

Uterine myomas: pelviscopic treatment

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Introduction

Uterine myomas are a relatively frequent pathology of fertile age women. The incidence of myomas in uterine surgical specimens reaches 75%, even if more than 50% are asymptomatic and do not require surgical treatment. The aim of simple or multiple myomectomy is to preserve the uterus in order to maintain the menstrual function and increase the chances of full-term pregnancy in patients with recurrent abortions. Laparoscopic myomectomy was first performed by Semm, in Kiel, 20 years ago, but some authors still do not hide their distrust and even hostility about this surgical procedure. Their objections particularly regarding two problems associated with laparoscopic myomectomy include the long duration of the operation and the imperfect uterine suture which might be overcome by taking into consideration some important aspects.

Patients and Methods

From 1990 to May 1998, 332 patients, with 707 myomas (range 2.12 myomas/patient) were treated laparoscopically at the Department of Gynaecology and Obstetrics of Fidenza Hospital. The median age of the patients was 35.96 yrs (range 19-52). The age distribution of the patients was as follows: 84 between 25-29 years, 11 between 20-24 years and only 2 women were under 20 years old. Conversely, 30 patients were more than 45. Patients with myomas exceeding 15 cm after a presurgical treatment with GnRH analogues for 3 months, especially when the localisation was intramural or subserous-intramural, were excluded from the laparoscopic procedure. The number of myomas was only a relative management option indicator. Presurgical work-up included ultrasound examination to determine the number, localisation and size of the myomas. Hysteroscopy was performed to differentiate deep intramural myomas, which can be treated laparoscopically, from submucous myomas which need resectoscopy. When submucous, intramural and subserous myomas coexist we prefer to perform first the hysteroscopic procedure, followed by laparoscopy. The patients are prepared in the same manner as for traditional laparotomy: saline solution (PEPG) per os and Metronidazole (4 cp) for bowel preparation are administered the day before surgery.

Surgical Technique

Pelviscopic myomectomy is performed under general anaesthesia. At the beginning of the operation the patient is in the lithotomic position in order to facilitate the application of a metal probe (Portio Adaptor of Semm) on the cervix of the uterus to allow the organ to accomplish all necessary movements for the correct execution of the operations.

There are 3 access routes, beside the umbilical one, two lateral ways of 5 mm and a third medial over-pubic route of 10-15 mm. For esthetic reasons, we introduce the trocars along the Bumm's line, even though a few centimeters higher access would facilitate the operation.

Myomectomy is performed following the rules of microsurgery: enlargement of the surgical field, careful haemostasis and suture of uterine wound.

The myoma is perfused with a vessel constrictor (POR 8 diluted 1/100). The alternative choice can be a provisional ligature applied to the uterine isthmus by catgut with a straight needle, externally tied and positioned in the site by a plastic knot guide. At the end of the operation the knot is cut and the thread removed.

Using a Semm pointed endocoagulator at a temperature of 130°C, a strip of capsule is coagulated, the myometrium is incised by hook-scissors or by the blade of an ultrasound scalpel. Then, exposure of the capsule is completed by the traction of two biopsy forceps. The myoma is held by the myoma drill, then removed by the myoma enucleator heated at 120-130°C or by ultracision. The movements of the spatula of the enucleator or of ultracision have to be gentle and continual in order to carefully coagulate the vessels before they withdraw into the myometrium after the incision. This step is not difficult and if it is properly executed does not cause significant bleeding.

In cases where the diameter of the myoma is more than 7 cm coring out can be performed. The tunnel, shaped inside the myoma, allows the surgeon to grasp it with an 11 mm forceps, dislocate it from its site with clockwise and counterclockwise movements, and at the same time the enucleator of the myoma assists decapsulation assuring haemostasis. The uterine wound is sutured using intra or extracorporeal knots. Finally the myoma is removed by the S*E*M*M*.

Normally, the enucleation does not imply the opening of the uterine cavity, unless we are dealing with an undermucous myoma; in such cases a broad spectrum antibiotic treatment is administered for one day after surgery to prevent infection of the wound and is dehiscence.

Then the uterine wound is sutured in one or two layers to prevent the rupture of the myometrium in cases of pregnancy and to reduce the risk of adhesions. We usually use a 3.5 calibre PDS on a CT needle. To repair myometrium we use a figure of eight suture with PDS 2-0 thread with a cylindrical needle. When the uterine wound requires a deep multilayers suture a cylindrical needle, such as a CT by Ethicon and a 360° needleholder are very usefully. This needleholder (centrally or laterally positioned, depending on the incision of the uterus to be sutured) put the needle orthogonally to its axis, consequently the needleholder is parallel to the suture line, while the needle is orthogonal to it. The needleholder is turned until the needle reaches the right position. With an easy rotating movement, the needle passes through the two myometrial edges. When the suture is completed, the short end of the thread is cut and the needle exits through the central trocar. With the two traditional needleholders, in the lateral trocars, the knot is tied as usual.

With a cylindrical needle the surgeon can carry out suture with the typical precision of the laparotomic route, eliminating the dead spaces, following Tompkins technique. The 360° needleholder is very helpful because the rotation of the tool around its axis is required for that kind of suture.

At this point the myoma or the myomas are removed by S*E*M*M* (Fig. 8) a sharp sheet of 15-20 mm in diameter. We normally use a 15 mm device, introduced through the sovrapubic trocar. Today motorised tools are available for easier removal of myomas.

Once the myoma is removed, the cavity is carefully cleaned using a saline solution and the bleeding of the uterine suture is controlled.

Results

Out of 332 patients, 23.19% presented with recurrent pelvic pain, 35.24% had abnormal uterine bleeding and 16.86% were asymptomatic but they were surgically treated because of the rapid myoma growth; 7.5% of the patients were infertile. Even if the association myomas – infertility is still debated a high number of studies report successful pregnancy rates postmyomectomy in infertile patients ranging between 50-66.7%. In 2.71% of the cases the indication for myomectomy was the presence of a pelvic mass and in only 1 case myomectomy was performed for psychological reasons. In 14.20% of the cases myomectomy was performed in association with ovarian cystectomy, adhesiolysis or tubal surgery. In 162 cases a single myomectomy was performed; in 67 cases double myomectomy. Only in 15 cases more than 6 myomas were resected (the max number of myomas/patient = 19).

Reproductive outcome

In a group of 98 patients undergoing laparoscopic myomectomy between January 1992 and September 1997, 25 out of 49 women who desired childbearing (67.6%) became pregnant. In the subgroup of patients who did not desire children 2 (3.3%) became pregnant. The cumulative pregnancy rate reached 70.3%. Evolution of the pregnancies is as follows: 4 spontaneous abortions (18.5%) (3 out of 4 pregnant patients), 4 pregnancies are in normal evolution (14.8%) and 18 were full term pregnancies. Seven patients out of 18 (38.9%) had a vaginal delivery and 11 (61.1%) a cesarean section.

Complications

Out of 332 patients treated by laparoscopy 3 required laparotomic conversion (0.90%); in one case a mini Pfannenstiel incision was performed to better control the bleeding from the pedicle of the myoma located at the left uterine horn, despite accurate laparoscopic suture. In the second case, rupture of the Myoma Enucleator occurred during surgery, obstructing the achievement of a good haemostasis. Therefore, we preferred to perform a laparotomic myomectomy. In the third case, a 10 cm diameter myoma, with hydropic degeneration required conversion. A patient operated on for a large infralegamentous myoma developed an infralegamentary hematoma and underwent laparotomy after 24 hours. Three cases required blood transfusions: one patient who underwent laparotomic conversion, the second with a large posterior fibroma (Hb initial level 9.8 mg% - postsurgical Hb = 6.8 mg%) and the third transfusion was performed on the patient reoperated 24h after laparoscopy. The cumulative transfusion rate was 1.20% due to a fourth case who underwent intraoperative blood support with 1 U of red blood cells. Three abdominal wall haematomas occurred and in 2 cases fever was present for 7-8 days after surgery. No major long term complications occurred except in 2 cases of bladder inflammation which required a prolonged hospital stay (respectively 6/8 days). The median hospital stay was 3 days.

Conclusions

Nowadays, the pelviscopic miniminvasive asportation of uterine myomas is a safe procedure in expert hands. Good laparotomic experience, accurate laparoscopic training and the ability to perform endosutures are mandatory. The critical aspects of laparoscopic myomectomy are the operating time, achievement of haemostasis, obtainment of high quality uterine sutures in fertile women.

1. The *operating time* in our experience was slightly longer with respect to laparotomy but our median operating time was 103 min. However, the number of resected myomas more than the myoma's size are surgical time predictors.

2. *Achievement of haemostasis* does not create problems in expert hands. Our blood transfusions were performed at the beginning of our case experience series; nonetheless it is prudent to correct anemia before surgery.

3. Finally the big problem: the quality of the *laparoscopic uterine suture*: in our experience the quality of the suture, if performed "a regola d'arte – at golden standard –" is comparable with the laparotomic one. Data from a prospective ongoing study initiated in 1992 emphasized that a high cumulative pregnancy rate (73%), with a high percentage of spontaneous vaginal deliveries (even one twin pregnancy delivery) was obtained after laparoscopic myomectomy.

This technique is beneficial for the patients, not for the surgeon. The patient will have a shorter recovery, a better postoperative period characterized by less pain and quick reappraisal, while the surgeon will perform a longer and more difficult operation which requires new surgical movements.

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Round table "Face to face: laparoscopy versus laparotomy in benign pelvic pathology"

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Conclusions

The advantage of laparoscopic surgery, concerning low surgical trauma, absence of laparotomic incisions, short postoperative period and short hospitalization with low costs, earlier return to normal life and activity were discussed. Considering the female patients, the esthetic of the scars is also important. Though nowadays laparoscopic surgery in gynaecology is also used for major procedures like total hysterectomy and tendencies to introduce this surgery even in the treatment of some genital cancers including pelvic lymphadenectomy are debated, the advantages and limits of these techniques still need further studies. The most important problem is an accurate diagnosis of genital malignancy, as genital cancers do not allow a surgery of limited radicality. As laparoscopic surgery is relatively recent, the training of the surgeons in this field must be very careful, including knowledge of the indications, limits and contraindications of laparoscopic surgery, as much as perfect mastering of this particular surgical technique, including the cure of possible accidents and complications. Laparoscopic gynaecologic surgery is to be used for correctly evaluated cases with the most adequate technique and instruments. Only thus, can this surgery express its qualities and advantages in the modern treatment of particular aspects of gynaecologic pathology.