

CASE REPORT

Gynecology

Complex myomectomy: A case report and literature review

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Abstract

Background: Myomectomy is the surgical removal of fibroids with the preservation of the uterus for future childbirth. It may be complex when adhesions, multiple myomas of different sizes are present in various sites, and a repeat myomectomy.

Case presentation: A 40-year-old nulliparous presented with primary infertility. She reported having heavy and prolonged menstrual bleeding that led to multiple blood transfusions due to symptomatic anemia. Physical examination revealed a palpable mass that was irregular, mobile, non-tender. Her fundal height was 16 weeks. Pelvic ultrasound demonstrated multiple uterine fibroids of varying

sizes and locations. The patient desired fertility and was therefore scheduled for myomectomy. A total of 80 fibroids were excised. Tourniquet and vasopressin were used to reduce hemorrhage. Bilateral uterine artery ligation was done to achieve hemostasis.

Conclusion: Myomectomy complicated by multiple myomas up to 80 in number is possible. However, a meticulous surgical technique of myomectomy by an experienced surgeon is required. The use of tourniquet and vasopressin is vital to reduce hemorrhage during the operation.

Keywords: myoma, fibroid, complex myomectomy, infertility

Introduction

Myoma is the most typical benign gynecological tumor. It's also called fibroid or leiomyoma (1). Myomas can be solitary but can also occur as multiples and result in significant morbidity with resultant negative quality of life. The presence of myomas accounts for 40-60% of all hysterectomies (2). Approximately 70-80% of women will have fibroids by the time they reach menopause (3). Complex myomectomy refers to difficult or complex surgery of myoma removal with uterus preservation. In the absence of standard criteria for open myomectomy, the type, number, size, and location of myoma and the presence of adhesions and a repeat myomectomy would render myomectomy complex (4). The different

management modalities for myomas include abdominal myomectomy, hysteroscopic myomectomy laparoscopic myomectomy, abdominal/vaginal/laparoscopic hysterectomy, medical management, uterine artery embolization, and magnetic resonance-guided focused ultrasound (5). Factors that may influence the choice of the various treatment modalities include uterine size, myoma location, symptomatology, desire for fertility, cost, patient preference, infrastructure present, and surgeon's level of expertise. Open myomectomy is still the preferred mode of treatment for multiple myomas in patients who still desire fertility (6).

Case presentation

A 40-year-old nulliparous presented to the gynecologic ward at the Kenyatta national hospital (KNH) with a history of inability to conceive for one year. She reported she had a regular partner and had regular coitus to conceive; however, without success. She had her menarche at 12 years. Her menstrual cycle was regular, with a heavy flow that lasts five days and associated with severe lower abdominal pain, easy fatiguability, and dizziness. The heavy blood loss led to her being admitted multiple times for blood transfusion early this year. She reported changes in bowel movements; however, on and off constipation episodes. She had no history of any contraceptive use or treatment for any sexually transmitted infections. A palpable mass, irregular, mobile, non-tender, with a fundal height of 16 weeks, was noted on abdominal examination.

Pelvic ultrasound demonstrated multiple intramural fibroids, the largest measuring 8.7 x 6.9 cm, located at the uterine fundus. The uterus was enlarged with 1 220 ml volume. The Pap smear was negative for intraepithelial lesion or malignancy. The patient desired fertility, and therefore a myomectomy was advised. She was also counseled and consented to a possibility of a hysterectomy as a last resort for uncontrollable hemorrhage. The patient was scheduled for an open myomectomy. A Pfannenstiel incision was made on the abdomen. The uterus was exteriorized, and multiple massive fibroids were seen (Figure 1). An improvised catheter tourniquet was applied at the lower uterine segment to achieve mechanical vasoconstriction on the ascending uterine artery bilaterally to reduce intraoperative blood loss (Figure 2). The ovarian vessels were also clamped at the infundopelvic ligaments bilaterally. Diluted vasopressin was injected on every visible fibroid until blanching was noted.

Minimal incisions on the uterus to extract as many myomas were made, thereby accessing their capsules. A total of 80 fibroids were excised. The fibroids were enucleated and placed on a kidney dish (Figure 3). A lot of redundant uterine tissue was noted and excised. The myoma spaces were then closed with vicryl 1 using mattress sutures. During the procedure, the endometrium was breached, and repair was done by appositioning the edges using continuous running sutures using vicryl 2.0. Several subserosal, intramural, and submucosal fibroids of different sizes were noted. The tourniquets were released, and blood was noted to be oozing from the right uterine artery. A decision to ligate both uterine arteries was made, and hemostasis was achieved. Surgicel was applied on all the repaired sites on the myometrium. Adhesion barriers were not routinely used and were not available for use. The abdomen was closed in



Figure 1: The uterus with multiple fibroids



Figure 2: Uterine repair during myomectomy; an improvised urinary catheter as tourniquet visible (black arrow)



Figure 3: The appearance of multiple fibroids excised during the myomectomy

layers, and the patient reversed successfully. The estimated blood loss during the surgery was 350 mls, and the duration of surgery was approximately two hours. The postoperative period was uneventful. The patient was discharged through the gynecology outpatient clinic to be reviewed

after two weeks. She was advised that fertility workup investigations would be done in six months.

Discussion

The incidence and severity of fibroids increase with the pre-menopausal age. This, coupled with the high prevalence of infertility, the desire to preserve the uterus for childbirth, and advances in assisted reproductive techniques, has led to myomectomy being popular (7). The risk factors for developing fibroids include black race, positive family history of fibroids, nulliparity, and obesity (3). Fibroids are often asymptomatic but can be symptomatic. Symptoms may include prolonged and heavy menstrual bleeding, dysmenorrhea, anemia with resultant blood transfusions, non-cyclic pain, abdominal protuberance, painful intercourse or pelvic pressure, bladder or bowel dysfunction resulting in urinary incontinence or retention, and constipation. Other symptoms include infertility, recurrent pregnancy loss, and adverse obstetric outcomes (8).

Myomectomy of the submucosal and large intramural fibroids improves pregnancy outcomes and live birth rates both in vitro fertilization and natural conception. The presence of fibroids results in twice the likelihood of first-trimester pregnancy loss and spontaneous abortions. Obstetric complications may include preterm labor, fetal malposition, placenta previa, postpartum hemorrhage, and neonatal morbidity (9). Open myomectomy is the preferred choice when there are large intramural or subserosal fibroids, multiple fibroids, and when a breach of the endometrium is expected (10). The patient in the presented case desired fertility, having tried conception for a year. Open myomectomy was the preferred option given the number of myomas and risk of hemorrhage. Fertility following primary myomectomy ranges between 20-50%, with 75% of the pregnancies occurring within the first year of surgery (10). Precautions are taken preoperatively included ensuring at least 3 pints of crossmatched blood and vasopressin were available. The patient also consented to a hysterectomy as a last resort for uncontrollable hemorrhage. Adhesion barriers were not used during the surgery. Cochrane systematic review showed a majority of adhesion barriers have no role in adhesion reduction (11).

The potential for complications during myomectomy is linked to the location, number and size of the leiomyomas (12). In this case, a total of 80 fibroids of varying sizes and locations, including subserosal, intramural and submucosal, were removed during the surgery. Two case reports reported complex myomectomies whereby in one, 55 fibroids were removed, and the other was a

repeat myomectomy (4). Temesgen et al. were able to remove 36 fibroids during myomectomy (6). The use of tourniquet reduces blood loss and transfusion rates (13). Complications that could arise during myomectomy include anesthetic complications, excessive hemorrhage, adjacent organ damage, including bladder and bowel injury, especially in the presence of dense adhesions, and destruction of the endometrium during enucleation of submucosal fibroids. Others include sepsis, wound dehiscence, and blood transfusions (3).

Conclusion

Myomectomy complicated by multiple myomas up to 80 in number is possible. However, a meticulous surgical technique of myomectomy by an experienced surgeon is required. The use of tourniquet and vasopressin is vital to reduce hemorrhage during the operation.

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Declarations

Conflict of interests

The authors declare no conflicts of interest.

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