

Laparoscopic Myomectomy: Does it have any Advantages over Conventional Laparotomy?

Cromwell HM Mwakirungu

Consultant, Obstetrics and Gynecology, Nairobi, Kenya

Abstract

Uterine myoma commonly referred to as fibroids, are so far the commonest benign tumors of the female genital tract and are the commonest soft tissue tumors of all. Worldwide, several thousand patients suffer yearly and some undergo surgery as a result of symptoms and complications of fibroids. Myomectomy, the removal of fibroids has always been done by laparotomy but recently, laparoscopic myomectomy has been started and is really getting support from endoscopic surgeons. Laparoscopic myomectomy, a heterogenous procedure, ranges from a simple procedure to a more complex one requiring expert laparoscopic suturing skills. Large pedunculated myomas are easily removed laparoscopically, but intramural ones really pose a challenge for these surgeons. Several studies have been conducted mainly nonblind ones and the results, though encouraging, do not look scientifically convincing. Laparoscopic myomectomy has its advantages but as is any new mode of treatment or surgery, it has its opponents and proponents.

The few double blind studies done have good convincing conclusions but more really needs to be done. The biggest challenge in laparoscopic surgery in general, is the cost of the equipment and therefore the cost of surgery.

When this study was undertaken, initially it was thought no data would be obtained, but by the time of completion of the study, there was enough data collected. Only that, different investigators, looked at different issues differently. It was concluded that more research work needs to be done so that we may have more convincing, well researched issues to lay the fears of the doubting at rest.

Keywords: Myoma, myomectomy, laparoscopy, hysteroscopy, GnRH agonists.

INTRODUCTION

Uterine leiomyomas are the commonest tumors of the uterus and the female pelvis. The incidence amongst women ranges from 20 to 25%¹ but have been shown to be as high as 70 to 80% in studies using histologic or sonographic examinations.²⁻⁴ Women of African and Caribbean origin are said to have the highest incidences.⁵

Myomas arise from the smooth muscle cells of the uterus and as they grow, depending on the resistance against them, they may remain within the muscle (intramural), push their way to just below the serous covering of the uterus (subserous), or just beneath the mucous lining of the endometrial cavity (submucous). Myoma symptoms have a good correlation with their location explaining why some patients with large myomas may

not complain while some suffer debilitating symptoms from very small myomas.

The pathogenesis of myomas is ill understood though it is well known that multiple myomas in the same uterus are derived from individual myometrial cells and not through a metastatic process.⁶ Myoma growth is hormone dependent explaining why they are rare prior to menarche and regress after the menopause. This is the time when sex steroids mainly estrogens and progesterone are at their lowest. Studies have found that estrogen and progesterone receptors are over expressed in myoma tissues compared to other normal myometrial tissue.⁷ Uninterrupted estrogen supply encourages myoma growth; however growth is interrupted in low levels as in smokers and pregnancy. Growth may at times be excessive in pregnancy. This is explained by increased blood flow to the uterus during pregnancy.⁸

The main symptoms which make patients visit their doctors are:

1. Abnormal uterine bleeding
2. Pressure
3. Pelvic/abdominal pains
4. Rapid growth
5. Infertility
6. Repeated abortions.

Management of fibroids is varied and may depend on the physician the patient visits first. This can be medical or surgical. Medical treatment uses GnRH analogues which produce an estrogen deficient milieu thereby reducing the symptoms of the patient. Unfortunately for the medical treatment, it cannot be offered over a long time. It is therefore used while waiting for the patient to make up their mind through proper counseling. GnRH analogues help reduce the size of myomas enabling easy surgery or building up of the hemoglobin levels of the patient before surgery.⁹⁻¹¹

Myomectomy or hysterectomy are the other treatment modes a patient with symptomatic fibroids is offered. Hysterectomy is usually proposed to those who might have completed their family size while, myomectomy is proposed for those who for one or other reason (fertility or personal) would want to keep their uterus. A patient should also be educated to help her or together with her spouse to make an informed decision.

Myomectomy can be performed either through an abdominal incision (laparotomy) or through small holes made using canulas and trocars and using a special telescope to perform the surgery (laparoscopic). After laparoscopic myomectomy, the myomas are removed from inside the abdomen by either an instrument called a morcellator, or through an incision through the posterior cul de sac of Douglas and through the vagina.

Hysteroscopic myomectomy can also be done for endometrial or submucous myomas.

AIMS AND OBJECTIVES

The aim of the study was to compare whether there are any advantages by doing laparoscopic myomectomy over the conventional 'open' myomectomy. The following parameters were evaluated for both the procedures:

1. Method of patient selection
2. Operative technique
3. Operating time
4. Intra- and postoperative complications
5. Postoperative pain and use of narcotic analgesia
6. Postoperative morbidity
7. Hospital stay
8. Cost effectiveness
9. Quality of life analyses.

MATERIAL AND METHODS

A literature search was performed using Medline, Highwire press, Springerlink and the Google search engine. The following search terms were used: *myoma, myomectomy, laparoscopy, laparotomy*. GnRH analogues and hysteroscopy. 1400 citations were found in all. Selected papers were screened for further references. Criteria for selection of literature were the number of cases (excluded if less than 20), methods of analysis (statistical or nonstatistical), operative procedure (only universally accepted procedures were selected) and the institution where the study was done (specialized institutions for laparoscopic surgery).

RESULTS

Out of a total of 30 articles reviewed, only six had the important information for analysis and presentation. This is shown in the matrix above.

Dr Paul Indman in his reviews of the patients he had attended to in his surgery, found that most of the patients he operated on by laparoscopic technique recovered earlier and even resumed duty much earlier than the ones undergoing laparotomy. He found that within two weeks of surgery, the patients had resumed duty while those operated by the open method stayed

| Article/Year | Method | Surger | No.Sub | P/c72h | H/Stay | Re/ Per | O/Par |
|-------------------------------------|---------|--------|--------|--------|--------|---------|--------|
| P Indman 2006 ¹² | Review | Lap | – | – | 24 | 2 weeks | – |
| | Review | Conv | – | – | > 48 | 6 weeks | – |
| A Cagnacci et al 2003 ¹³ | Random | lap | 17 | min | 10 | – | – |
| | Random | Conv | 17 | max | 0 | – | – |
| Mais V et al 1996 ¹⁴ | Random | lap | 20 | 17 | – | 2 w/18 | – |
| | Random | Conv | 20 | 3 | – | 2 w/1 | – |
| C Chapron et al 2002 ¹⁶ | Random | lap | 1809 | – | – | – | O/r |
| | Random | Conv | 1802 | – | – | – | O/r |
| Holzer et al 2006 ¹⁷ | D/Blind | lap | 19 | A/nil | – | – | – |
| | D/Blind | Conv | 21 | A/all | – | – | – |
| Alfonso R et al 2001 ¹⁹ | Random | Lap | 81 | – | – | – | Rec/11 |
| | Random | Conv | 81 | – | – | – | Rec/9 |

Keys

Surger—Operation type

No.Sub—Number of subjects

P/c72h—Pain control by 72 hours and need for narcotic analgesia

H/Stay—Hospital stay before discharge

RE/Per—Recovery period

O/Par—Other parameters observed

Lap—Laparoscopic myomectomy

Conv—Conventional open

A/nil—Almost all did not need pain killers

A/all—Almost all needed pain killers

O/r—Other risks

Rec/11/9—Recurrences of myomas postsurgery.

in hospital longer and even took long to recover and resume duty.¹²

A Cagnacci et al in a randomized prospective study looked at pain control in their patients and duration of hospital stay before discharge. Of the patients operated by laparoscopy, only a very small number required analgesia by 72 hours after surgery, while almost all who underwent laparotomy were still on analgesics 72 hours after surgery. On hospital stay ten of the 17 patients of laparoscopic surgery had been discharged while none in the laparotomy group.¹³

Mais V et al in another randomized clinical study in 1996 involving 40 subjects had similar findings that pain control was better tolerated by those in the laparoscopy group than the laparotomy group. While only 3 patients needed analgesics in the laparoscopy group, 17 of the laparotomy patients needed analgesia. By the 15th day of surgery, 18 of the patients who had laparoscopic surgery had left hospital while only one had been discharged from the laparotomy group.¹⁴

C Chapron et al in a meta-analysis in 2002 of published data, from a randomized clinical trial looked at risks facing patients after laparoscopic myomectomy. (1809-laparoscopy and 1802-laparotomy). He found that the overall risk of complications was significantly lower for the patients operated by laparoscopy.¹⁷

Holzer et al is accredited with the first double-blind study in pain control after laparoscopic myomectomy. After surgery, all the patients had similar dressings and therefore none of them knew which patients had which type of surgery.¹⁹ had laparoscopy and 21 had laparotomy. The investigators were also kept in the dark. On completion of the study, analysis done clearly showed that laparoscopic surgery had clear advantages over laparotomy as far as pain control is concerned.¹⁸

Alfonso Rossetti et al in their review published in April 2001 looked at the rate of myoma recurrence following either laparoscopic or laparotomy myomectomy. 162 patients were involved, 82 for each type of surgery. These were followed up to 40 months. At the end of this duration, 11 in the laparoscopy and 9 in the laparotomy had recurred. Analysis of this did not show any statistical significance.¹⁹

DISCUSSION AND CONCLUSION

Laparoscopic myomectomy is still a highly debated procedure. In spite of the progress made towards this surgery since it was first described at the end of the 1970s (Semm and Mettler), laparoscopic myomectomy has remained a challenge to gynecologic surgeons. It is said to take more time,²¹ with more intraoperative complications. With proper training, laparoscopic myomectomy is not necessarily a long procedure only that the tactile advantage of palpating the myoma uterus is lost and this could lead to some small myoma being left.²⁰ Postoperative pain control has been shown to be very good from the various

reviews indicating clear advantages over the open conventional type of myomectomy.^{13,14,18} The time taken to recovery is also short following laparoscopic myomectomy. This clearly is an advantage to the patient and the surgeon. Hospital bed space is also created for other patients to occupy. Early return to duty is also an added advantage although still patients may suffer from fatigue as a result of the anesthesia; they still recuperate at home.¹²⁻¹⁵ Patient satisfaction is also another factor. The operation site does not have a big incision as is the case with conventional myomectomy. This is especially satisfying in the cosmetically conscious patients.

Despite all the mentioned advantages, laparoscopic myomectomy is an expensive procedure and the surgeon must be sure of what she/he is doing. Proper and complete training is a must as there are no short cuts to operative laparoscopy. The patient must be explained what to expect including the possibility of conversion if need be.

Laparoscopic Myomectomy has been given a lot of attention and publicity worldwide but still it remains such a controversial subject. Several studies conducted are either against or for laparoscopic myomectomy-a clear case of bias. This should however not discourage those for it as they are the ones who will improve and refine the surgery.

From the foregoing, it is clear that despite the many controversies and the bias against laparoscopic myomectomy, the several studies reviewed may not have given a clear picture of the way forward, but a clear foundation has been laid down to have more studies carried out in the future to clearly show whether there are clear advantages of laparoscopic myomectomy over the conventional way- laparotomy. Most of the drawbacks in the study resulted from the fact that;

1. There were no clear reviews for research.
2. There was very minimal scientific blinding, which is usually the main stay of scientific research.
3. Some investigators might have clear publication bias of results.

REFERENCES

1. R K Mishra. Textbook of Practical Laparoscopic Surgery, Chap 30: Laparoscopic myomectomy 1st Edition 2008;312.
2. Buttram VC, Reiter RC. Uterine Leiomyoma: Etiology, symptomatology, and management. Fertil steril 1981;36:433.
3. Cramer SF, Patel A The frequency of uterine leiomyomas. Am J Clin Pathol 1990;94:435.
4. Day Baird D, Dunson DB, Hill MC, et al. High Cumulative Incidence of uterine leiomyoma in black and white women: Ultrasound Evidence. Am J Obstet Gynecol 2003;188:100.
5. Kjerulff KH, Langenberg P, Siedman JD, Stolley PD, Guzinsin GM. Uterine leiomyomas: Racial differences in severity symptoms and age at diagnosis. J Reprod Med 1996;41(7):483-90.

6. Anderson J: Factors in fibroid growth (100ref) Baillieres Clinic Obstet Gynecol 1998;12(2):225-43.
7. England K, Blanck A, Gustavsson I, Lundkvist U, Sjoblom P, et al. Sex steroid receptors in human myometrium and fibroids Changes during the menstrual cycle and gonadotroin releasing hormone agonist treatment. J Clinical Endocrinol metab 1998;83:4092-96.
8. Aharoni A, Reiter A, Golan D, et al. Pattern of growth of leiomyoma during pregnancy: A prospective longitudinal study, BJOG 1998;95:510.
9. Filicori M, Hall DA, Loughlin JS, Rives J, Vale W, et al. A conservative approach to the management of uterine leiomyomas: Pituitary desensitization by a luteinizing hormone analogue. Am J Obstet Gynecol 1983;147-72.
10. Gutmann JN, Corson SL. GnRH agonist therapy before myomectomy or hysterectomy. J minim Invasive Gynecol 2005;12:529-37.
11. Letharby A, vollenhoven B, sowter M. Preoperative GnRH analogue therapy before hysterectomy or myomectomy for uterine fibroids Cochrane Database syst Rev 2001;2:CD000547.
12. Paul Indman. ObGyNet 2006- All about fibroids.
13. A Cagnacci, D Pirillo, S Malmusi, S Arangino, C Alessandrini, A Volpe. Early outcome of myomectomy by laparotomy, mini-laparotomy, and laparoscopic assisted minilaparotomy: A randomized prospective study. Human Reproduction Dec 2003;18(12):2590-94.
14. Mais V, Ajossa S, Guerriero S, et al. Laparoscopic verses abdominal myomectomy: A prospective randomized trial to evaluate benefits in early outcome. Am J Obstet and Gynecol 1996;74:654-58.
15. P Seinera, R Arisio, A Decko, C Farina, F Crana. Laparoscopic Myomectomy: Indications, surgical technique and complications. Human Reproduction 1997;12:192-30 (Copy right).
16. C Chapron, A Fauconnier, F Goffinet, G Breart, JB Dubuisson. Laparoscopic surgery is not inherently dangerous for patients presenting with benign gynecologic pathology. Results of a meta-analysis. Human Reproduction May 2002;17(5):1334-42.
17. Holzer A, Jirecek ST Illievich UM, Huber J, Wenzl RJ. Laparoscopic verses open myomectomy: A double blind study to evaluate postoperative pain. Anesthesia and analgesia 2006;102(5):1480-84.
18. Prentice A, Taylor A, Sharma MA, Magos A. laparoscopic verses open myomectomy for uterine fibroids (protocol) Cochrane database of system review 2004, issue 1 Art No CD004638.DOI:10 1002/14651858.
19. Alfonso R, Ornella S, Liberato S, Francesco C, Salvatore M, et al. Long-term results of laparoscopic myomectomy: Recurrence rate in comparison with abdominal myomectomy. Human Reproduction April 2001;16(4):770-74.
20. Nazli Hameed, M Asghar Ali- Recent Trends in Laparoscopic Myomectomy. J Ayub Med Coll Abbottabad. Combined Military Hospital-Peshawar Mar 2004;16(1):58-63.
21. NH Stringer, JC Walker, PM Mayer. Comparison of 49 laparoscopic myomectomies with 49 open myomectomies J Am Assoc Gynecol laparosc Aug 1997;4(4):457-64.