



Successful Application of Manual Hand Morcellation Technique in Giant Leiomyoma: A Case Report

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Abstract

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INTRODUCTION: Uterine leiomyoma is the most common benign neoplasm of the female reproductive tract. However, the use of the laparoscopy approach for giant myomas is still controversial and rarely performed. Only few cases have been published in the literature. Retrieval of giant myoma in laparoscopy is difficult and still challenging even by a power morcellator.

CASE PRESENTATION: A 39-year-old para 3 woman was referred to the gynecology department with abdominal swelling during the previous 3 years. No family history, past medical, and gynecology history disease was reported. A physical examination revealed a firm huge palpable abdominal mass with identifiable borders. The mass extended to her umbilicus. The abdominal ultrasound revealed a markedly enlarged and lobular uterus containing intramural uterine leiomyoma measuring 15 × 14 cm without ascites. No additional pathology was noted. The results of the laboratory examination were within normal limit. She was offered laparoscopy removal of myoma.

CONCLUSION: The case concludes the efficiency, reliability, and safety of laparoscopy surgery to treat huge leiomyoma and try to consider manual hand morcellation to remove the entire myoma to reduce spreading malignancy through electrical morcellation. Although a laparoscopic approach for a huge myoma has several challenges, it does represent an option for minimally invasive removal of giant myoma.

Introduction

Uterine leiomyomas are the most common solid benign uterine neoplasms [1], but giant uterine leiomyomas are extremely rare [2]. Fragmented tissue extraction (morcellation) of uterine and leiomyoma tissue in gynecologic surgery has been performed for decades, but recent years have seen a vast expansion of techniques to address risks associated with tissue dispersion [3]. Options for removing the uterus traditionally include the following: Laparotomy or “mini-laparotomy,” removal through the vagina with or without morcellation of the specimen, and removal through 10–15 mm laparoscopic port sites with intracorporeal morcellation, including the use of a power morcellator [4].

Case Report

A 39-year-old para 3 woman was referred to gynecology department with abdominal swelling during the previous 3 years. No family history, past

medical, and gynecology history disease was reported. A physical examination revealed a firm huge palpable abdominal mass with identifiable borders. The mass extended to her umbilicus. The abdominal ultrasound revealed a markedly enlarged and lobular uterus containing intramural uterine leiomyoma measuring 15 × 14 cm without ascites. No additional pathology was noted. The results of the laboratory examination were within the normal limit. She was offered laparoscopy removal of myoma. Pneumoperitoneum was achieved using umbilical verres needle to facilitate us removing a huge myoma, until intra-abdominal pressure 15 mmHg was reached. Intra-abdominal visualization revealed an enlarged, lobular uterus containing fundal intramural myoma. Adnexal on both side, round ligaments, and other pelvic and abdominal organs was within normal. We performed surgery with the standard technique as described elsewhere [1].

The horizontal elliptical incision was made on the prominent part using a monopolar hook. When the myoma was identified, the myoma was fixed, and enucleation was accomplished by traction on myoma with tenaculum clamp, associated with counter-traction in the uterus. The myoma was completely enucleated and removed without involving the endometrial cavity.

A bipolar instrument was used for most of coagulating and dissecting procedure. The myometrial defect and edges were closed with continuous sutures. The entire myoma was removed using manual hand morcellation by 2.5 cm extended incision at the umbilical primary site of trocar and with hand assisted morcellation by scalpel, we removed the specimen. The total intraoperative blood loss was 800 ml, total weight of the myoma removed was 1850 g and the operation lasted for 120 min.

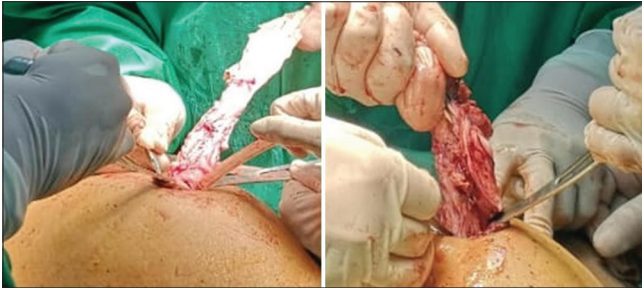


Figure 1: Giant leiomyoma mass removal with manual hand morcellation technique.

Discussion

The uses of laparoscopy approach to treat huge myoma are still controversial and represent of significant surgical challenge. The difficulties of access intra abdomen, cleavage, removal and repair of the myometrial defect, increased operative time, and perioperative bleeding are concerns regarding the use of laparoscopy. In a case report in 2015, a 33-year-old women underwent laparoscopy surgery to treat 17 cm myoma and successfully removed it [4]. In our case, the maximum diameter of the myoma was 15 cm and the entire myoma was successfully removed laparoscopically without disturbing endometrial cavity. The use of a morcellator to remove the tumor is still have a complication. There is a risk that a woman with a presumed leiomyoma may have a malignancy that may be spread through morcellation, leading to a potentially worsened prognosis and estimates range from 1 in 498 to <1 in 10,000 [5]. In this case, we removed the huge myoma through hand assisted morcellation with a scalpel to prevent any morcellation remnants. In contrast, electrical morcellation could trigger specimen remnants which can cause parasitic myoma in the future (Figure 1).

Manual morcellation with a scalpel or electro-mechanical morcellation (EMM) with a device specifically designed to fragment tissue specimens should only be considered in women at low risk for a gynecologic malignancy and when an appropriate pre-operative assessment is suggestive of a benign disorder. When occult malignancy is inadvertently encountered, EMM hinders the ability to perform a comprehensive histopathological evaluation of a uterine specimen. At

present, there are three general categories of uterine morcellation: (1) Vaginal morcellation with a scalpel through a culdotomy or colpotomy, (2) mini-laparotomy/laparoendoscopic single-site (LESS) morcellation with a scalpel, and (3) electromechanical morcellation. The former two approaches have been used for decades, but it is not known at this time if they share equivalent risks as EMM regarding the dissemination of an occult malignancy [6].

All existing morcellator devices employ either a laparoscopic port or are passed through a 12–20 mm laparoscopic incision. Although their small blade diameter can result in a prolonged morcellation time to extract large tissue specimens, data suggest that some morcellator devices may work more efficiently than others (Level III). Specifically, those having motor-peeling features demonstrate the fastest potential morcellation capabilities [7].

Manual morcellation using a scalpel to fragment a surgical specimen into small pieces has been used for years, especially in laparoendoscopic single-site surgery (LESS). The risk of vascular and bowel injury is lower in manual morcellation than in power morcellation. To remove a specimen in LESS, manual morcellation is more effective than power morcellation due to the minor surgical field, loss of angulation, and lack of an extra hand. However, manual morcellation is still associated with the possibility of spreading tumor cells if the specimens are not well contained [8].

After complete devascularization and separation of the uterus, large specimens are removed through the vagina by hand morcellation. If a robotic system is used for the procedure, the robot is undocked to provide a more excellent range of motion for the operator and assistant. The cervix is grasped with a tenaculum under camera visualization and is brought into the vagina. Brisiky-Navratil vaginal retractors are used to provide exposure and protect the vaginal walls, rectum, and bladder. The morcellation procedure is performed within the vagina with a no. 10 scalpel and a wedge resection technique. Myomectomy is performed as indicated. Once the specimen is removed vaginally, the vaginal apex is reapproximated using a vaginal or laparoscopic approach. In robotic procedures, the robot is docked, if necessary, to complete the operation [9].

The surgical tissue pouch that was used in this report had several characteristics that made it very suitable for removing a specimen by manual morcellation in LESS surgery. It consisted of a nylon bag and a polyurethane inner layer, which was watertight and relatively resistant to tearing and cutting. During manual morcellation, a blade was utilized to cut the specimen into narrow strips; no pouch perforation was observed; and all of the fluid was contained in the pouch, minimizing the risk of dissemination of potential inflammatory tissue or

cancer cells. Second, the polypropylene drawstring at the opening of the tissue pouch can be tightened up using a Hemoclip (Ligamax, Somerville, MA, USA) to prevent the specimen from falling out of the pocket during the delivery of the specimen to the single port site. Third, at the opening edges of the bag, small protruding pieces facilitated grasping and moving of the pouch. Finally, the surgical tissue pouches are available in different sizes; the largest has an opening diameter of 20 cm and is suitable for a huge uterus [10].

The manual morcellation is simple, fast, and safe, because it was performed with direct visual cutting when the specimen was safely contained in the tissue pouch. Myoma fragments may be formed during power morcellation without containment and left behind unintentionally. This method prevents this problem and reduces surgical time, because no time is required to find such myoma fragments after morcellation [10].

Morcellation should not be used in the setting of known malignant or pre-malignant conditions or in risk-reducing surgery. Morcellation should only be considered in patients if the appropriate evaluation of the myometrium (with or without fibroids) is reassuring, and proper evaluation of the cervix and endometrium is also reassuring. For patients in whom pre-operative evaluation results in an increased suspicion for malignancy, alternatives to morcellation should be employed, including laparotomy. As the risk of malignancy, including undetectable malignancy, is increased in postmenopausal women, alternatives to morcellation should be considered in this patient population [5].

Conclusion

The case concludes the efficiency, reliability, and safety of laparoscopy surgery to treat huge leiomyoma and try to consider manual hand morcellation for removing the entire myoma to reduce spreading

malignancy through electrical morcellation. Although a laparoscopic approach for giant myoma has several challenges, it does represent an option for minimally invasive removal of giant myoma.

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