

Case Report

Biopsy of Uterine Leiomyomata and Frozen Sections Before Laparoscopic Morcellation

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ABSTRACT Uterine sarcoma is rare. However, its morcellation can be associated with spread of disease. The definitive diagnosis of uterine sarcomas is made via histology. To date, the only reliable preoperative test for determination of the types of myometrial tumors is analysis of either frozen sections or permanent formalin-fixed tissue sections of surgical specimens. We report 2 cases in which the feasibility of obtaining multiple biopsy specimens of uterine leiomyomas and frozen sections before laparoscopic morcellation is demonstrated. This procedure might reduce the risk of laparoscopic morcellation of unsuspected leiomyosarcomas while still offering the advantages of a minimally invasive technique. *Journal of Minimally Invasive Gynecology* (2014) 21, 963–966 © 2014 AAGL. All rights reserved.

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The case of a physician who underwent laparoscopic morcellation of a uterine sarcoma has led to an amplified chain reaction. This included a communication from the US Food and Drug Administration on April 17, 2014, discouraging the use of laparoscopic morcellation for removal of the uterus or uterine myomas because "it poses a risk of spreading unsuspected cancerous tissue, notably uterine sarcomas, beyond the uterus" [1]. Subsequently, societies including the American Association for Gynecologic Laparoscopists [2] and the American College of Obstetricians and Gynecologists [3] have released statements about laparoscopic morcellation. They agreed that further studies are needed on the safety of laparoscopic morcellation of uterine tumors. In the meantime, Johnson & Johnson (New Brunswick, NJ), one of the companies that produces an electric morcellator, has recently suspended commercialization of its morcellation devices [4].

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Without a doubt, morcellation of malignant uterine tumors or those with malignant potential should not be performed. However, the solution is not to ban the procedure but to attempt to detect pre-existent uterine malignant lesions before performing morcellation. Prohibiting morcellation is equal to eliminating laparoscopic removal of uterine myomas via myomectomy or total hysterectomy, procedures that are highly effective and generally safe.

We report 2 representative cases in which the feasibility of taking multiple biopsy specimens of uterine leiomyomas and frozen sections before laparoscopic morcellation of a myomatous uterus is demonstrated.

Case Reports

Case 1

A 52-year-old woman had a symptomatic uterine myoma. She had worsening heavy uterine bleeding leading to anemia, with hemoglobin concentration 83 g/L. She also reported increasing abdominal pain and pressure. The uterus size was approximately 18 gestational weeks. Endometrial biopsy revealed atrophic endometrium. Transvaginal ultrasound demonstrated multiple well-circumscribed intramural and subserosal myomas distorting the uterine cavity, with

the largest subserosal myoma measuring $3.6 \times 4.3 \times 4.3$ cm. After a discussion of the various options to treat the condition, the patient consented to undergo hysterectomy via laparoscopy.

Because of the large size of the uterus, the possibility of morcellation was discussed. The patient was informed of the risks of morcellation, including the possibility of spread of undiagnosed cancer. Treatment included iron supplements. At laparoscopy 4 months later, the uterus was found to harbor multiple myomas without suspect features such as yellowish-tan appearance, necrotic ragged surface, or hemorrhage. Because of the possibility that the uterus might not be able to be retrieved through a colpotomy incision, we performed multiple biopsies of the largest myoma using a Tru-Cut needle (VWR International, Ville Mont Royal, QC, Canada).

The needle was inserted percutaneously through a 2-mm skin incision (Fig. 1, A–C). Histopathologic examination of the frozen specimen revealed typical leiomyomatous tissue. Because the uterus could not be retrieved through the colpotomy incision, we reduced the volume of the uterus via morcellation and then removed it vaginally. The procedure was completed entirely via laparoscopy.

Case 2

A 39-year-old woman had a history of infertility, severe menstrual and intermenstrual bleeding, and urinary frequency. She also had abdominal discomfort and pain. Transvaginal ultrasound revealed a solitary intramural leiomyoma of $8.5 \times 7.5 \times 9.8$ cm distorting the uterine cavity. After a discussion of expectant, medical, and surgical options, the patient consented to undergo laparoscopic myomectomy. Laparoscopic examination confirmed the presence of a large intramural myoma on the anterior uterine wall, without suspect gross features. Three biopsy specimens were taken and sent for frozen section analysis, which confirmed the diagnosis of leiomyoma. Laparoscopic myomectomy was performed, and the myoma was removed via morcellation.

Discussion

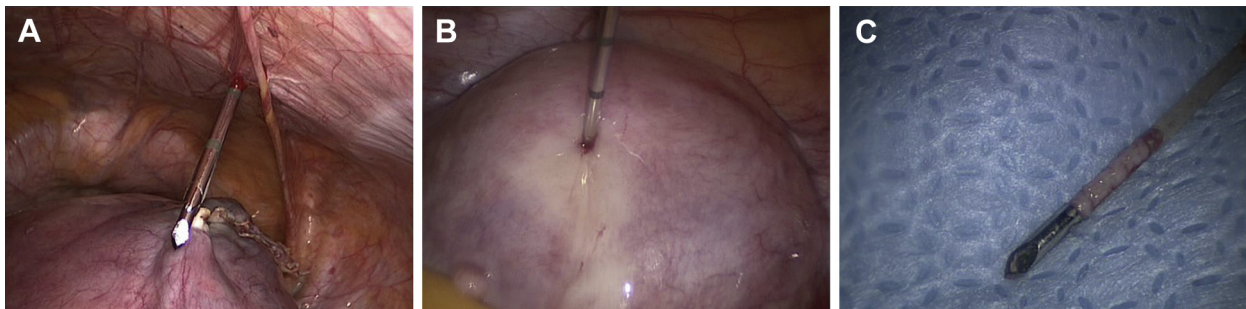
Several randomized clinical trials have demonstrated the efficacy and safety of laparoscopic myomectomy [5]. In general, laparoscopic myomectomy is associated with lower morbidity than myomectomy via laparotomy. Furthermore, the recovery time is shorter, and post-myomectomy adnexal adhesions occur less frequently than after laparotomy [6]. Similarly, compared with laparotomy, hysterectomy via laparoscopy is associated with less postoperative pain, shorter duration of hospitalization, faster recovery, and better quality of life at 6 weeks after the surgery [7]. Overall, myomectomy and hysterectomy via laparoscopy are minimally invasive procedures that are more consistent with the well-being of patients with uterine leiomyomas.

Uterine leiomyosarcoma accounts for 1% to 2% of all uterine malignant lesions, with an incidence of 0.3 to 0.4 per 100 000 women per year [8]. The US Food and Drug Administration Safety communication estimated that the rate of leiomyosarcoma in women undergoing hysterectomy and myomectomy to treat leiomyomas was 1 in 498, and the rate of unsuspected uterine sarcoma of any histotype was 1 in 352 [1].

Morcellation of unsuspected uterine sarcomas can be associated with spread of disease and decreased survival rates [9–11]. The same is true for variants of leiomyomas such as cellular leiomyoma, atypical leiomyoma, and smooth muscle tumors of undetermined malignant potential [12]. The definitive diagnosis of these lesions is provided via histology. To date, the best intraoperative test for determination of whether myometrial tumors are benign or malignant seems to be frozen section analysis of tissue sections of the surgical specimens. However, the reliability of intraoperative frozen section analysis to ascertain myometrial disease is controversial. Some investigators consider it an unreliable diagnostic technique, whereas others believe it is appropriate, in particular if frozen section analysis of needle biopsy specimens is combined with preoperative radiologic investigations [13–15].

Fig. 1

(A) Tru-Cut needle is inserted percutaneously into the abdominal cavity. (B) Biopsy needle inside the uterine myoma. Note vasoconstriction on the surface of the uterine wall after injection of a dilute solution of vasopressin. (C) Needle with a biopsy specimen.



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