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Perioperative outcomes of laparoscopic versus abdominal myomectomy- A comparative study

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Abstract
Background: Myomas are benign, hormone-sensitive, fibromuscular tumors of the uterus affecting up to 25-70% of reproductive aged women. The present study was conducted to compare perioperative outcomes of laparoscopic versus abdominal myomectomy.
Materials & Methods: The present study was conducted on 104 women with myomectomy. Patients were divided into 2 groups of 52 each. Group I patients were planned for laparoscopic myomectomy and group II patients were planned for abdominal myomectomy. The number, size, length of hospital stays and operation time was recorded.
Results: The mean age in group I patients was 38.2 years and in group II was 36.4 years, mean weight of group I patients was 68.2 kgs and group II patients was 70.3 kgs, mean height was 165.2 cm and 162.3 cm in both groups respectively, mean BMI was 26.4 Kg/m^{2}and 27.1 Kg/m^2 respectively The number of myomas was 1.2 in group I and 1 in group II. The difference was non- significant (P> 0.05). The mean operation time in group I was 130.4 minutes and 104 minutes in group II, pre- operative Hb was 11.2 g/dl in group I and 11.5 g/dl in group II, post- operative Hb was 10.4 g/dl and 10.1 g/dl in group II respectively, pre- operative hematocrit levels in group I was 36.4% in group I and 37.2 % in group II, post- operative hematocrit levels in group I was 30.5% and in group II was 31.4%, mean hospital stay was 2.4 days in group I and 3.2 days in group II, mean blood loss was 340 ml and 180 ml in both groups respectively. The difference was significant (P< 0.05).
Conclusion: Authors found that laparoscopic myomectomy is comparable to open myomectomy. It yielded shorter hospitalization whereas blood loss and operation time was less with open myomectomy.

Keywords: Laparoscopic myomectomy, operation time, hospitalization

Introduction
Myomas are benign, hormone-sensitive, fibromuscular tumors of the uterus affecting up to 25-70% of reproductive aged women [1]. These benign tumors originate from uterine smooth muscle cells and can cause severe symptoms such as abnormal uterine bleeding, pelvic pain and infertility [2]. Though only a small percentage of the myomas present with clinically important symptoms, they still remain the leading indication for hysterectomy. Traditionally, myomectomy is needed when the myoma is symptomatic, causing pain, menorrhagia and iron deficiency anemia, or asymptomatic but growing rapidly and causing recurrent pregnancy losses in the exclusion of other reasonable factors to explain infertility [3].
Fibroids that distort the endometrial cavity may impair fertility by several mechanisms including the creation of an abnormal site for placental implantation and growth resulting in infertility, an increased risk of spontaneous abortions, preterm labor and delivery. The conception rate is approximately 53%–70% after myomectomy for submucus myomas, and 58%– 65% after myomectomy with intramural or subserosal leiomyomas [4]. unfortunately, information on duration of infertility, surgical technique, number and size of leiomyomas, or the increase in compared to laparotomy. The advantage of speedy postoperative recovery and less postoperative adhesions with subsequent fertility outcome is the main advantages [6]. In contrast it needs more operation time and has higher blood loss compared to open myomectomy. Traditional open myomectomy results in a limited morbidity similar to that of hysterectomy, laparoscopic myomectomy, according to some authors, provides clear advantages in medical, social and economic terms, with lower post-operative pain and shorter recovery time [7]. The present study was conducted to compare perioperative outcomes of laparoscopic versus abdominal myomectomy.

Materials and methods

The present study was conducted in the department of Obstetrics and gynecology. It comprised of 104 women. Patient were selected based on presence of pain or pressure symptoms, myomas attributed to infertility or reproductive dysfunction, rapidly growing and having a diameter of 5-10 cm myomas and menstrual disorders. All patients were informed regarding the study and written consent was obtained. Ethical clearance was taken from ethical committee.

Demographic data such as name, age etc. was recorded. Patients were divided into 2 groups of 52 each. Group I patients were planned for laparoscopic myomectomy and group II patients were planned for abdominal myomectomy. All women were subjected to transvaginal and abdominal ultrasound. The number, size, length of hospital stays and operation time was recorded. Results thus obtained were statistically analyzed. P value less than 0.05 was considered significant (P< 0.05).

Table 1: Distribution of patients

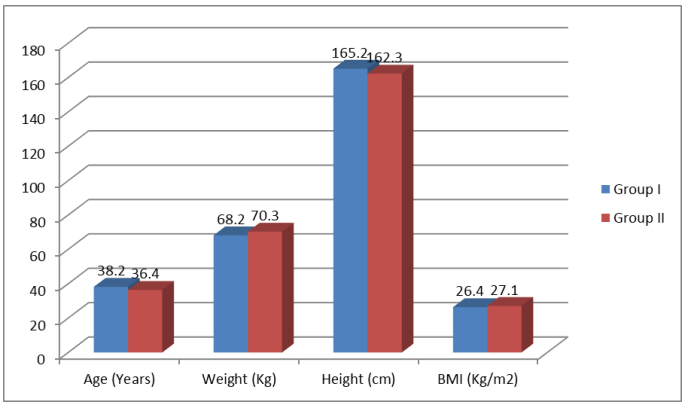
Groups	Group I	Group II
Procedure	Laparoscopic	Abdominal
Number	52	52

Table I shows that group I patients were planned for laparoscopic myomectomy and group II patients were planned for abdominal myomectomy. Each group had 52 patients.

Table 2: Comparison of demographic data

Variables	Group I	Group II	P value
Age (Years)	38.2	36.4	0.12
Weight (Kg)	68.2	70.3	0.15
Height (cm)	165.2	162.3	0.72
BMI (Kg/m^2)	26.4	27.1	0.25
Number of myomas	1.2	1.0	0.94

Table II, graph I shows that mean age in group I patients was 38.2 years and in group II was 36.4 years, mean weight of group I patients was 68.2 kgs and group II patients was 70.3 kgs, mean height was 165.2 cm and 162.3 cm in both groups respectively, mean BMI was 26.4 Kg/m^{2}and 27.1 Kg/m^2 respectively The number of myomas was 1.2 in group I and 1 in group II. The difference was non- significant (P> 0.05).

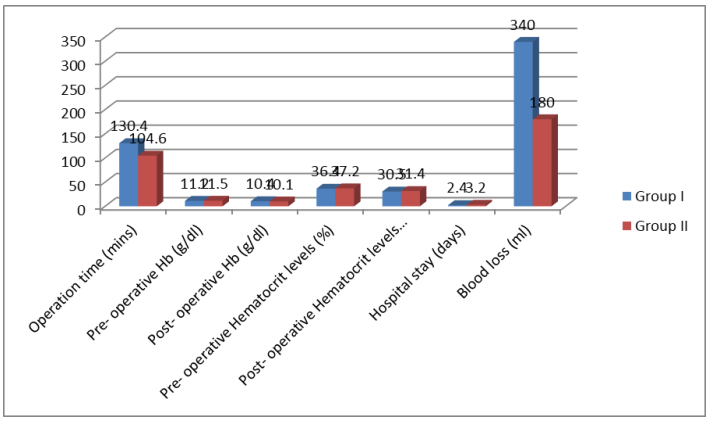


Graph 1: Comparison of demographic data

Table 3: Perioperative outcome in both groups

Outcome	Group I	Group II	P value
Operation time (mins)	130.4	104.6	0.01
Pre- operative Hb (g/dl)	11.2	11.5	0.72
Post- operative Hb (g/dl)	10.4	10.1	0.14
Pre- operative Hematocrit levels (%)	36.4	37.2	0.91
Post- operative Hematocrit levels (%)	30.5	31.4	0.16
Hospital stay (days)	2.4	3.2	0.05
Blood loss (ml)	340	180	0.01

Table III, graph II shows that mean operation time in group I was 130.4 minutes and 104 minutes in group II, pre- operative Hb was 11.2 g/dl in group I and 11.5 g/dl in group II, post-operative Hb was 10.4 g/dl and 10.1 g/dl in group II respectively, pre- operative hematocrit levels in group I was 36.4% in group I and 37.2 % in group II, post- operative hematocrit levels in group I was 30.5% and in group II was 31.4%, mean hospital stay was 2.4 days in group I and 3.2 days in group II, mean blood loss was 340 ml and 180 ml in both groups respectively. The difference was significant (P< 0.05).



Graph 2: Perioperative outcome in both groups

Discussion

Laparoscopic myomectomy is only appropriate when indications for surgery have been met. Pelvic pain, pressure, and abnormal uterine bleeding are the most common symptoms that lead women to seek surgery for fibroids. Fibroids may also compress adjacent structures, and cause urinary frequency or urgency, constipation, or dyspareunia, or poor reproductive outcomes [8]. Indications for surgical management of uterine myomas include abnormal uterine bleeding not responsive to conservative treatments, high level of suspicion of malignancy, growth after menopause, infertility with distortion of the endometrial cavity or tubal occlusion, pain or pressure that interferes with quality of life, and urinary tract frequency or obstruction, or iron deficiency anemia related to abnormal uterine bleeding.[9] The present study was conducted to compare perioperative outcomes of laparoscopic versus abdominal myomectomy.

We found that the mean age in group I patients was 38.2 years and in group II was 36.4 years, mean weight of group I patients was 68.2 kgs and group II patients was 70.3 kgs, mean height was 165.2 cm and 162.3 cm in both groups respectively, mean BMI was 26.4 Kg/m^2 and 27.1 Kg/m^2 respectively The number of myomas was 1.2 in group I and 1 in group II. Hurst *et al.*, [10] have shown that laparoscopic myomectomy provides the advantages of shorter hospitalization, faster recovery, fewer adhesions, and less blood loss than abdominal myomectomy when performed by skilled surgeons. Improvements in surgical instruments and techniques allows for safe removal and multilayer myometrial repair of multiple large intramural myomas. Randomized trials support the use of absorbable adhesion barriers to reduce adhesions, but there is no apparent benefit of presurgical use of GnRH agonists. Pregnancy outcomes have been good, and the risk of uterine rupture is very low when the myometrium is repaired appropriately.

We observed that mean operation time in group I was 130.4 minutes and 104 minutes in group II, pre- operative Hb was 11.2 g/dl in group I and 11.5 g/dl in group II, post- operative Hb was 10.4 g/dl and 10.1 g/dl in group II respectively, pre- operative hematocrit levels in group I was 36.4% in group I and 37.2 % in group II, post- operative hematocrit levels in group I was 30.5% and in group II was 31.4%, mean hospital stay was 2.4 days in group I and 3.2 days in group II, mean blood loss was 340 ml and 180 ml in both groups respectively.

Ahmad *et al.* [11] conducted a study in which total of 48 elective myomectomies was performed, 34 (70.8%) were performed via laparoscopic, 14 (29.2%) via laparotomy. Majority patient in an abdominal group is elder. The intramural subtype and uterus size >16 weeks size are an equal number in both groups. In this study, both groups had done equal numbers of cases (24 cases). Duration of operating hours was classified into 2 hours, and the similar result was observed. Pregnancy outcome was not affected by the size of the fibroid (P=0.067) and was similar in both group (P=0.598).

Mais *et al.* [12] study found that the number of myomas and mean diameter of the largest myoma were similar between the laparoscopic and open technique, respectively. Women undergoing laparoscopic myomectomy had comparable blood loss and more surgical time, compared to open myomectomy. However, postoperative pain was significantly less with laparoscopic myomectomy using a visual analogue scale testing and narcotic requirements. Ninety percent of patients were discharged by day 3 in the laparoscopy group, compared to 10% in the open group, and 90% reported complete recovery in the laparoscopic group compared to only 5% in the open group. There were no major complications in either group.

In present study we found that laparoscopic myomectomy revealed better results compared to abdominal myomectomy. The limitation of the present study is small sample size and shorter follow up.

Conclusion

It was found that laparoscopic myomectomy is preferable to abdominal myomectomy depending on the patient. It yielded shorter hospitalization whereas blood loss and operation tie was less with open myomectomy.

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