Laparoscopic myomectomy in the treatment of large myomas – unnecessary risk or effective method?

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Abstract

Introduction:
Uterine myomas are the most common benign tumors of the uterus. Most of the myomas are asymptomatic and do not require medical intervention, however if they do, a surgical approach is still the mainstay of the therapy. Myomectomy is one of the surgical methods of removing myomas for those who want to preserve fertility. Nowadays, surgical techniques are improved and less invasive methods like laparoscopic myomectomy (LM) were developed. However, the safety and the efficacy of LM is well documented in the case of average size fibroids. Laparoscopic approach in larger uterine tumors (diameter >10 cm) can be controversial and can create a challenge due to possible difficulties.

Purpose:

Materials and methods:
We performed search of Pubmed, Springer Link and ResearchGate databases.

Results:
Systematic analyses qualified for this review suggested that despite many possible complications and difficulties, a method can be applied successfully by an experienced specialist. However, LM in large myomas treatment is still rare and data on this subject is still limited.

Conclusions:
Laparoscopic myomectomy can be an alternative method in the treatment of large fibroids. Laparoscopic surgery of large myomas LM can be challenging and the effectiveness of a such treatment depends on the surgeon’s skills. The method is also useful in women who consider pregnancy.

Key words: laparoscopic; myomectomy; myoma; tumor
Introduction:

Uterine myomas (fibromas, leiomyomas) are benign tumors that arise from the myometrium. They are composed of smooth muscle tissue and affect about 25 to 30% of women in the reproductive age. The precise cause of uterine fibroids is unknown, but some risk factors were identified and include genetic predispositions, obesity, environmental factors, diet and race.

A crucial process in the diagnostics for uterine myomas is bimanual pelvic examination, ultrasonography and MRI (magnetic resonance imaging). MRI when available is also preferred for planning a surgical approach. Most cases of are asymptomatic, however symptoms depend on their size, degenerative changes and location. Tumors are commonly multiple, though they can grow anywhere the most frequent location is myometrium. They can reach is >10 cm, however most of the myomas are smaller and do not require intervention. A myoma is considered as large when its diameter exceeds 10 cm.

It is believed that treatment is indicated only when fibroids cause symptoms for example painful menstruation, menometrorrhagia, serious hemorrhage, infertility or repeated miscarriages. Management of fibromas is based on pharmacotherapy, surgery or a combination of these approaches. Patients with anemia or large and multiple fibroids can be treated prior to the surgery with gonadotropin-releasing hormone analogs or ulipristal acetate. Such regimen effectively reduces tumor size and facilitates surgical procedure. One has to remember that current treatment rely mostly on surgical methods, however a therapy must be individualized. An approach depends on the myomas’ location, number and size and willingness of the patient to retain fertility.

It is said that hysterectomy is the most effective method of symptomatic fibroids management but clearly it is not a first choice for women of the reproductive age who want to preserve fertility. Therefore, an alternative method of treatment in this group of patients is myomectomy. It can be done by either laparotomy, minilaparotomy, hysteroscopy or laparoscopy or a combination of above mentioned ways.

The strict criteria for laparoscopic treatment do not exist but the size, location of myoma have to be taken into consideration. It is possible to differentiate 3 types of myomas, according to their location - subserosal (protruding outside the uterus), intramural (in the myometrium) and submucosal (projecting into the uterine cavity). Laparoscopic approach is employed in patients with subserosal or intramural fibroids with diameter less than 10 cm and their number not exceeding 5. Generally, contraindications for LM include suspected malignancy and excessive size of a myoma. For submucosal or numerous fibroids, hysteroscopic myomectomy is recommended. Leiomyomas can be treated also with a non-surgical and non-pharmacological approach like embolization of the uterine arteries. This method enables to achieve reduction of tumor volume and effectively alleviates symptoms. Procedure is indicated in woman who do not wish to be treated surgically but is not free of serious complications.

Purpose

Evaluation of feasibility, effectiveness and safety of LM in the treatment of large myomas.

Materials and methods

We performed research of Pubmed, Springer Link and ResearchGate databases. Studies analyzing methods of myomas’ treatment were analized.
Results

There are many advantages of laparoscopic myomectomy as compared to the classic myomectomy done by laparotomy. The main advantage is shorter hospitalization, less postoperative pain and reduced incidence of the risk of adhesions. LM is indicated for small or medium size fibroids not exceeding 10 cm in diameter.

As it was mentioned, LM is considered as a challenging method especially in the cases of large myomas’ removal. Difficulties include long duration of the surgery, risk of intraoperative bleeding and possible conversion to laparotomy. Metastases then are considered as a surgical method of treating fibroids. Aksoy et al. presented case report of patients with 17 cm myoma. Tumor was removed successfully without any harm to the patient’s endometrium. There is also a description of a successful LM in 34-year old woman’s with 18 cm myoma. Finally, a research done by Hyo Jin Yoon et al. assessed the effectiveness of laparoscopy for large myomas. Fifty one patients were analyzed and study proved that procedure is feasible, there was no conversion to laparotomy and all of the fibromas were removed successfully. The largest diameter of the fibroma was 15.2 cm. Seven patients required postoperative transfusion.

It is suggested that LM is an option not only for women, who want to retain their fertility but also for those, who are infertile because of the distortion of endometrial cavity by a myoma. LM enhances the postsurgical pregnancy rate, which is comparable to the rate achieved with laparotomy.

LM increases life quality and sexual functions when compared to laparotomy due to less trauma and postsurgical pain. It was found that patients can return to work quicker if they undergo laparoscopic or robotic myomectomy, comparing to those who had laparotomy. However it is suggested that favorable effects of LM could be short-term. The recurrence rate of fibroids is 15% and hysterectomy will be required for about 10% of women within 5 to 10 years after laparoscopic myomectomy. Thus, a potentially successful approach can influence life quality and cause sexual impairment in the long term, however more investigations are needed. LM has positive impact on pregnancy outcomes and can be safely used in women,
who want to retain fertility and become pregnant. Studies showed that pregnancy rate is exceeding 60%26, 27. Laparoscopic myomectomy is linked to the increased risk of uterine rupture. However, the risk seems to be relatively small, the overall incidence was 0.07%28 as compared to 0.012% for those without any previous uterine scar.

There is no one recommended mode of delivery after myomectomy therefore there is a need for more randomized studies. In some studies, it is advised that vaginal delivery can be achieved after LM if performed according to protocol of vaginal birth after cesarean section29. Contrary to the above, ACOG recommended a cesarean section after myomectomy The procedure should be performed in 38 week of pregnancy30.

Discussion

The management of myomas relies mostly on the surgical techniques, both classic and minimally invasive. Although LM is more feasible in myomas of smaller size (up to 10 cm), literature suggests that this method can be successfully used in the treatment of larger myomas. LM for large tumors is widely considered as a challenging method. The potential complications of this methods includes excessive bleeding, prolonged surgery, conversion to laparotomy, injuries to urinary or digestive tracts. Articles published from 1993 to 2013 reported 55 complications related to the use of power morcellator. They included large bowel, kidney, the bladder injuries, injuries of the diaphragm and major vessel. Six death occurred31. Overall, the frequency of injuries to the organs caused by power morcellator was assessed as (0.12%)32. Undoubtedly, LM has many advantages when compared to laparotomy. They include less pain and faster postsurgical recovery33. However, because of the possible complications, the treatment options of large myomas are not standardized and the patient’s approach could be complex.

When uterus preservation is demanded LM allows to retain fertility. Other advantages of LM involve faster recovery, shorter hospitalization, less pain and decreased risk of postsurgical adhesions. Data concerning use of LM in the removal of large myomas is limited but safety and efficacy of the method seems to be proven.

Conclusions

Removal of the large myomas by laparoscopy is still regarded as a surgical and technical challenge. The LM removal of a large tumor can be recommended only following balanced assessment of all of possible risks and technical difficulties. The main factors behind surgical success are the experience and skills of the surgeon.

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