present study we aimed to present our experience with ovarian-sparing local mass excision for ovarian fibroma/fibrothecoma and discuss the postoperative ovarian fibroma/fibrothecoma recurrence rate and reproductive outcomes in premenopausal women.

Materials and methods

We performed a retrospective review of patients who had undergone surgical treatment and were diagnosed pathologically with ovarian fibroma or fibrothecoma between January 2005 and December 2011 at two gynecologic surgery centers in the Republic of Korea (CHA Gangnam Medical Center, CHA University and Cheil General Hospital and Women's Healthcare Center, Kwandong University College of Medicine). Women who were treated with ovarian-sparing local mass excision with or without a hysterectomy and followed up with transvaginal ultrasonography (TVS) at least 6 months after the initial surgery were included. Patients who were treated with oophorectomy or salpingo-oophorectomy were excluded. This study was approved by the respective Institutional Review Boards of both institutions.

Demographic data, including patient age, body mass index (BMI), parity, menopausal status, presenting symptoms, familial history of genetic syndromes, and associated gynecologic diseases were analyzed. The largest diameter of the ovarian tumor (if the ovarian masses were bilateral, the sum of the larger diameters was recorded), ovarian tumor location, sonographic characteristics, and associated ascites were recorded. Operative data were collected, including the operative procedure(s), associated adhesion or torsion of the mass, intraoperative frozen section, and methods for specimen removal. After the surgery, we recommended follow-up visits for transvaginal scanning (TVS), every six months for the first year, and every 6–12 months thereafter. All follow-up data, including recurrence of ovarian mass on TVS, reoperation data, and subsequent pregnancy outcomes were retrospectively collected and analyzed.

Statistical analyses were performed using SPSS for Windows version 20 (IBM Corp., Armonk, NY). The Shapiro–Wilk test was utilized to test the normality of the data. Descriptive data are expressed as mean ± standard deviation (SD). Skewed data are reported as median (range).

Results

During the study period, a total of 275 patients were surgically managed and pathologically diagnosed with ovarian fibromas/fibrothecomas in the two centers. Of these patients, 106 (38.5%) underwent ovarian sparing local mass excision, and 50 of these patients were premenopausal and followed up for at least 6 months after the initial surgery; therefore, 50 patients were included.

The baseline characteristics of the patients are shown in Table 1. The mean age was 33.3 ± 6.9 years (range, 20–50 years), and the mean follow-up duration was 26.6 ± 19.2 months (range, 6–88 months). No-one had a familial history of a genetic syndrome. The majority of the ovarian masses were detected incidentally; only 18 patients (36%) had symptoms such as pain, a palpable abdominal mass, or vaginal bleeding. The majority of the patients (n = 40, 80%) had fibroma. Associated pelvic pathology such as myoma, adenomyosis, and ovarian cysts was present in 24 patients (48%), and these conditions were either concurrently addressed during the ovarian sparing local mass excision or a cesarean section (n = 2).

Table 1
Clinical characteristics of the patients who were treated by ovarian sparing tumorectomy.

Characteristics	Mean ± SD or, median (range), number (%)
Age (years)	33.3 ± 6.9 (31.5, 20–50)
Parity	
0	39(78%)
1	4 (8%)
≥2	7 (14%)
Body mass index (kg/m^2)	21.4 ± 3.2 (20.7, 16.8–30.1)
Associated symptoms	
Incidentally detected, no symptoms	32 (64%)
Abdominal discomfort or pain	13 (26%)
Palpable abdominal mass	3 (6%)
Vaginal bleeding	2 (4%)
Associated pelvic pathology	
Myoma	15 (30%)
Myoma + adenomyosis	2 (4%)
Myoma + ovarian endometrioma	3 (6%)
Ovarian endometrioma	1 (2%)
Ovarian cysts (mucinous/serous cystadenoma)	2 (4%)
Carcinoma in situ of the cervix	1 (2%)
Final pathologic results	
Fibroma	40 (80%)
Fibrothecoma	7 (14%)
Cellular fibroma	3 (6%)
Follow-up durations (months)	26.6 ± 19.2 (21, 6–88)

SD, standard deviations.

The perioperative findings of the ovarian masses are presented in Table 2. The mean diameter was 4.7 cm (range, 1–9.3 cm), and two patients had bilateral tumors. The preoperative diagnosis was benign ovarian tumor or fibroma in the majority of patients (n = 28, 56%), followed by uterine myoma in 13 (26%). In three (6%) patients, an ovarian solid mass was detected incidentally during surgery for other gynecologic conditions. Thirty-six patients (72%) underwent laparoscopic surgery, including one laparoendoscopic single-site (LESS) surgery. Of the 14 (28%) patients who underwent a laparotomy, only one was for an ovarian mass alone, while the remaining 13 patients were operated simultaneously with other conditions, including two cesarean sections. All of the intraoperative frozen section (n = 11) results were correlated with the final pathology. Thirty-three patients (66%) had a mass connected to a pedicle or protruding the ovarian surface more than 50% of the solid mass (Fig. 1). The remaining ovarian masses were surrounded by normal ovarian tissue (Fig. 2). During the laparoscopic surgery, the specimen was removed by electronic morcellation within the endopouch in 34 of 36 (94.4%) patients. The excised mass was placed inside the endopouch under direct visualization. An electronic morcellator was inserted at the umbilicus or right lower trocar site after dilating the initial incision up to 15 mm and morcellated the mass within the endopouch without spreading the fragments of mass beyond the endopouch. One patient needed a small laparotomy incision because the mass was too hard and morcellation failed. In the patient who was treated by LESS surgery, the specimen was removed via the umbilical incision without morcellation.

Subsequent pregnancy outcomes are listed in Table 3. Natural conception occurred in 11 of the 12 patients who became pregnant during the follow-up period. On the follow-up ultrasonography, only one patient experienced recurrent disease, 50 months after the initial surgery. She underwent a second operation by laparoscopic right salpingo-oophorectomy, and the pathologic results revealed a fibrothecoma. Therefore, the crude overall recurrence rate was only 2%.