



## Is myomectomy in women aged 45 years and older an effective option?



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### ABSTRACT

**Objectives:** The aim of this study was to evaluate the recurrence and reoperation rate after myomectomy in women aged 45 years and older, who want to preserve their uterus.

**Study design:** We performed a retrospective review of women aged  $\geq 45$  years that underwent myomectomy between January 2000 and December 2010. The inclusion criteria were premenopausal status, myomectomy through abdominal or laparoscopic surgery, and at least 12 months interval from surgery. The clinical outcomes, including symptomatic change, recurrence of myoma on transvaginal ultrasonography (TVS), and reoperation data were collected and analyzed.

**Results:** A total 92 patients were included in this study. The median age of the patient was 47 years (range 45–53 years), and the median follow-up duration was 30.5 months (range 12–95 months). On follow-up TVS, the recurrence of myoma was detected in 20 of 82 (24.4%) patients. Ten (10.9%) patients were not subjected to follow-up TVS. However, during their pelvic examination, the uterus was normal size, and all the 10 patients experienced symptomatic improvement and none of them needed additional surgical management. Using the Kaplan–Meier method, the cumulative recurrence rate at 36 months after myomectomy was calculated as 17.1%. Three patients underwent hysterectomy during the follow-up periods, and only one underwent hysterectomy due to myoma. The overall reoperation rate after myomectomy in this age group was 3.3%, and the reoperation for myoma rate was only 1.1%.

**Conclusion:** Considering the natural regression of myoma after menopause, myomectomy might be an effective option for women aged 45 years and older, who want to preserve their uterus.

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### 1. Introduction

Myomectomy is the treatment of choice for uterine myomas when the patients desire future childbearing, and one of the considerable treatment options in women who want to preserve their uterus, along with uterine artery embolization or magnetic resonance guided focused ultrasound (MRgFUS) [1]. Typically, myomectomy has been limited to young patients desiring to preserve their fertility, as the risk of recurrence of myoma is high. However, many women want to preserve their reproductive potential, and even after the completion of childbearing, some women showed a strong desire to retain their uterus. In these women, myomectomy is an option, rather than hysterectomy, even with the risk of recurrence or reoperation.

Uterine myomas are hormone-sensitive benign tumors that naturally shrink after menopause. Therefore, the management of myomas depends on the age, proximity to anticipated menopause, symptoms, and preference of the patient, and the experience and skills of the clinician. For perimenopausal patients who are

asymptomatic or showing only mild to moderate symptoms, watchful waiting can be considered as a management option [1].

Two studies evaluated the clinical benefit of myomectomy in women aged 40 years and older [2,3]. The results suggested that myomectomy affords an option in women who desire to preserve their fertility. If there is no need for future fertility, then hysterectomy should be considered because of the risk of recurrence. However, there was lack of data of recurrence and reoperation after myomectomy in women aged 45 years and older. Menopause occurs at a mean age of 51 years [4]. Despite the risk of recurrence, patients older than 45 years who were treated with myomectomy usually experienced menopause within a few years, and the possibility of shrinkage in recurrent myoma after menopause.

Therefore, in the present study, we specifically evaluated the recurrence and reoperation rate after myomectomy in women aged 45 years and older, who want to preserve their uterus.

### 2. Materials and methods

Between January 2000 and December 2010, we performed a retrospective review of patients aged 45 years and older, who were diagnosed with myoma and underwent myomectomy at the CHA

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Gangnam Medical Center, Seoul, Korea. The inclusion criteria were women aged 45 years and older, diagnosed with symptomatic myoma, premenopausal status, myomas as determined through transvaginal ultrasonography (TVS), myomectomy through abdominal or laparoscopic surgery, and at least 12 months of follow-up after surgery. All women refused to treat with hysterectomy, and even the possibility of recurrence or reoperation, showed strong desire of myomectomy for preservation of uterus. We also included the patients who had other benign gynecologic problems (such as adnexal cyst, endometrial polyp), and co-operated with myomectomy. However, we excluded the patients combined with adenomyosis, and treated with hysteroscopic myomectomy or vaginal myomectomy. This study was approved by the Institutional Review Board of CHA Gangnam Medical Center, CHA University, Korea.

In our institution, all the gynecologists recommended that the initial postoperative follow-up TVS was performed within 3 months after myomectomy. TVS was performed by one experienced gynecologist with a Hitachi EUB-8500 Ultrasonography machine (Hitachi, Tokyo, Japan). And then, we recommended follow-up visits, every six months for the first year, and every six to twelve months thereafter. All follow-up data, including subjective symptomatic changes (patient reported symptomatic changes related to myoma compared with before myomectomy), last menstrual cycle, findings from pelvic examination (if the patient refused to perform a TVS, we only used the follow-up methods including pelvic examination and symptomatic changes) or recurrence of myoma on TVS, and reoperation data, were retrospectively collected and analyzed.

The recurrence of myoma was defined as a newly detected myoma larger than 1 cm as diagnosed by TVS after myomectomy or as a uterine enlargement on pelvic examination compared with the uterine size 3 months after surgery. Remained myoma was defined as confirmation that the myoma left in uterus during myomectomy; comparison of the preoperative TVS and the initial postoperative follow-up TVS. The time to recurrence was defined as the time in months from the myomectomy until the detection of a new myoma  $\geq 1$  cm. Reoperation was defined as newly detected myoma or remained myoma-related additional surgery, such as myomectomy, uterine artery embolization, myolysis, and hysterectomy. Cases in which hysterectomy was performed for other gynecological diseases, such as gynecological malignancy, or ovarian tumor were excluded from the calculation of the reoperation rate. Menopause was defined retrospectively as the time of the last menstrual period followed by 12 months of amenorrhea. If the patient underwent hysterectomy without bilateral salpingo-oophorectomy, we defined the menopause as case of serum FSH  $>40$  mIU/mL and associated climacteric symptoms.

Statistical analyses were performed using SPSS for Windows version 20 (SPSS Inc., Chicago, IL) software. The Shapiro–Wilk test was utilized to test the normality of the data. The descriptive data were expressed as the mean  $\pm$  standard deviation (SD). Skewed data fell in the median and range. Univariate, multivariate regression analyses, and analysis of covariance (ANCOVA) were performed to compare the clinical characteristics between patients with and without recurrence of myoma. The Kaplan–Meier method was used to calculate the cumulative probability of recurrence rates. Values of  $p < 0.05$  were considered statistically significant.

### 3. Results

During the study period, a total of 92 patients were included in this study. The baseline characteristics of the patients are shown in Table 1. The median age of the patients was 47 years (range 45–53 years) at the time of surgery, and the median follow-up duration was 30.5 months (range 12–95 months). The most common symptom was pelvic pressure symptoms, observed in 39 patients

**Table 1**  
Patient baseline characteristics ( $n=92$ ).

Characteristics	Mean $\pm$ SD or median (range), number (%)
Age (years)	47 (45–53)
Gravidity	3 (0–15)
Parity	2 (0–5)
BMI (kg/m <sup>2</sup> )	22.5 $\pm$ 2.5
Largest myoma size (cm)	6.7 (3–14.1)
Number of myomas on preoperative TVS	1 (1–40)
1	41 (44.6%)
2	20 (21.7%)
$\geq 3$	31 (33.7%)
Number of removed myomas	1 (1–40)
1	50 (54.3%)
2	18 (19.6%)
$\geq 3$	24 (26.1%)
Follow-up duration (month)	30.5 (12–95)
Initial symptoms (main problem)	
Bleeding symptoms	28 (30.4%)
Pain symptoms	23 (25.0%)
Pelvic pressure symptoms <sup>a</sup>	39 (42.4%)
Infertility	2 (2.2%)

SD = standard deviation, TVS = transvaginal ultrasonography.

<sup>a</sup> Pelvic pressure symptoms included urinary frequency, residual urine sensation, difficulty in urination, constipation, tenesmus, rectal pressure.

(42.4%). Six patients had a history of previous myomectomy, and all these previous procedures were performed more than 5 years ago.

Eighty three of 92 patients (90.2%) were satisfied with myomectomy due to symptomatic improvement after myomectomy in first year after myomectomy. Two patients complained that their pain did not improve, but they wanted to wait for their menopause without other surgical intervention. Two patients who were decided to undergo myomectomy for infertility, failed to achieve subsequent pregnancy after myomectomy. Five patients complained additional spotting symptoms after myomectomy, however, they said that their initial symptoms were improved and spotting symptoms were tolerable.

During follow-up TVS, the recurrence of myoma was detected in 20 patients (24.4%, 20 of 82 patients). Ten patients did not undergo follow-up TVS. However, during their pelvic examinations, the uterus was normal in size, and all the 10 patients experienced symptomatic improvement. The cumulative recurrence rates at 36 months after myomectomy were 17.1% (Fig. 1). Three patients underwent hysterectomy during the follow-up period. One patient was diagnosed with endometrial carcinoma during the follow-up periods and underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. Another patient was found with a right ovarian cyst 12 months after the myomectomy. This individual decided to undergo hysterectomy with bilateral salpingo-oophorectomy due to the fear of reoperation after this second gynecological operation. The third patient underwent hysterectomy because she experienced pressure symptoms from the growing myoma that remained after laparoscopic myomectomy. Therefore, the overall reoperation rate in this age group was 3.3% and the reoperation for myoma rate was only 1.1%.

During the follow-up period, 44 patients reached menopause. Among the remaining 48 patients, 44 patients showed their last menstrual period within 12 months, and the menopausal status of 4 patients was not available. Five of 44 premenopausal patients did not undergo follow-up TVS. In 39 premenopausal women who underwent postoperative follow-up TVS, 24 patients had no newly detected myoma (61.6%), 10 patients experienced recurrence of myoma (25.6%), and 5 experienced disappearance of remained small myoma (12.8%). Table 2 shows the recurrence rates associated with the preoperative myoma number, as determined through TVS. The recurrence of myoma was detected in 20 of 82 (24.4%) patients.

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