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Laparoscopic Myomectomy Followed by Minilaparotomy for Management of a Large Submucous Fibroid

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Abstract

Background: We describe a patient with a single large type II submucous fibroid distorting and occupying the entire endometrial cavity, which was managed successfully with an approach less invasive than laparotomy. ***Case:*** The patient was a 36-year-old woman who presented with primary infertility of 2 years duration. Her associated complaints were menorrhagia and known uterine fibroids. She had undergone hysteroscopic myomectomy in the past without any improvement. An hysterosalpingogram revealed that the uterine cavity was occupied by a single large submucosal fibroid. Transvaginal ultrasound and saline infusion hysterosonogram showed a large anterior type II submucous, intramural, subserous fibroid. Diagnostic hysteroscopy and laparoscopy revealed a type II submucous fibroid occupying the entire anterior wall of the uterus. Laparoscopic myomectomy was performed and a fibroid measuring 8 cm was dissected. During the process, the endometrial cavity was entered and a minilaparotomy via a 5-cm transverse skin incision was performed to repair the endometrial cavity and overlying myometrium adequately and to remove the myoma. ***Results:*** Her postoperative course was uneventful. Six weeks later, saline infusion hysterosonogram revealed a uniform endometrial cavity with no filling defects or synechiae. ***Conclusions:*** Laparoscopic myomectomy with minilaparotomy is a safe, cost-effective, and less invasive approach for the treatment of patients with large type II submucous fibroids who want to preserve their reproductive potential. (J GYNECOL SURG 29:161)

Introduction

Leiomyomas are present in approximately 5–10% of women with infertility and are the sole factor identified in 1–2.4% of women with infertility.[1] Fibroids can be submucosal, intramural, or subserosal. Submucosal fibroids have been further categorized as type 0, type I, and type II based on their position with respect to the layers of the uterus.[2] Removal of submucosal and intramural fibroids distorting the endometrial cavity has shown to improve pregnancy rates and fertility outcome.[3,4] Hysteroscopic myomectomy has been shown to be effective in treating type 0 and type I submucosal fibroids.[5] Hysteroscopic myomectomy in several sessions has been proposed for small type II submucous fibroids by some authorities.[6] Traditionally, large type II submucous fibroids have been dealt with via laparotomy and myomectomy. In this regard, minimally invasive surgery has been shown to be a valid alternative to the standard open technique. There is now increased demand by patients for less invasive techniques for the treatment of fibroids. In addition, the data suggest that laparoscopic myomectomy is a safe, efficient, and cost-effective approach for the treatment of intramural and subserosal fibroids. However, laparoscopic myomectomy compared with its open counterpart is perceived by most gynecologic surgeons as more challenging technically. This is because of the inability to repair adequately the uterine defect laparoscopically, which may allow hematoma formation within the uterine wall. Also during laparoscopic myomectomy, extensive use of electrocautery may result in more damaged tissue being incorporated into the uterine closure than at laparotomy. As result, it is believed that laparoscopic myomectomy could be associated with a weak uterine scar, which may increase the chance of uterine rupture during pregnancy and labor.[7] This report describes the management of a patient who presented with a large type II submucous fibroid using the minimally invasive technique of laparoscopic myomectomy combined with minilaparotomy.

Case

A 36-year-old-woman presented with primary infertility of 2 years duration. Her associated complaints were

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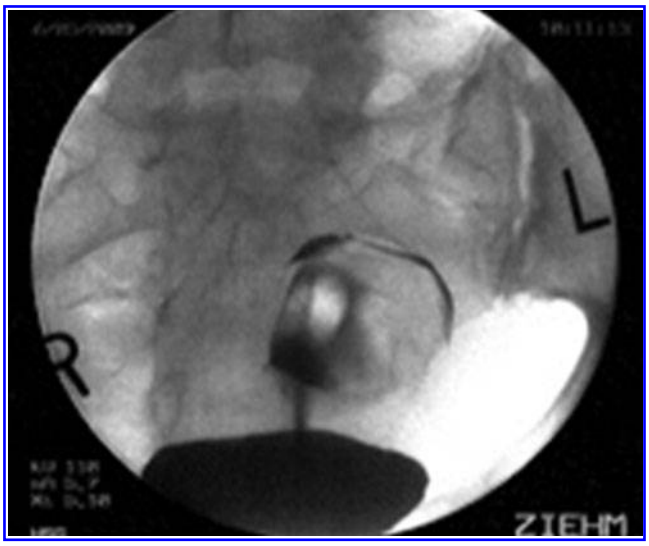

FIG. 1. Hysterosalpingogram picture showing the uterine cavity to be occupied and compromised by a large filling defect with a smooth surface, most probably representing a submucous myoma. Taken from ISBN: HB 9781107029743. Edited by Botros R.M.B. Rizk and Elizabeth Puscheck. Ultrasonography in Gynecology. Figure 14 in the book chapter "Transvaginal ultrasound scan findings of uterine fibroid effect on treatment plan." By Dr. Mostafa Abuzeid and Salem Joseph. Copyright © 2012 Cambridge University Press. Reprinted with the permission of Cambridge University Press.

menorrhagia and known uterine fibroids. She underwent a hysteroscopic myomectomy 2 years earlier without any relief in her symptoms. An hysterosalpingogram revealed that the uterine cavity was occupied and compromised by a large, smooth, filling defect, most probably representing a submucous fibroid (Fig. 1). Transvaginal 2D ultrasound with a saline infusion hysterosonogram (SIH) showed an 8-cm large anterior-fundal submucous intramural fibroid reaching and stretching the serosal layer (type II submucous fibroid; Fig. 2). A diagnostic hysteroscopy and laparoscopy confirmed the ultrasound findings. The myoma was injected at its base

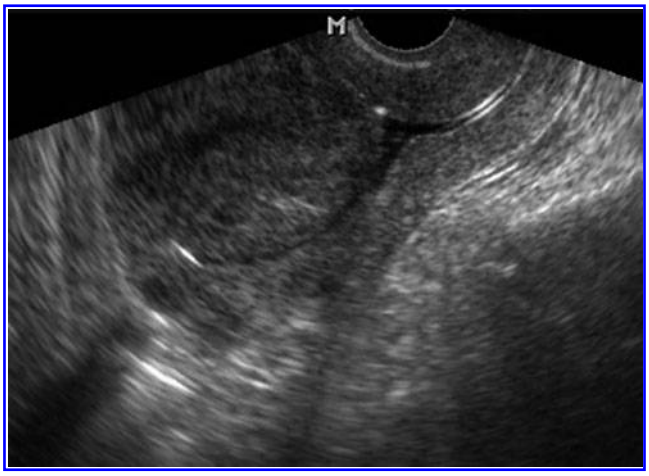

FIG. 2. Transvaginal 2D ultrasound with saline infusion hysterosonogram picture showing an 8-cm large anterior-fundal submucous intramural fibroid reaching and stretching the serosal layer (type 2 submucous fibroid). Taken from ISBN: HB 9781107029743. Edited by Botros R.M.B. Rizk and Elizabeth Puscheck. Ultrasonography in Gynecology. Figure 15 in the book chapter "Transvaginal ultrasound scan findings of uterine fibroid effect on treatment plan." By Dr. Mostafa Abuzeid and Salem Joseph. Copyright © 2012 Cambridge University Press. Reprinted with the permission of Cambridge University Press.

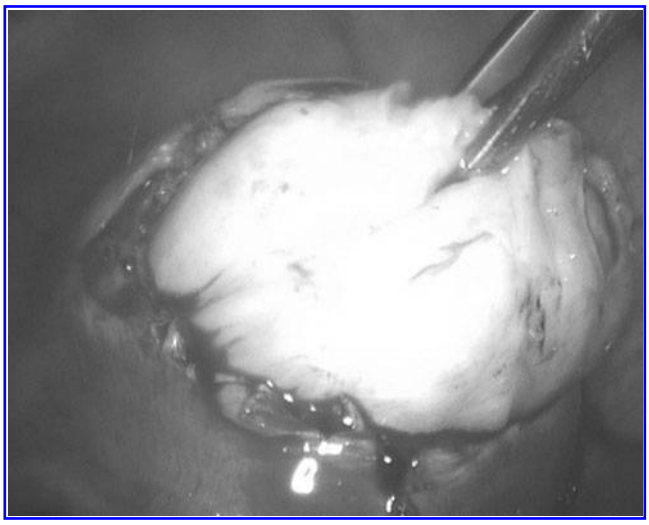

FIG. 3. Laparoscopic picture depicting the dissection of the myoma. Taken from ISBN: HB 9781107029743. Edited by Botros R.M.B. Rizk and Elizabeth Puscheck. Ultrasonography in Gynecology. Figure 16 in the book chapter "Transvaginal ultrasound scan findings of uterine fibroid effect on treatment plan." By Dr. Mostafa Abuzeid and Salem Joseph. Copyright © 2012 Cambridge University Press. Reprinted with the permission of Cambridge University Press.

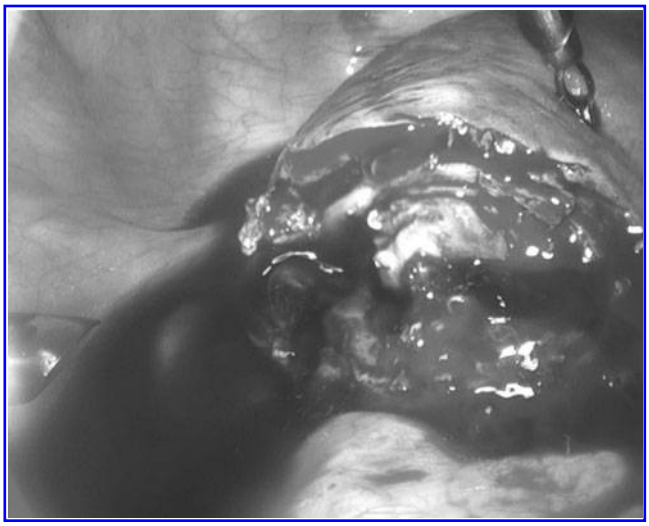

FIG. 4. Laparoscopic picture depicting the myoma bed. Notice that the endometrial cavity was entered in a small area (about 1 cm) and a moderate amount of bleeding from the myometrium was observed. Taken from ISBN: HB 9781107029743. Edited by Botros R.M.B. Rizk and Elizabeth Puscheck. Ultrasonography in Gynecology. Figure 17 in the book chapter "Transvaginal ultrasound scan findings of uterine fibroid effect on treatment plan." By Dr. Mostafa Abuzeid and Salem Joseph. Copyright © 2012 Cambridge University Press. Reprinted with the permission of Cambridge University Press.

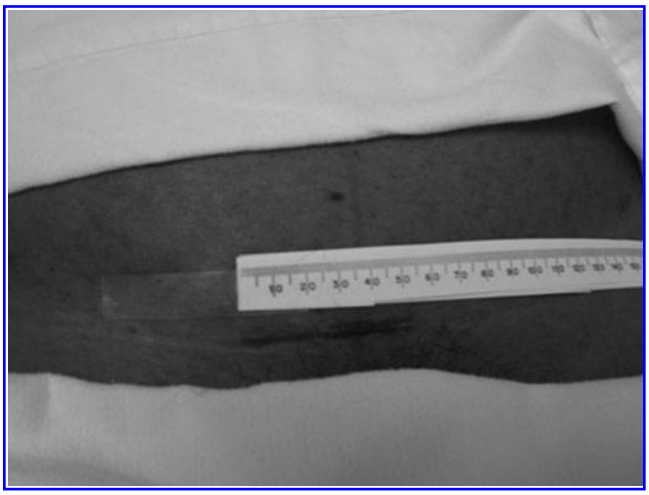

FIG. 5. A postoperative picture showing a 5-cm transverse suprapubic scar from the minilaparotomy. Taken from ISBN: HB 9781107029743. Edited by Botros R.M.B. Rizk and Elizabeth Puscheck. Ultrasonography in Gynecology. Figure 18 in the book chapter "Transvaginal ultrasound scan findings of uterine fibroid effect on treatment plan." By Dr. Mostafa Abuzeid and Salem Joseph. Copyright © 2012 Cambridge University Press. Reprinted with the permission of Cambridge University Press.

with 20 cc of diluted vasopressin (20 units in 100 cc of normal saline). A transverse incision was made over the uterine serosa onto the surface of the myoma using a laparoscopic spatula with monopolar cautery (40 W cutting current), and the incision was extended until the capsule of the myoma was reached. The capsule was opened and the myoma was enucleated using a single-toothed myoma grasper. The capsule was then dislocated from the uterine bed and the laparoscopic myomectomy was completed (Fig. 3). After dissecting the myoma, it was noted that the endometrial cavity was entered in a small area (about 1 cm), and there was moderate amount of bleeding from the myometrium (Fig. 4). Therefore, laparoscopic repair was deemed inappropriate. A minilaparotomy was performed to repair the endometrial cavity and overlying myometrium adequately. A 5-cm transverse skin incision was made in the suprapubic region, and the skin was dissected in an upward and downward fashion to allow us to make a longitudinal incision in the fascia (Fig. 5). The rectus muscles were separated in the midline, and the peritoneum cavity was entered in a routine fashion. The uterus was lifted up partially through the minilaparotomy incision using a uterine manipulator to facilitate suturing. This allowed us to visualize the myometrial defect, which was repaired in three layers. The myoma was easily and rapidly morcellated using a scalpel. A pediatric Foley catheter (10 French) was placed into the uterine cavity, and its balloon was inflated with 5 cc of normal saline to reduce intrauterine scar-tissue formation. The patient was admitted for observation for 23 hours. Her postoperative course was uneventful. She was instructed to increase her activity gradually during the first 10 days following surgery. The patient was able to go back to work and resume regular activity after 3 weeks. The catheter was removed after 6 days. The patient was given high-dose estrogen (Estrace 2 mg bid; Ferring Pharmaceuticals, Inc., Parsippany, NJ) for 6 weeks with progestogen (Provera, 10 mg q d; Pfizer, Inc. New York City, NY) for the last 10 days. An SIH that was done 7 weeks postoperatively revealed a uniform endometrial cavity with no filling defects or synechiae.

Results

Five months later, the patient conceived spontaneously. Unfortunately, this pregnancy was terminated at 20 weeks gestation because of trisomy 18.

Discussion

We believe that an hysteroscopic myomectomy was not an option in our case because of the size and location of the fibroid. In fact, it was tried once on our patient at another hospital without any significant reduction in the size of the fibroid tumor. Traditionally, a large type II submucous fibroid is dealt with via laparotomy and myomectomy. Robotic-assisted laparoscopic myomectomy can now be used successfully to treat such cases. However, the da Vinci Surgical System is not available in many counties, and the cost associated with the procedure can be prohibitive. In addition, the introduction of V-Loc™ sutures (Covidian, Mansfield, MA) may allow experienced endoscopic surgeons to repair the myometrial defect seen in our patient adequately and safely.

The technique described in this case of laparoscopic myomectomy with minilaparotomy to rapidly morcellate the tumor and repair the myometrial defect is an alternative, safe, and effective approach of minimally invasive surgery for such patients. This technique can also be utilized by gynecologists with limited laparoscopic suturing skills. The technique has been described by our group,[8] and other authors have also described similar techniques of laparoscopic myomectomy and minilaparotomy as an alternative minimally invasive approach for the treatment of uterine fibroids.[9–11] However, strong consideration should be given to referring such patients to another surgeon with the laparoscopic skills required to close the uterus laparoscopically if available.

Conclusions

The technique of minimally invasive surgery for the treatment of large type II submucous uterine fibroids described in this case can be performed successfully by a gynecologist with adequate laparoscopic training but limited laparoscopic suturing abilities. It is safe, effective, and avoids the need for traditional laparotomy in most cases of uterine fibroids without the expense associated with robotic-assisted myomectomy. However, such patients may need to be referred to another surgeon with advanced laparoscopic skills that might be needed to complete the procedure.

Acknowledgments

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Disclosure Statement

No competing financial interests exist.

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