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Original Research Article

Laproscopic Myomectomy versus Open Myomectomy for Uterine Fibroids

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Abstract

Fibroids are common benign tumours arising in the uterus. Myomectomy is the surgical treatment of choice for womenwith symptomatic fibroids that prefer or want uterine conservation. Myomectomy can be performed by laparoscopy or open myomectomy. Aim of study is to determine the benefits and harms of laparoscopic myomectomy compared with open myomectomy. It is a comparative study conducted over 1 year in Department of Obstetrics and Gynecology, GMC, Akola, Maharashtra. 50 patients were included in study that was having uterine fibroid. Subjects were explained about surgery as treatment. 30 subject undergone Laproscopic myomectomy and 20 subjects undergone open myomectomy. The clinical data of patients who underwent OM and LM was analyzed. The data recorded comprised patient demographic information and clinical characteristics including age, weight, type, and size of myoma and myomectomy indications; and perioperative data including estimation of blood loss, duration of surgery, complications, and length of hospital stay. Our morbidity analysis in this study favored LM in terms of blood loss, short duration of hospital stay, and less postoperative complications.

Key words: Laproscopic myomectomy (LM), open myomectomy (OM), uterine fibroid.

INTRODUCTION

Fibroids (leiomyomas or myomas) are benign tumors that arise from smooth muscle cells. Fibroids can form wherever there is smooth muscle, but they are usually found in the uterus and constitute the most common benign tumours among women. Fibroids are found commonly in the uterus and connective tissues. They constitute the most common benign tumors among women. The pathogenesis of fibroids is associated with multiple factors including ovarian steroid hormones, growth factors, smooth muscle injury, and genetic predispositions [1]. Uterine fibroids commonly occur in women of reproductive age with an estimated rate of 20%–40% [2]. Uterine leiomyoma can be classified as intramural, submucosal, or subserosal. Leiomyomas are commonly asymptomatic.

Approximately 25% of these patients have symptoms such as heavy uterine bleeding, pelvic pain, pelvic and urinary retention symptoms, and infertility and complications in pregnancy [3]. Treatment options for myoma include hysterectomy, myomectomy, uterine artery embolization, myolysis, and medical therapy [4]. Myomectomy can be performed by laproscopy or open myomectomy. LM is a less invasive method with minimal complications, and it has been established in recent years [5]. The selection of patients for medical therapy, noninvasive procedures, or surgery depends on an assessment of the size, number, and position of myomas[6]. OM involves surgical removal of the fibroids through an incision in the abdominal wall, closure of the resulting uterine dead space, and reconstitution of the remaining uterus. Some studies have reported transfusion rates of up to 20% during OM [7].The site, size and number of fibroids determine the surgical route employed. Although intracavitary fibroids can be removed hysteroscopically, intramural and subserosal fibroids are most commonly removed through the abdominal wall by myomectomy. Open myomectomy (laparotomy), once popularised by Victor Bonney, involves surgical removal of the fibroids

through an incision in the abdominal wall, closure of the resulting uterine dead space and reconstitution of the remaining uterus. Decisions about choosing to proceed with myomectomy vary between gynaecologists, which may reflect the skill of the surgeon or differences among the women treated. Open myomectomy is associated with blood loss both during the operation and afterwards. Some case series have reported transfusion rates of up to 20%, and approximately 1%of women who undergo a myomectomy may require hysterectomy during surgery or in the first 24 hours after surgery because of uncontrollable bleeding. Fibroids can be removed by an operation called myomectomy, which is performed traditionally by cutting into the abdomen (laparotomy). In this procedure, the fibroid is removed and the uterus is conserved. Myomectomy can also be performed by using keyhole surgery (laparoscopy and hysteroscopy). Laparoscopic myomectomy involves small cuts in the abdomen (three or four, about 1 cm long) followed by removal of the fibroid using a telescopic rod lens system and long laparoscopic instruments [8]. The fibroids are then taken out by a procedure called *morcellation*, in which they are shaved into smaller pieces. Hysteroscopy is useful for fibroids, which are mostly inside the cavity of the uterus, and does not require any cut to the abdomen. LM differs from OM, in which a large (approximately12 cm) transverse incision is made along the abdomen, the fibroid excised, large sutures tied, and abdominal layers closed (usually a minimum of rectus sheath and skin layers). Evidence suggests that LM is associated with reduced morbidity compared to OM [9].

MATERIAL AND METHODS

It is a comparative study conducted over 1 year in Department of Obstetrics and Gynecology, GMC, Akola, Maharashtra. 50 patients were included in study that was having uterine fibroid. They were informed about the study and written consent was taken. Ethical committee clearance was taken. Subjects were explained about surgery as treatment. Before the surgery, patients were informed about benefits and risks of LM, including the possible necessity to convert to OM during the surgery and the intraoperative and postoperative risks such as bleeding. For each patient, the total surgery time was recorded from the anesthesiology charts. 30 subject undergone Laproscopic myomectomy and 20 subjects undergone open myomectomy.

Myomectomy operative techniques

OM was performed using a standard procedure. An incision was made on the skin depending on the size, location, and expected difficulty. Myomas were enucleated after an incision was made on the uterus using myoma screw or manually. LM was performed through 3–4 ports. The telescopic port is the higher most usually in the umbilicus. The other 2 or 3 accessory trocars would be inserted sufficiently high enough to provide an easy approach to the myomas for the laparoscopic instruments. Aqua dissection is done; needle is inserted half inch into myometrium, aspirated not in Venous sinuses. The uterus was always cannulated to allow correct exposure of the myomas and strong counter tractions during enucleation and suturing. Before incision of the uterus, vasopressin was injected into the planned uterus incision site for each fibroid to reduce bleeding, however, not in all cases. Approximetly 100ml of diluted vasopressin (10 units in 100 ml of normal saline) is injected, blanching effect is seen on uterus,pulse rate is watched. If vasopressin is absorbed there will be bradycardia, dissection plan becomes easy. Barbed sutures are used to give haemostatic effect. Barbed sutures reduce roughness of the suture line and thus avoid adhesion formation. Some superficial pedunculated or subserous myoma may not need any vasoconstrictor. The incision was made over the suspected myoma area. Incision is taken on uterus with scissors,horizontal mostly preferred as it is easy to suture with barbed suture as it has tension along the entire length of suture,baseball stitch reduces its exposure.Enucleation n separation of fibroid is helped due to dissection in correct plane due to saline injection. Then, the myomas were removed using myoma screw with traction and countertraction forces. Once removed the void area was sutured with absorbable suture which can either be in two layers or 1 layer depending on the depth of the void cavity. The myomas were morcellated intracorporeally inside an endobag and removed through the laparoscopic incision. Glyconate monofilament absorbable suture was used for skin closure for some cases. This was to ensure proper apposition and leaving no gap for hematoma. The abdominal incision was closed after all of instruments used were completely removed.

Statistical analysis

The clinical data of patients who underwent OM and LM was analyzed. The data recorded comprised patient demographic information and clinical characteristics including age, weight, type, and size of myoma and myomectomy indications; and perioperative data including estimation of blood loss, duration of surgery, complications, and length of hospital stay. Patients' data were compared between the LM, OM. Continuous data summarized as mean ± standard deviation and categorical data as number. The differences in marks obtained in 2 groups were analyzed by student's t test. The sample was described using mean and standard deviation for quantitative variable. A level of statistical significance was eastablished at a $P < 0.005$ set to be statistically significant.

RESULTS

A total of 50 women who underwent myomectomy were included in the analysis. 30 patients

had undergone laproscopic myomectomy and 20 patients had undergone open myomectomy. All patients were divided into 2 groups as follows: those who underwent LM (n = 30), OM (n = 20). Table 1 shows number of patients with different types of fibroids. 25 patients have subserosal fibroid, 12 patients had intramural fibroid and 13 patients had submucosal fibroid.

Table-1: Types of Uterine fibroids

Type of fibroid	Number of patients
Subserosal	25
Intramural	12
Submucous	13

Table 2 shows size of fibroids and number of patients who undergone laproscopic and open myomectomy. 8 patients undergone LM and 3 undergone OM with size of fibroid less than 5 cm. 18 patients undergone LM and 9 undergone OM with size of fibroid between 5 to 10 cm. 4 patients undergone LM and 8 undergone OM with size of fibroid greater than 5 cm.

Table-2: Size of uterine Fibroid and number of patients undergone LM/OM

Size of Fibroid	Number of subjects undergone LM(30)	Number of subjects undergone OM(20)
< 5 cm.	8	3
5 to 10 cm.	18	9
> 10 cm.	4	8

Table 3 shows mean and standard deviation values of Age of patients, Duration of surgery, Blood loss during surgery, number of days of hospital stay, and number of patients with post-operative infection.

Mean age of patients undergone LM was 35±3.42 and it was 33.02±4.34 years who had undergone OM. Table 3 shows that duration of surgery was less in LM as compared to OM and it was statistically significant. The average blood loss during surgery was more in OM than in LM and it is significant. The duration of stay required for patients undergone OM was more than patients who had undergone LM. It is also seen that patients undergoing OM had higher chances of postoperative infections as compared to patients undergoing LM.

Table-3: Clinical parameters of Study subjects

Parameters	Number of subjects undergone LM(30)	Number of subjects undergone OM(20)	P value
Age(years)	35±3.42	33.02±4.34	>0.005
Duration of surgery(Minutes)	75±5.2	90±2.34	<0.005
Estimated blood loss(ml.)	120±15.34	250±20.34	<0.005
Hospital stay(days)	2±1	4±2	<0.005
Post-operative infection	2±1	3±1	<0.005

<0.005 – highly significant

DISCUSSION

All women who underwent myomectomy in this study had clinical symptoms such as menorrhagia, dysmenorrhea, abdominal mass, infertility and other symptoms which lead to reduced quality of life. This study revealed that morbidity outcomes were less in patient's undergone Laproscopic myomectomy as compared to patient's undergone open myomectomy. There were differences in fibroids characteristics, blood loss, duration of hospital stay, and postoperative complications. LM was commonly used to remove myoma as it has a better cosmetic result and faster recovery than the OM. However, when dealing with large fibroids, potential surgical complications might challenge the surgeon's operative skills and patience. Currently, there is no clear cut definition as to what is the maximum size of uterine fibroid should be considered for LM. The main factors in employing of LM are as follows: size of the fibroid, number of fibroids, the ability to secure hemostasis by laparoscopy, the removal of large fibroids out of the abdomen, the repair of the uterine Incision, and the control of operative blood loss. Our morbidity analysis in this study favored LM in terms of blood loss, short duration of hospital stay, and less postoperative complications. This was similarly seen in many other studies [10, 11]. More than 50% of women who underwent LM reported no postoperative complications. Rupture of uterus can be complication in future in both LM and OM surgery but chances of rupture are more in open myomectomy than by laproscopic myomectomy. Our study had several strengths and limitations. Despite recent infatuation in robotic myomectomies as one of the minimally invasive

surgeries, the study participants were all LM and OM as it saves both time and money. Furthermore, our gynaecologists have been well trained in laparoscopic surgical skills. Careful preoperative selection for LM and OM will eventually reduce laparo conversion rate in patients undergo myomectomy, thereby reducing the duration of surgery and hospital stay.

CONCLUSION

Our study showed both LM and OM are safe and reliable surgical methods with distinct surgical indications and outcomes. LM has several advantages over OM such as faster recovery and minimal risk; hence, LM should be the intended surgery. Preoperative evaluation of the size and number of myomas is necessary for careful selection of the patients to prevent laparo conversion and to reduce the intraoperative and postoperative complications. Laparoscopic myomectomy is a procedure associated with less subjectively reported postoperative pain, lower postoperative fever and shorter hospital stay compared with all types of open myomectomy. No evidence suggested a difference in recurrence risk between laparoscopic and open myomectomy. More studies are needed to assess rates of uterine rupture, occurrence of thromboembolism, need for repeat myomectomy and hysterectomy at a later stage.

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REFERENCES

1. Lumsden, M. A. (2002). Embolization versus myomectomy versus hysterectomy: which is best, when?. *Human reproduction*, *17*(2), 253-259.
2. Ryan, G. L., Syrop, C. H., & Van Voorhis, B. J. (2005). Role, epidemiology, and natural history of benign uterine mass lesions. *Clinical obstetrics and gynecology*, *48*(2), 312-324.
3. Wallach, E. E., & Vlahos, N. F. (2004). Uterine myomas: an overview of development, clinical features, and management. *Obstetrics & Gynecology*, *104*(2), 393-406.
4. Evans, P., & Brunsell, S. (2007). Uterine fibroid tumors: diagnosis and treatment. *American family physician*, *75*(10).
5. Holzer, A., Jirecek, S. T., Illievich, U. M., Huber, J., & Wenzl, R. J. (2006). Laparoscopic versus open myomectomy: a double-blind study to evaluate postoperative pain. *Anesthesia & Analgesia*, *102*(5), 1480-1484.
6. Khan, A. T., Shehmar, M., & Gupta, J. K. (2014). Uterine fibroids: current perspectives. *International journal of women's health*, *6*, 95.
7. LaMORTE, A. I., Lalwani, S., & Diamond, M. P. (1993). Morbidity associated with abdominal myomectomy. *Obstetrics and gynecology*, *82*(6), 897-900.
8. Semm, K. (1979). New methods of pelviscopy (gynecologic laparoscopy) for myomectomy, ovariectomy, tubectomy and adnectomy. *Endoscopy*, *11*(02), 85-93.
9. Jin, C., Hu, Y., Chen, X. C., Zheng, F. Y., Lin, F., Zhou, K., & Gu, H. Z. (2009). Laparoscopic versus open myomectomy—a meta-analysis of randomized controlled trials. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *145*(1), 14-21.
10. Marret, H., Chevillot, M., Giraudeau, B., of the French, T. S. G., & of Gynaecology, S. (2004). A retrospective multicentre study comparing myomectomy by laparoscopy and laparotomy in current surgical practice: What are the best patient selection criteria?. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *117*(1), 82-86.
11. Dubuisson, J. B., Fauconnier, A., Fourchotte, V., Babaki-Fard, K., Coste, J., & Chapron, C. (2001). Laparoscopic myomectomy: predicting the risk of conversion to an open procedure. *Human Reproduction*, *16*(8), 1726-1731.