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an International Journal

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Tel. +514-4893242 - Fax +514-4854513 - E-mail: canlux@mgroun-online.com - www.irog.net

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CLINICAL AND EXPERIMENTAL OBSTETRICS AND GYNECOLOGY (ISSN 0390-6663) publishes original work, preferably brief reports, in the fields of Gynecology, Obstetrics, Fetal Medicine, Gynecological Endocrinology and related subjects. (Fertility and Sterility, Menopause, Uro-gynecology, Ultrasound in Obstetrics and Gynecology, Sexually Transmitted Diseases, Reproductive Biological Section). The Journal is covered by **INDEX MEDICUS, MEDLINE, EMBASE/Excerpta Medica, PUD MED.**

CLINICAL AND EXPERIMENTAL OBSTETRICS AND GYNECOLOGY is issued every three months in one volume per year by 7847050 CANADA Inc. Montréal. Printed in Italy by "La Garangola", Tipografia Editrice - Via E. Dalla Costa, 6 - 35129 Padova (Italy).

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The role of mini laparotomy in patients with uterine myomas

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Summary

Aim: The aim of this study was to evaluate the therapeutic effectiveness of myomectomy by mini laparotomy in patients with subserosal and/or intramural uterine myomas. **Materials and Methods:** Between January 2002 and December 2008, 83 women with symptomatic uterine myomas were referred to the Second Department of Gynecology of St. Savvas Anticancer - Oncologic Hospital of Athens. The study included women with subserosal and/or intramural uterine myomas with a maximum diameter of ten cm. All patients underwent myomectomy by mini laparotomy. **Results:** The median age of the patients was 36.8 years (range 19 - 43). The median number of the removed uterine myomas was 3.1 (range 1 - 12) and the median operative time was 98 minutes (range 47 - 170). All patients were mobilized within the first 24 hours and the median time of postoperative ileus was 1.6 days (range 1 - 3). The median hospital stay was 44 hours (range 30 - 120). There were no serious intraoperative or early postoperative complications. Conversion to laparotomy was performed only in four cases (4.82%), but none of the patients underwent emergency hysterectomy. During a mean follow up of 38 months, no recurrences of uterine myomas in the study population were observed. **Conclusion:** Mini laparotomic myomectomy is a safe and effective minimally invasive method alternative to laparoscopic myomectomy for patients with subserosal and/or intramural uterine myomas.

Key words: Myomectomy; Mini laparotomy; Mini laparotomic myomectomy; Uterine myomas.

Introduction

Uterine myomas are benign, hormone-sensitive, fibromuscular tumors that are diagnosed in about 25% to 40% of women during their reproductive age [1]. Uterine myomas may be asymptomatic or they can cause abnormal uterine bleeding, pelvic pain, pressure complaints, pregnancy-related complications, and infertility [2].

The management of women with uterine myomas remains controversial. Various treatment protocols use medical treatment (progestins, gonadotropin releasing hormone (GnRH) analogues), radiological treatment (uterine artery embolization) or surgical intervention (myomectomy, hysterectomy) [3-7]. Recent advances in the nonsurgical management of uterine myomas have shown promising results by simplifying or eliminating the need for surgical intervention, but they are inappropriate for infertile women and for women wanting to preserve future childbearing capability [8]. For these women, myomectomy is the treatment of choice [7, 8].

Classical laparotomic myomectomy is associated with significant morbidity including excessive blood loss, infection, and postoperative adhesions [9]. Laparoscopic myomectomy is an alternative, with fewer complications, shortened hospital stay, and less disability [6]. However, laparoscopic approach is a tedious operation especially in intramural uterine myomas and requires skilled suturing [10, 11]. Mini laparotomy represents a minimally invasive technique which can be used also in uterine myomas [7, 12].

The aim of this study was to evaluate the therapeutic effectiveness of myomectomy by mini laparotomy in patients with subserosal and/or intramural uterine myomas.

Materials and Methods

Between January 2002 and December 2008, 83 women with symptomatic uterine myomas were referred to the Second Department of Gynecology of St. Savvas Anticancer - Oncologic Hospital of Athens. The study included women with subserosal and/or intramural uterine myomas with a maximum diameter of ten cm. All patients underwent myomectomy by mini laparotomy.

Preoperatively, all patients underwent transvaginal ultrasonography (TVUS) to evaluate the presence or absence of associated pelvic disease and to determine dimensions, number, and location of uterine myomas. Bowel preparation and antithrombotic prophylaxis were performed, and short-term intraoperative prophylactic antibiotic therapy with a second generation cephalosporin was administered to all patients. Postoperatively, two more dosages of antibiotic therapy were administered. When the resulting defect was extensive, metronidazole was added.

The surgical procedure was performed with the patients under general anesthesia with their bladder catheterized. The operation commenced with a four to six cm transverse skin incision, two cm above the pubis. To avoid accidental lengthening of the incision, it was sutured at both ends. The abdominal fascia was opened transversely two cm above skin incision at a total length of six to eight cm. The abdominal muscle was opened longitudinally on the midline and entered into the parietal peritoneum. Then an elastic wound protector/retractor of four to six cm was used. An atraumatic uterine manipulator was also used in order to elevate the uterus toward the incision without causing mechanical damage.

Revised manuscript accepted for publication May 7, 2012

The surgical technique was basically the same as in laparotomy, but the surgeon had to perfect manual skills in working with the instruments in a vertical position, because their wide inclination was not possible. Myomectomy and uterus reconstruction was performed directly outside of the peritoneum.

A linear uterine incision, as small as possible, was made on the most prominent part of the myoma. If there were multiple myomas, a strategic incision site was attempted through which most of the myomas were removed. Careful palpation of the uterus allowed identification of additional myomas. After identification of the myoma pseudocapsule, enucleation was possible following the cleavage plane. The uterine defects were sealed with interrupted sutures.

Hemostasis was controlled and the uterus was repositioned into the pelvis. After repeated washing of the pelvis with ringer lactate solution, an absorbable adhesion barrier was placed over the uterine incisions in order to prevent adhesions. Mini laparotomy trauma was closed in separate layers.

Six months after surgery, all patients were evaluated with gynecologic examination and TVUS for recurrence of uterine myomas.

The study was approved by the Ethical Committee of the Hospital and an informed consent was obtained from each woman. Statistical analyses were performed using the SPSS-13 for Windows.

Results

The median age of the patients was 36.8 years (range 19 - 43) and the median body mass index (BMI) was 26.7 kg/m² (range 19 - 31). The median number of the removed uterine myomas was 3.1 (range 1 - 12). The median size of the largest uterine myoma was 5.7 cm (range 4 - 10). In this study, 36 patients received GnRH analogues preoperatively, because they had increased uterine size and/or low hemoglobin (Hb) levels. Patient characteristics are shown in Table 1.

The median operative time was 98 minutes (range 47 - 170) and the median decrease in Hb levels was 2.6 g/dl (range 0.3 - 4.4). All patients mobilized within the first 24 hours and the median time of postoperative ileus was 1.6 days (range 1 - 3). The median hospital stay was 44 hours (range 30 - 120). The operative parameters are shown in Table 2.

Although body temperature > 37°C was observed in all patients, postoperative fever > 38°C was observed only in four cases (4.82%). In this study, there were no serious intraoperative or early postoperative complications. Intraoperative blood transfusion was performed only in one case (1.2%). Conversion to laparotomy was performed only in four cases (4.82%). None of the patients underwent emergency hysterectomy. The intraoperative and postoperative problems are shown in Table 3.

All patients had significantly less postoperative pain (less postoperative use of continuous pain control anesthesia without increase in accumulated dose of pethidine). Furthermore, they had no request of analgesics after 48 hours postoperatively. Almost all patients returned to normal activity two weeks postoperatively.

All patients were evaluated postoperatively with gynecologic examination and TVUS. During a mean follow-

Table 1. — Patient characteristics (n = 83).

	Median value	Range
Age	36.8	(19 - 43)
Previous pregnancies	1	(0 - 3)
BMI (kg/m ²)	26.7	(19 - 31)
Number of uterine myomas	3.1	(1 - 12)
Largest uterine myoma (cm)	5.7	(4 - 10)

Table 2. — Patient operative parameters (n = 83).

	Median value	Range
Median operative time (min)	98	(47 - 170)
Decrease in Hb levels (g/dl)	2.6	(0.3 - 4.4)
Time of postoperative ileus (days)	1.6	(1 - 3)
Postoperative hospital stay (hours)	44	(30 - 120)

Table 3. — Intraoperative and postoperative problems encountered (n = 83).

	Yes	No
Postoperative fever > 38°C	4 (4.82%)	79 (95.18%)
Blood transfusion	1 (1.2%)	82 (98.8%)
Conversion to laparotomy	4 (4.82%)	79 (95.18%)
Emergency hysterectomy	0 (0%)	83 (100%)
Serious intraoperative & early postoperative complications	0 (0%)	83 (100%)

up of 38 months (range 6 - 72), there were no recurrences of uterine myomas or symptoms in the study population. There were also no recurrences of uterine myomas in the subgroup of women pretreated with GnRH analogues during the same follow-up period.

Discussion

Certainly for infertile women and for women desiring to preserve future childbearing capability, myomectomy remains the treatment of choice [7, 8]. Classical laparotomic myomectomy is associated with significant morbidity, including excessive blood loss, infection, and postoperative adhesions [9]. Minimally invasive techniques (laparoscopy and mini laparotomy) offer operative accuracy and early postoperative advantages documented in the treatment of benign and malignant gynecologic diseases [12-14]. They are a valid alternative to classical laparotomic myomectomy, with comparable earlier recovery, shortened hospital stay, long-term outcomes, and better quality of life [12].

However, many gynecologists are not skilled laparoscopists to perform laparoscopic myomectomy and uterine repair [15]. In order to maintain the efficacy of uterine repair and to reduce the clinical impact of laparotomic myomectomy, mini laparotomic myomectomy was proposed as an alternative to laparoscopic myomectomy [15, 16].

Mini laparotomy allows simple and less traumatic access to the pelvis, regardless of uterine size and/or previous abdominal surgeries [13]. It fulfills the criteria of

minimally invasive surgery, is less expensive, without compromising postoperative recovery of patients [17]. Also, it has less contraindications due to patient's clinical conditions [12]. Severe obesity represents the only factor statistically correlated with unsuccessful mini laparotomic surgery, especially in patients with BMI > 30 [7]. Considering the low extent of tissue trauma and the absence of retractors, mini laparotomy can elicit a neuroendocrine stress response less relevant to laparotomy and similar to laparoscopy [18].

Mini laparotomic myomectomy is technically less difficult to perform than laparoscopic myomectomy and gives the opportunity to seal the uterine defect properly and adequately, requiring less operative time and cost [12]. It is obvious that surgical technique in mini laparotomic myomectomy is basically the same as in classical laparotomic myomectomy [12]. In this study, the median operative time was 98 minutes (range 47 - 170) and the uterine defects were sealed with interrupted sutures.

Pretreatment with GnRH analogues before mini laparotomic myomectomy, remains controversial [7]. Preoperative use of GnRH analogues for three to four months: improves hematocrit levels, reduces myomas size, total uterine volume, and reduces intraoperative blood loss [19]. This is very important, especially for patients with anemia and/or large uterine myomas. In this study, 36 women were pretreated with GnRH analogues for three months due to anemia and/or large uterine myomas.

It is well known that intraoperative blood loss in myomectomy is correlated with preoperative uterine size, total weight of removed uterine myomas, and total operating time [20]. Certainly, preoperative use of GnRH analogues render mini laparotomic myomectomy technically easier and less time-consuming [7]. However uterine myomas become softer, and in some cases this can result in increased bleeding during operation [7]. Also, there may be an increased risk of recurrence, because small uterine myomas are recognized intraoperatively with difficulty [19]. In this study, no intraoperative difficulties were experienced, although 36 women were pretreated with GnRH analogues for three months. During a mean follow-up of 38 months, no recurrences of uterine myomas in the same subgroup of women pretreated with GnRH analogues were observed.

The greatest advantages of mini laparotomic myomectomy are: less intraoperative or early postoperative complications, low risk of conversion to laparotomy and low risk of recurrence compared with laparoscopic myomectomy [12, 21-23]. In this study, no serious intraoperative or early postoperative complications were shown and conversion to laparotomy occurred in only four cases. Also, there were no recurrences of uterine myomas, during a mean follow-up of 38 months. It is conceivable that the results regarding the recurrence rate of mini laparotomic myomectomy could be similar to those of laparotomic myomectomy [12]. An obvious explanation is that with mini laparotomic approach, it is possible to palpate the uterus and recognize small intramural uterine myomas intraoperatively [12].

Other important advantages of mini laparotomic myomectomy are: significantly less postoperative pain (less postoperative use of continuous pain control anesthesia without increase in accumulated dose of pethidine) and better recovery (earlier mobilization, shorter time of postoperative ileus, and shorter hospital stay) [17]. In this study, all patients had significantly less postoperative pain and they had no request of analgesics 48 hours after surgery. Also, all patients mobilized within the first 24 hours, the median time of postoperative ileus was only 1.6 days (range 1 - 3) and the median hospital stay was only 44 hours (range 30 - 120). Almost all patients returned to normal activity two weeks postoperatively.

Conclusion

Mini laparotomic myomectomy is a safe and effective minimally invasive method alternative to laparoscopic myomectomy for patients with subserosal and/or intramural uterine myomas.

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