

# Comparative Evaluation of Various Methods of Myomectomy

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**Abstract** The purpose of the study: To compare various methods of conservative myomectomy surgery and to evaluate the consequences. **Materials and methods of the study:** We studied the retrospective material of 110 women with uterine fibroids admitted for planned surgical treatment. We divided them into 2 groups: The first group consisted of 60 women who underwent conservative myomectomy surgery using laparoscopic or mini-laparoscopic access, the second group consisted of 50 women who underwent surgery using laparoscopic access. **Results:** The average number of pregnancies and births exceeded the average estimates, it can be stated that most women had given birth many times. A large number of cases of medical termination of pregnancy can also be noted in both groups. 16.7% of cases in the first group and 12% in the second group had primary or secondary infertility. When analyzing surgical intervention in the women studied, the choice of the surgical method corresponded to the following parameters - anamnesis, complaints, surgical anamnesis, uterine size and size of myomatous nodes. Classification of uterine myoma was carried out according to FIGO 2023. The diagnosis was established on the basis of ultrasound data. **Conclusions:** When comparing two methods of conservative myomectomy surgery, it is noteworthy that both methods are reliable, depend on the training of the surgeon and the state of the medical equipment.

**Keywords** Myoma, Uterus, Laparoscopy

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## 1. Relevance

Uterine fibroids are the most common form of benign, hormone-dependent uterine tumor. According to the WHO, the incidence of uterine fibroids is steadily increasing. The number of surgical interventions is also steadily increasing. Clinical manifestations include abnormal bleeding, the presence of pelvic masses, pelvic pain with specific irradiation, infertility, symptoms of uterine enlargement, and obstetric complications [1,2].

Modern treatment strategies primarily involve surgery, but the choice of treatment method is determined by the patient's age and the desire to preserve fertility or avoid "radical" surgery such as hysterectomy. Treatment of uterine fibroids also depends on the number, size, and location of the nodes. Other surgical and nonsurgical approaches include hysteroscopic myomectomy, laparotomy or laparoscopic myomectomy, uterine artery embolization, and radiographic or ultrasound-guided procedures for thermal ablation of uterine fibroids [5,9].

**Study Objective:** To compare various conservative myomectomy techniques and evaluate their outcomes.

## 2. Study Materials and Methods

We reviewed a retrospective sample of 110 women with uterine fibroids admitted for elective surgery. We divided the patients into two groups: Group 1, 60 women who underwent conservative myomectomy via laparotomy or minilaparotomy; Group 2, 50 women who underwent laparoscopic surgery. The age range of the subjects ranged from 21 to 44 years. Retrospective material was collected at the Department of Obstetrics and Gynecology of the Tashkent State Medical University, the Jacksoft MDS clinic, and the City Interdistrict Perinatal Center No. 6 of Tashkent.

Inclusion criteria for the study groups were:

- symptomatic or nodular uterine fibroids
- conservative myomectomy surgeries
- absence of severe somatic pathology

Exclusion criteria were:

- gigantic fibroids
- hysterectomy surgeries
- gynecologic oncology

Conservative myomectomy surgery was performed on all women on a planned basis. The surgical approach was selected individually and depended on the woman's preparation, the presence or absence of contraindications, the surgeon's skill, and the woman's wishes.

### 3. Study Results

We conducted a thorough comparative analysis of the clinical presentation, medical history, laboratory, and instrumental data of the study women. When analyzing the obstetric and gynecological history, it was noteworthy that all women had a complicated medical history. (Table 1)

**Table 1.** Obstetrical anamnesis

	First group n=60	Second group n=50	P-
<b>Pregnancy</b>	5.24 ± 0.9	4.74 ± 0.9	0,398
<b>Partum</b>	3.4 ± 0.9	3.2 ± 0.9	0,752
<b>Abortion</b>	3.15 ± 0.9	3.88 ± 0.9	0,012
<b>Miscarriage</b>	2.33 ± 0.7	1.24 ± 0.8	0,012
<b>Gestational complications</b>	2.01 ± 0.9	1.54 ± 0.9	0,012
<b>Infertility (%)</b>	10 (16,7%)	5 (12%)	

The average number of pregnancies and births exceeded the average estimates, indicating that most women had multiple births. A high number of medical terminations were also noted in both groups. Primary or secondary infertility occurred in 16.7% of cases in the first group and 12% in the second.

When analyzing comorbidities, it was noteworthy that anemia, most often posthemorrhagic, was observed in both groups (Table 2), explaining the presence of symptomatic uterine fibroids. This was also the most common symptom in the study groups (bleeding and pain). Obesity was also common in both groups. It is worth noting that grades III and IV obesity could be a contraindication to laparoscopy (due to difficulty accessing the surgical site). Urinary tract infections were more common in women in the second group, accounting for 28% of women compared to 18.3% in the first group.

**Table 2.** Somatic anamnesis

	First group n=60	Second group n=50
<b>Anemia</b>	25 (41,6%)	21 (42%)
<b>Obesity</b>	17 (28,3%)	12 (24%)
<b>Digestive problems</b>	9 (15%)	6 (12%)
<b>Urinary infection</b>	11 (18,3%)	14 (28%)
<b>Heart diseases</b>	6 (10%)	4 (8%)
<b>Diabetes mellitus</b>	3 (5%)	2 (4%)

When analyzing surgical interventions in the women studied, the choice of surgical method was based on the following parameters: medical history, complaints, surgical history, uterine size, and the size of the myomatous nodes. Uterine myoma classification was based on FIGO 2023. Diagnosis was based on ultrasound data. In complex cases (with gigantic nodes), women were referred for MRI. If cancer was suspected, women were tested for tumor markers (ROMA Index). All women also underwent classical preoperative preparation methods; if pathology was detected, they were

referred for additional testing.

Women in the first group underwent surgery using a laparoscopic approach, or, for small nodes, a minilaparoscopic approach (Pfanenstiel or Joel-Cohen). The surgery consisted of removing the myomatous nodes and suturing the bed with absorbable, atraumatic suture material (Table 3).

**Table 3.** Operation results

Indicators	First group n=60	Second group n=50
Duration (min)	64 ± 5,0	54 ± 4,0
Blood loss	225 ± 15,2	55 ± 11,2
Anesthesia: spinal (%)	40 (66,6%)	41 (82,0%)
Anesthesia: Endotracheal (%)	20 (34,6%)	9 (18,0%)
Stay duration	3,4 ± 0,9	2,6 ± 0,9
Intraoperative complications	3	1
Postoperative complications	2	0
Long term complications	1	0

Due to the laparoscopic approach, women in the first group experienced increased surgical time, blood loss, and the volume of sutures and surgical material used. It is noteworthy that women in the second group had shorter hospital stays and significantly lower blood loss. With laparoscopy, the selection of surgical instruments is costly, as expensive equipment such as LigaSure, Ruby, and Thunderbeat is used. These electrical devices offer a significant advantage: gentle tissue dissection and minimal trauma.

Women in the first group experienced three intraoperative complications: varicose vein injury, instrument perforation into the uterine cavity, and bleeding from the uterine bed (with subsequent blood transfusion). With the laparoscopic approach, there was one complication: bladder injury (due to adhesions) and subsequent formation of a vesicovaginal fistula.

### 4. Conclusions

When comparing the two methods of conservative myomectomy, it is noteworthy that both are reliable and depend on the surgeon's training and the state of the medical equipment. The advantage of the laparoscopic approach is less blood loss and faster patient recovery; the advantage of the laparoscopic approach is its suitability for large adhesions and obesity.

### REFERENCES

- [1] Medikare V. et al. The genetic bases of uterine fibroids; a review // Journal of reproduction & infertility. – 2011. – T. 12. – №. 3. – C. 181.
- [2] McWilliams M. M., Chennathukuzhi V. M. Recent advances in uterine fibroid etiology // Seminars in reproductive medicine.

- Thieme Medical Publishers, 2017. – T. 35. – №. 02. – C. 181-189.
- [3] Jamaluddin M. F. B., Nahar P., Tanwar P. S. Proteomic characterization of the extracellular matrix of human uterine fibroids // *Endocrinology*. – 2018. – T. 159. – №. 7. – C. 2656-2669.
- [4] Khan A. T., Shehmar M., Gupta J. K. Uterine fibroids: current perspectives // *International journal of women's health*. – 2014. – C. 95-114.
- [5] Török P., Pókai R. Diagnosis and treatment of uterine myoma // *Orvosi Hetilap*. – 2016. – T. 157. – №. 21. – C. 813-819.
- [6] Ciebiera M. et al. Role of transforming growth factor  $\beta$  in uterine fibroid biology // *International Journal of Molecular Sciences*. – 2017. – T. 18. – №. 11. – C. 2435.
- [7] Jamaluddin M. F. B. et al. Proteomic profiling of human uterine fibroids reveals upregulation of the extracellular matrix protein periostin // *Endocrinology*. – 2018. – T. 159. – №. 2. – C. 1106-1118.
- [8] Halder S. K., Osteen K. G., Al-Hendy A. 1, 25-dihydroxyvitamin d3 reduces extracellular matrix-associated protein expression in human uterine fibroid cells // *Biology of reproduction*. – 2013. – T. 89. – №. 6. – C. 150, 1-13.
- [9] Styer A. K., Rueda B. R. The epidemiology and genetics of uterine leiomyoma // *Best practice & research Clinical obstetrics & gynaecology*. – 2016. – T. 34. – C. 3-12.
- [10] El-Balat A. et al. Modern myoma treatment in the last 20 years: a review of the literature // *BioMed research international*. – 2018. – T. 2018. – №. 1. – C. 4593875.
- [11] Laganà A. S. et al. Epigenetic and genetic landscape of uterine leiomyomas: a current view over a common gynecological disease // *Archives of gynecology and obstetrics*. – 2017. – T. 296. – C. 855-867.
- [12] Toprani S. M., Kelkar Mane V. Role of DNA damage and repair mechanisms in uterine fibroid/leiomyomas: a review // *Biology of Reproduction*. – 2021. – T. 104. – №. 1. – C. 58-70.
- [13] Mlodawska O. W. et al. Epigenomic and enhancer dysregulation in uterine leiomyomas // *Human Reproduction Update*. – 2022. – T. 28. – №. 4. – C. 518-547.
- [14] Kil K. et al. Usefulness of CA125 in the differential diagnosis of uterine adenomyosis and myoma // *European Journal of Obstetrics & Gynecology and Reproductive Biology*. – 2015. – T. 185. – C. 131-135.
- [15] Dvorski D. et al. Molecular and clinical attributes of uterine leiomyomas // *Tumor Biology*. – 2017. – T. 39. – №. 6. – C. 1010428317710226.
- [16] Yang Q. et al. The mechanism and function of epigenetics in uterine leiomyoma development // *Reproductive Sciences*. – 2016. – T. 23. – №. 2. – C. 163-175.