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# Surgical techniques in the treatment of a patient of reproductive age with giant uterine myoma

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ABSTRACT

The paper presented a clinical case of organ-saving surgical treatment for giant uterine myoma with secondary changes in a 36-year-old woman with unrealized reproductive function. The case testifies to the expediency of an individual approach to each patient with such neoplasms both at examination and during intra- and postoperative management.

**Keywords:** giant myoma; reproductive age; organ-preserving surgical treatment.

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# Хирургическая тактика при лечении пациентки репродуктивного возраста с гигантской миомой матки

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АННОТАЦИЯ

Представленный клинический случай органосберегающего хирургического лечения по поводу гигантской миомы матки со вторичными изменениями у женщины 36 лет с нереализованной репродуктивной функцией свидетельствует о целесообразности индивидуального подхода к каждой пациентке с подобными новообразованиями как при обследовании, так и в процессе интра- и послеоперационного ведения.

**Ключевые слова:** гигантская миома; репродуктивный возраст; органосберегающее оперативное лечение.

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# 治疗育龄期巨大子宫肌瘤患者的手术策略

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摘要

本文介绍了一个临床病例，该病例是一名36岁的妇女因巨大子宫肌瘤伴继发性病变而接受的保全器官手术治疗，她的生殖功能尚未恢复。这表明，无论是在检查时还是在术中、术后处理过程中，对此类肿瘤患者采取因人而异的治疗方法都是非常可取的。

**关键词：**巨大肌瘤；育龄期；保留器官的手术治疗。

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## INTRODUCTION

Uterine fibroids are the most common type of benign gynecological tumors [1]. In different age groups, the incidence of uterine fibroids ranges from 15–35% in women aged 30–35 years to 40–45% in women over 50 years [2, 3]. Uterine fibroids obviously require treatment, especially in young nulliparous women, who represent approximately 40% of the reproductive age structure [4, 5]. The total uterine volume, including the tumor, may increase by 9% or even more every 6 months [6, 7]. Giant uterine tumors of 30–35 cm in diameter require special attention. Approximately 100 similar cases have been reported worldwide, with the largest tumor weighing 63.6 kg [8–10]. Literature suggests a high perioperative mortality (14.8–16.7%) in patients with uterine fibroids weighing more than 11.34 kg [11].

Despite the availability of highly informative diagnostic tools and improvements in organ-sparing options for uterine fibroids treatment, women's fear of surgery and loss of the uterus as a reproductive organ often prevents them from addressing this issue in a timely manner. These patients usually agree to undergo surgery in case of the complicated disease (with bleeding, pain, dysfunction of adjacent organs, etc.) [12].

## CASE REPORT

Patient S., 36 years old, was admitted to the Gynecology Department of the Sechenov Center for Maternity and Childhood for elective surgical treatment with the diagnosis of "giant uterine fibroids."

The patient complained of heavy menstrual bleeding and gradual enlargement of the abdomen over the past two years, which she attributed to overeating and weight gain.

Her medical history included rubella, varicella, and acute respiratory viral infections.

Her family history included a mother with colon cancer and a father with stomach ulcers.

Menarche was at the age of 12 years; regular menstruation settled quickly. At the time of presentation, it was regular (for 6–7 days every 30–31 days), heavy, painless. The patient had been sexually active since the age of 19 years. The woman did not have any pregnancies. Gynecologic history included cervical ectopy without atypia.

Case history: Uterine fibroid was newly diagnosed 2 months ago at presentation to the clinic. Echography showed that the uterine body was 51 mm × 54 mm × 65 mm. The M-echo was 12 mm, and a polypoid hyperechogenic lesion with an echo-negative rim was visualized. A 370 mm × 300 mm × 250 mm lesion of heterogeneous echogenicity originated from the posterior uterine wall. It had a broad base and extended into the subdiaphragmatic space with significant secondary lesions including a large cavity with fluid. The patient was diagnosed with a giant uterine myoma with secondary lesions and an endometrial polyp. Under hysteroscopic control, an elective diagnostic curettage was performed separately for the endocervix and endometrium. Histology showed an endometrial glandular/fibrous polyp. Considering the fact that the patient had a giant fibroid in the reproductive age, abdominal myomectomy was recommended, so the patient was routinely admitted to the Gynecology Department of the Sechenov Center for Motherhood and Childhood.

She was admitted in satisfactory condition. Her weight was 79 kg; height was 165 cm; BMI was 29.01 kg.m$^2$. Skin and visible mucosa were pink; blood pressure was 115/72 mmHg, and pulse was 109 beats/min. Heart sounds were rhythmic. Breathing was vesicular. No wheezing was detected. Her tongue was clean and moist. The abdomen was enlarged to the size of a full-term pregnancy due to a painless heterogeneous mass that occupied the entire abdominal cavity.

A gynecological examination showed that the external genitals were properly developed; the vagina was typical for a nulliparous woman; the cervix was conical, and the external orifice was round and closed. A moderate amount of mucus discharge was observed. The body of the uterus was enlarged to the size of a full-term pregnancy due to a nodular painless giant heterogeneous mass that originated from the pelvic region and occupied the entire abdominal cavity.

Transvaginal and transabdominal echography showed that the body of the uterus was 51 mm × 54 mm × 65 mm, M-echo was 4 mm. The uterine cavity was not deformed. A 370 mm × 300 mm × 250 mm myoma nodule originated from the posterior uterine wall. It had a broad base and extended into the subdiaphragmatic space with significant secondary lesions including a large cavity with fluid. The right ovary was 29 mm × 20 mm × 16 mm; the left ovary was 27 mm × 22 mm × 17 mm with follicles of up to 12 mm in diameter. Therefore, a giant subserous uterine fibroid with secondary lesions was diagnosed. Status post polypectomy was reported.

Preoperative laboratory tests were normal.

Complete blood count was as follows: red blood cells (RBC) 5.18 × $10^{12}$/L; hemoglobin 149 g/L; color index 0.86%; hematocrit 44%; white blood cells (WBC) 4.33 × $10^9$/L; band neutrophils abs.; neutrophils 55.8%; lymphocytes 38.9%; monocytes 4.4%; monocytes 0.19 × $10^9$/L; eosinophils 0.6%; basophils 0.4%; basophils 0.02 × $10^9$/L; lymphocytes 1.68 × $10^9$/L, platelets 242 × $10^9$/L, erythrocyte sedimentation rate (ESR) by Westergren method 5 mm/h.

Blood chemistry was as follows: Total protein 80 g/L; albumin 48.3 g/L; cholesterol 5.98 mmol/L; bilirubin 13.3 μmol/L; alanine aminotransferase (ALT) 13 U/L; aspartate aminotransferase (AST) 16 U/L; total glucose 4.68 mmol/L; iron 21.3 μmol/L; creatinine 78 μmol/L; urea 4.91 mmol/L.

Urinalysis was as follows: clear urine; yellow color; pH 5.5; 1 to 3 WBCs per field of view; no red blood cells detected; no cylinders.

Coagulogram was as follows: activated partial thromboplastin time 1.21; international normalized ratio 1.2;

prothrombin time 13.1 sec; prothrombin index 77%; thrombin time 24.4 sec; fibrinogen 2.27 g/L.

After a comprehensive evaluation of diagnostic parameters, a decision was made to perform laparotomic myomectomy with intraoperative use of the Cell Saver due to the high potential for reinfusion and the urgent need for gross histology.

After preoperative elastic compression of the lower extremities and preparation of the gastrointestinal tract, an elective surgery was performed under endotracheal anesthesia. It included a midline laparotomy with bypassing the umbilicus on the left, myomectomy, metroplasty, and pelvic drainage.

During surgery, a myomatous node measuring 370 mm × 300 mm × 250 mm was found in the body of the uterus, which originated from the fundus, posterior and right lateral walls of the uterus, and occupied the true pelvis and the entire abdominal cavity; the mass was pink with varicose vessels (Figure 1). The right fallopian tube was pale pink; the ampullary part was free; the fimbriae were visible. The right ovary was 29 mm × 20 mm × 16 mm. The left fallopian tube was pink; the ampullary part was free; the fimbriae were visible. The left ovary was 27 mm × 22 mm × 17 mm. The vesicouterine pouch and the peritoneum of the rectouterine pouch had no visible abnormalities.

The surgical diagnosis was a giant uterine fibroid.

Surgical technique: The tumor was externalized together with the uterus into the wound with technical difficulties due to the large volume of the neoplasm and its limited mobility. The cavity of the secondary changed myomatous node was preliminarily opened, and approximately 3 liters of light-yellow clear fluid poured out (Figure 2). After surgical windows were created in the avascular areas of the broad ligaments, a tourniquet with short-term firm pressure was applied to the body of the uterus as close as possible to the lateral walls in the area of the isthmus, and use of Cell Saver was not required in this patient. Myomectomy was performed followed by metroplasty using double-row sutures for the body of the uterus. The first muscle-to-muscle row was created with absorbable anchor sutures, and the second serosa-to-muscle row was created with absorbable Vicryl sutures. Hemostasis was checked. An absorbable anti-adhesive barrier was applied in the suture area.

The removed neoplasm was a giant myomatous node with a total weight of 9,600 g and a large cavity. Small additional cavities with necrotic tissue were found in the myometrium section. Urgent histology revealed a leiomyoma with significant stromal edema and necrosis without evidence of malignancy.

Due to the benign nature of the neoplasm, it was decided to spare the uterus.

The true pelvis was cleaned and drained. Total blood loss was 400 mL. No complications were reported in the early postoperative period. The patient was discharged on postoperative day 7.

In the early postoperative period, clinical and laboratory tests were performed.

Complete blood count was as follows: RBC 4.6 × $10^{12}$/L; hemoglobin 130 g/L; color index 0.85%; hematocrit 40%; WBC 5.69 × $10^{9}$/L; band neutrophils abs.; neutrophils 61.5%; lymphocytes 23.7%; monocytes 7.6%; monocytes 0.43 x $10^{9}$/L; eosinophils 6.7%; basophils 0.5%; basophils 0.03 x $10^{9}$/L; lymphocytes 1.35 × $10^{9}$/L; platelets 232 × $10^{9}$/L; ESR 86 fL.

Blood chemistry was as follows: total protein 66 g/L; bilirubin 9.2 μmol/L; ALT 10 U/L; AST 13 U/L; total glucose 5.2 mmol/L; iron 8.3 μmol/L; creatinine 64 μmol/l; C-reactive protein 10.5 mg/L.

**Fig. 1.** A giant uterine myoma with secondary changes and subserosal node localization.

**Fig. 2.** Emptying the cavity of a giant myomatous node.

Urinalysis was normal.

A pelvic ultrasound at discharge showed the body of uterine measuring 67 mm × 56 mm × 61 mm, the heterogeneous myometrium, well applied sutures on the posterior wall of the uterus. Ovaries were normal. No free fluid was detected in the true pelvis. A diagnosis was status post myomectomy and metroplasty.

Histologically, macroscopy showed a solid-cystic structure of the mass; microscopy showed a proliferating uterine leiomyoma with significant stromal edema and lesions of tumor necrosis.

Outpatient monitoring of pelvic organ status and clinical and laboratory tests and contraception for 6 months were recommended. During the follow-up period, the menstrual cycle was restored 2 months after surgery, and the uterus size and its echographic parameters were normalized 5 months after surgery.

No complaints were reported at 6 months after surgery. The patient is planning a pregnancy. A pelvic ultrasound showed the body of the uterus measuring 51 mm × 54 mm × 45 mm, the echo homogeneous myometrium, and M echo of 6 mm. The right ovary was 29 mm × 16 mm without abnormalities. The left ovary was 27 mm × 15 mm with antral follicles measuring 4 mm to 12 mm. Echo signs of the first phase of the cycle were detected.

At 11 months after myomectomy, spontaneous pregnancy occurred. In week 8 of gestation, an embryonic malformation was diagnosed and the embryo was aspirated under echographic control.

A spontaneous pregnancy occurred 5 months after instrumental oocyte retrieval. During the first and second trimesters, the patient was admitted twice with symptoms of imminent miscarriage. The patient received inpatient and outpatient treatment to maintain pregnancy.

At weeks 36–37 of gestation, she was routinely admitted for operative delivery. At week 38 of gestation, an elective cesarean section was performed without complications. A live full-term boy was born weighing 3,650 g, with a height of 52 cm and Apgar scores of 7–8.

## CONCLUSION

This case report highlights the need for a personalized approach to diagnostic and therapeutic issues in young nulliparous patients with giant uterine fibroids. Thorough preoperative evaluation, organ-sparing surgical options due to the potential for massive blood loss, urgent intraoperative histology of the removed neoplasm, and the use of anti-adhesive materials are required to increase the effectiveness of surgical treatment, ensure successful postoperative rehabilitation, and restore menstrual and reproductive functions in patients.

## ADDITIONAL INFO

**Authors' contribution**. All authors confirm that their authorship meets the international ICMJE criteria (all authors made a substantial contribution to the conception of the work, acquisition, analysis, interpretation of data for the work, drafting and revising the work, final approval of the version to be published and agree to be accountable for all aspects of the work).

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**Consent for publication.** The patient who participated in the study signed an informed consent to participate in the study and publish medical data.

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