

ORIGINAL RESEARCH

Laposcopic myomectomy -clinical considerations and outcome in 200 patients: An Original Research

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ABSTRACT

Aim: Purpose of the present research was to evaluate the clinical considerations as well as the outcome of laproscopic myomectomy in various uterine myomas.

Methodology: This was an observational study in women who have undergone laparoscopic myomectomy (LM) because of single symptomatic myoma >4 cm in diameter. We collected data about general features, surgical outcomes, intraoperative/postoperative complications and time to return to normal activity.

Results: A total of 200 patients (mean age 36.7 ± 6.4 years) resulted eligible for the study. Myomas sized between 8 and 12 cm were linked to an increased amount of blood loss (significantly higher in intramural than subserosal myoma). The removal of intramural myomas >8 cm and the subserosal ones >12 cm required a significant longer surgical time. Patients returned 17.9 ± 9.5 days after surgery to their personal activities. Six cases (1.35 %) required conversion to laparotomy, and only in two cases blood transfusion was necessary.

Conclusion: Myomas size and type represent the best predictors of surgical difficulties and possible intrapostoperative complications. Intramural myomas >8 cm and subserosal ones >12 cm should be considered as a challenging procedure. LM remains the gold standard approach.

Keywords: Laparoscopic myomectomy, Surgical outcomes, Surgical complications, Risk factors.

INTRODUCTION

Uterine leiomyomata (myomas or fibroids) are the most common benign pelvic tumor in women, with lifetime prevalence between 12-80%.¹ Myomas may present with symptoms of bleeding, pressure, pain, or subfertility, however when asymptomatic do not require treatment. For symptomatic women, severity may be influenced by myoma size and

location.²⁻⁴ Uterine preserving approaches include myomectomy, via laparotomy, laparoscopy or with robotic-assisted procedures; uterine artery embolization, magnetic resonance guided focused ultrasound (MRgFUS) and myolysis. More radical options include hysterectomy by any approach Bonney described myomectomy in 1931 with the myoma removed by laparotomy.³ The first laparoscopic myomectomy (LM) was reported by Semm in 1979. Although there have been changes in technology and technique, the aim to remove pathology, minimize morbidity, and preserve fertility remains.⁵ At laparoscopy, multiple myomas may be removed during one procedure, and with the introduction of morcellation, myoma size is no longer the limiting factor it was once was. Whereas abdominal myomectomy results in limited morbidity, similar to that with hysterectomy, laparoscopic myomectomy has resulted in remarkable advantages for the patient in medical, social, and economic terms, with less postoperative pain and shorter recovery time.⁶ Semm and Mettler published their first findings on laparoscopic myomectomy in 1980. Today, larger intramural myomas are also enucleated by this technique.⁷ The World health organization (WHO) criteria for laproscopic myomectomy- uterine size less than or equal to 14 weeks after 12 weeks of gonadotropin-releasing hormone (GnRH) agonist therapy; no individual myoma larger than 7 cm; no leiomyoma near the uterine artery, or near the tubal cornua if fertility was desired; and at least 50% of the leiomyoma subserosal, to be accessible and to allow adequate repair of the myometrium through the laparoscope. However, laparoscopic myomectomy (LM) seems to be affected by some limits related to the number and size of UM.⁸ Independently from the surgeons' experience, the most frequent complications remain the severe intra-postoperative bleeding (20 % of cases) and the conversion to hysterectomy (2 % of cases).⁹ Although several studies and techniques (such as compression of uterine artery, vasoconstrictor agents use, premyomectomy uterine artery embolization or artery ligation) have been proposed to minimize blood loss during LM, massive perioperative bleeding remains the main challenge for the surgeon.¹⁰

AIM OF THE PRESENT STUDY

Purpose of the present research was to evaluate the clinical considerations as well as the outcome of laproscopic myomectomy in various uterine myomas.

METHODOLOGY

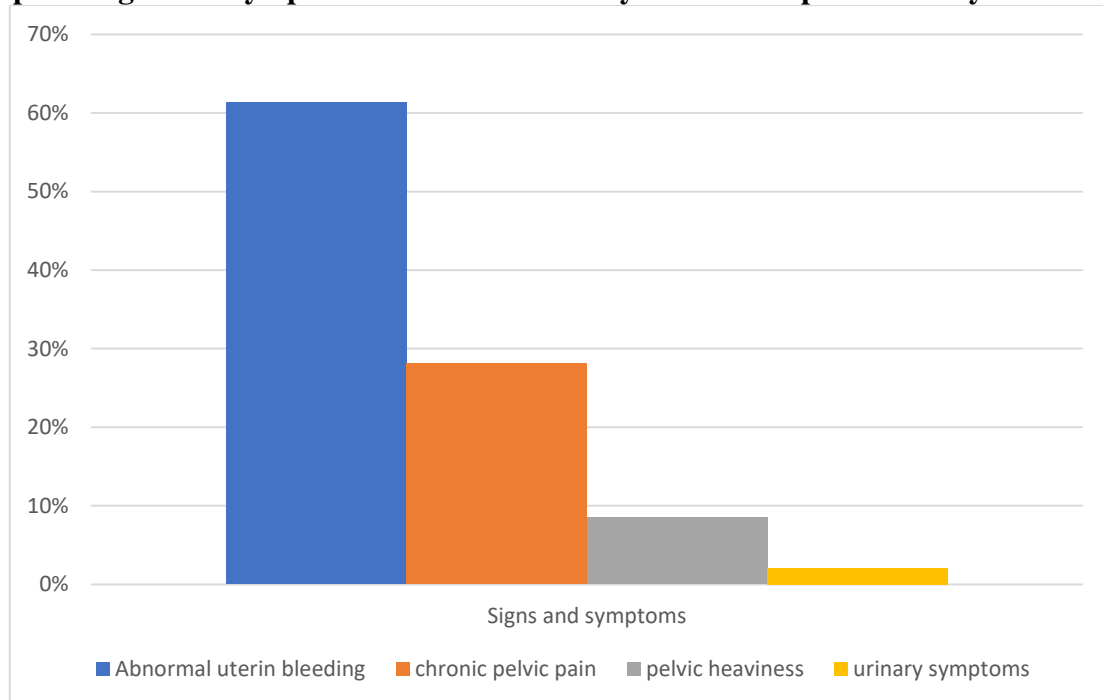
An observational study on women undergone to LM between January 2007 and December 2015 were included in the present research. All patients agreed to the aim of the study and the use of their data after signing written consent. Women with single myoma more than 4 cm in diameter (type 3, 4, 5 and 6 of Munro's classification) were considered eligible for the study. Patients, before surgery, underwent transvaginalultrasound investigation in order to assess myomas features(number, size, localization and type). Preoperative workupalso included Pap-smear and anesthesiology assessment. All LM were performed under general anesthesia with a 10-mm telescope. Harmonic Scalpel was used to enucleate the myomas and to perform uterine hemostasis. Data about age, parity, indication to surgery, myomas features (considering as localization site anterior wall, posterior wall or fundus), intraoperative estimated blood loss, operative time (from the insertions of trocars to skin closure),length of hospital stay and time needed to resumption of personal activities were collected. Intraoperative/ postoperative complications (blood transfusion, conversion to laparotomy, pelvic organ injuries) were also recorded. Descriptive analysis was performed for the entire sample using SPSS 25.0. To assess the relationship between myoma's features and surgical outcomes, only patients with single myoma were considered. Myomas type 3, 4 and 5 were considered as intramural, while type 6 was considered subserosal. Patients were divided into six groups: intramural myoma

less than 8 cm in diameter (group 1), intramural between 8 and 12 cm (group 2), intramural more than 12 cm (group 3), subserosal myoma less than 8 cm (group 4), subserosal between 8 and 12 cm (group 5), subserosal more than 12 cm (group 6). Categorical data were expressed as number (%), and for the continuous ones, median and interquartile range were used to describe non-normal data. Mean \pm standard deviation were used to describe normal distribution. *p* values <0.05 were considered statistically significant.

RESULTS

The surgical prescriptions for LM were Abnormal uterine bleeding (AUB) (61.3 %), chronic pelvic pain (28.1 %), pelvic heaviness (8.5 %) and urinary symptoms (2.1 %). (Graph 1)

Graph 1: Signs and symptoms associated with myomas in the present study



Concerning myoma localization, 184 (41.4 %) were in anterior uterine wall, 150 (33.8 %) in posterior uterine one and 110 (24.8 %) fundal. The mean size of the removed myomas was 7.6 ± 2.7 cm, the intraoperative mean blood loss was 184.1 ± 233.5 ml, the mean operative time was 77.2 ± 33 min and the mean length of hospital stay was 2.54 ± 1.1 days. Patients returned 17.9 ± 9.5 days after surgery to their personal activities. (Table 1)

Table 1: Data about size of myomas and intraoperative/postoperative surgical outcomes

Variables	Mean value \pm SD
Myomas' size (cm)	7.6 ± 2.7
Estimated blood loss (ml)	184.1 ± 233.5
Operative time (min)	77.2 ± 33
Length of hospital stay (days)	2.5 ± 1.1
Resumption of personal activities (days)	17.9 ± 9.5

Considering intraoperative complications, 6 (1.35 %) cases required conversion to laparotomy because of massive intraoperative bleeding. Logistic regression showed that size and type of myomas were good predictors of blood loss. Myomas with size between 8 and 12 cm were associated with an increased amount of blood loss with a statistical significant

difference between the two myoma types (median 275 vs. 200 ml, respectively; $p < 0.05$). The removal of myomas more than 12 cm (both intramural and subserosal) caused an higher blood loss. Considering surgical time, we observed that the removal of intramural myomas more than 8 cm and the subserosal ones more than 12 cm required a significant longer surgical time compared to the smaller ones.

DISCUSSION

Surgical myomas removal is the most common conservative approach in the management of symptomatic patients, and it remains the gold standard in reproductive age. Hysteroscopic myomectomy has been proved to be safer and long-term effective in type 0, 1 and 2 myomas. Although new techniques have been proposed as alternative to the surgical myoma removal (particularly type 3, 4, 5, 6, 7 myomas), the LM is considered the gold standard.¹¹⁻¹⁵ Compared to laparotomic approach, LM offers more advantages such as smaller incision, shorter hospitalization/ convalescence time, reduced postoperative pain, faster return to normal activities and reduced risk of postoperative adhesions. However, some concerns as intraoperative blood loss, longer operating time, difficulty in enucleating big myomas and endoscopic suture, risk of iatrogenic parasitic leiomyomas and complications related to trocar insertion remain about LM safety.¹⁶ Several authors compared open myomectomy to the laparoscopic approach in order to choose the most appropriate choice. Mais et al. did not find statistically significant differences in terms of blood loss or operating time.¹⁷ In a randomized controlled trial including myomas more than 5 cm or uterine size above the umbilicus, Seracchioli et al. reported that laparotomy resulted in a more pronounced hemoglobin drop, while laparoscopy required conversion to laparotomy only in a 4.3 % of cases because of difficulties in hemostasis and/or suturing time.¹⁸ In a large-scale study including 368 women undergone to LM, Landi et al. reported a 3.4 % intraoperative complication rate, mostly due to hemorrhage requiring blood transfusion or re-intervention. Evidences underlined that size, number and type of myomas can influence the choice of surgical approach: In woman with two or three myomas sized between 4 and 7 cm, laparoscopy can be considered safe and efficient.¹⁹ During the removal of larger myomas (>8 cm), technical difficulties may occur because of their difficult cleavage, longer operative time and unavoidable risk of perioperative bleeding.²⁰⁻²¹

CONCLUSION

LM can be considered safe and effective surgical approach remaining the gold standard one also in cases of large and intramural myomas. Large-scale studies are necessary to validate the role of proposed predictors to increase LM safety and to bring further down perioperative complications rate.

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