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Case report

Useful technique for submucous myomectomy under direct transcervical resectoscope observation

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ABSTRACT

The transcervical resectoscope (TCR) is used for resecting a submucous myoma (SMM). Safe grasping of an SMM with forceps and its complete resection under transabdominal ultrasound (TAUS) guidance is not always easy. SMMs are slippery, making them difficult to grasp. The SMM moves right to left and anterior to posterior when the surgeon tries to grasp it with placental forceps. Surgeons could use small Martin forceps (65% smaller) to grasp SMMs safely and tightly under direct TCR (transcervical resectoscope) observation. We present a case in which this operative procedure was used to remove an SMM with Figure and Video. The benefits of this procedure are enormous and could be immeasurably important to hysteroscopists and gynecologists.

Introduction

The transcervical resectoscope (TCR) is a surgical instrument that is useful for observing the uterine cavity and resecting intrauterine tumors, such as a submucous myoma (SMM). With transcervical resection, safe grasping of an SMM using forceps and its complete resection under transabdominal ultrasound (TAUS) guidance is not always easy. SMMs are slippery, making them difficult to grasp. The SMM moves right to left and anterior to posterior when the surgeon tries to grasp it with placental forceps. Martin tenaculum forceps are very sharp and could injure the uterine wall. Surgeons, however, could use small Martin forceps (which are 65% smaller) to grasp SMMs safely and tightly under direct TCR observation. The benefits of this procedure are enormous and could be immeasurably important to hysteroscopists and gynecologists. We present a case in which this operative procedure was used to remove an SMM.

Case Report

We present the case of a 46-year-old 1G1P divorced Japanese woman who complained of atypical genital bleeding and anemia (hemoglobin 7.7 g/dL). Her medical history showed no remarkable features. She was diagnosed as having an SMM during a fiberscopic examination of her uterus. We chose to remove the SMM using the TCR. The operative technique for safe grasping and complete resection of an SMM under TCR direct observation is shown in Figure 1 and Video 1.

Supplementary video related to this article can be found at http://dx.doi.org/10.1016/j.gmit.2016.12.004

Her last menstrual period began on June 25, 2015 and continued to the day of cervical dilatation. She had had regular 30-day cycles. Cervical dilatation with four LL size and two M size laminaria tents was performed 1 day prior to the operation. After the laminaria tent for cervical dilatation was extracted from our patient, her external genitalia and vagina were disinfected with a 10% povidone–iodine water-based solution. Pain was relieved with a spinal anesthesia of bupivacaine (Marcaine; 2.0 mL) at the L3/L4 level. The patient was placed in the lithotomy position. A prophylactic antibiotic (cefazolin sodium hydrate, 1 g) was administered at the start of the operation.

The TCR (Olympus, Tokyo, Japan) was set up and revealed a 25-mm SMM with a small base arising from the left, lateral, posterior, and midportion of the uterus, between 3 o'clock and 6 o'clock. The surgeon (hysteroscopic operator) grasped the uterus at 12 o'clock with Tsukahara forceps using the left hand and then grasped the SMM using small Martin forceps that were held in the right hand. The assistant (hysteroscopic observer) controlled the TCR so it supplied clear images of the SMM. When the size of the uterine cavity had decreased because of drainage of the 1.5% glycine irrigation fluid (Uromatic; Baxter, San Juan, Puerto Rico), the surgeon

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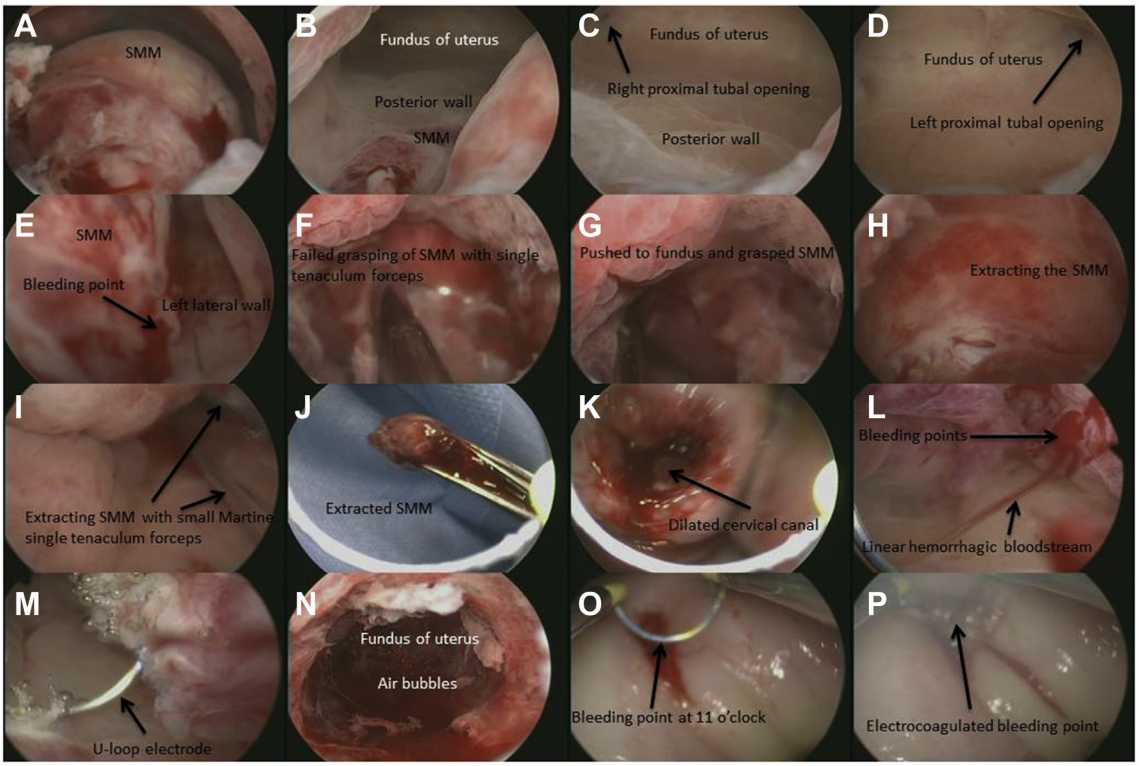

Figure 1. Transcervical resectoscopic still images of complete resection of a submucous myoma (SMM) under direct observation. (A) SMM is observed in the uterine cavity posteriorly and left laterally. (B) The transcervical resectoscope (TCR) shows that the uterine fundus is located at the end of the uterine cavity, and the SMM is located posteriorly and left laterally in the midportion. (C) TCR shows the uterine fundus, right proximal tubal opening, and uterine posterior wall. (D) TCR shows the uterine fundus and left proximal tubal opening. (E) TCR shows that the SMM is stalked mainly from 3 o'clock to 6 o'clock of the left lateral posterior uterine wall. The main bleeding points are the surface venous vessels, which were excised on the SMM near the stalk. (F) First grasping of SMM with small Martin single tenaculum forceps failed. Bilateral forceps meet on the SMM surface. (G) Second attempt at grasping the SMM. The SMM is pushed toward the fundus and grasped deeply with small Martin forceps. (H) SMM extraction by pulling it gently with grasping forceps. (I) SMM is extracted with small Martin single tenaculum forceps. Forceps are observed in the lower portion of the uterus. (J) Extracted SMM is grasped with two Martin single tenaculum forceps (24 mm × 18 mm × 18 mm). (K) Dilated cervical canal just after extracting the SMM. (L) TCR shows bleeding points and a linear hemorrhagic stream after resecting the SMM. (M) Bleeding points are electrocoagulated with a U-loop electrode. (N) After coagulating the bleeding points, the uterine cavity is examined with TCR. Air bubbles and the uterine fundus are seen, but no bleeding. (O) The bleeding point, produced by grasping the portio anteroposteriorly on the left side to stop dehydration is about to be electrocoagulated with the U-loop electrode. (P) The bleeding point has been electrocoagulated with the U-loop electrode.

pinched the right or left side of the cervix (at 3 o'clock or 9 o'clock) using large Martin forceps and rotated them to close off the drainage. During the procedure, a continuous fluid supply was provided using the glycine irrigation fluid bag with pressure from a tourniquet cuff at 70 mmHg. When the uterine cavity continued to decrease or if there was intrauterine bleeding, the assistant delivered more glycine irrigation solution with a 50-mL syringe to clear the field so the TCR could produce clear images. After sufficient observation of the SMM and uterine cavity, the SMM was grasped using small Martin forceps, resected, and extracted from the uterine wall through the cervical canal under direct TCR observation. Two procedures completed resection of the SMM. Bleeding points were electrocoagulated with a U-loop electrode. There was no residual tumor in the TCR images of the uterine cavity. Only some air bubbles were observed on the uterine wall. The uterine cavity and vagina were then irrigated with the glycine irrigation solution. The vagina and portio were carefully inspected to detect any bleeding points where Martin forceps had pinched the tissue. If present, electrocoagulation was applied to each bleeding point. The postoperative course was uneventful. The pathological diagnosis was a benign leiomyoma.

Discussion

Numerous textbooks and review articles have appeared concerning SMM myomectomy using hysteroscopy with TCR guidance.[1–11] In the case of hysteroscopic myomectomy with TCR, after detailed observation, the SMM was usually peeled, stripped, and resected using various electrodes under TCR guidance. Then, SMM was grasped with various forceps under TAUS guidance. In some cases, the size of the uterine cavity was reduced because of drainage of the glycine irrigation solution. Thus, the SMM was not clearly visualized under TAUS guidance. In addition, the SMM surface is slippery to grasp because of its round configuration. Even when the size of the SMM was reduced and made nodular in shape with TCR resection, it was still not easy to grasp the SMM safely and tightly with the usual placental forceps under TAUS guidance.

We present a case in which the SMM was safely and tightly grasped using small Martin forceps, which are easy to manipulate under direct TCR observation. We are convinced that it is a simple, useful procedure for hysteroscopists worldwide. The excessive number of resections for a single SMM is unnecessary. In addition, the operation could be performed in less time. The good hysteroscopic images allowed more precision and thus less intrauterine bleeding during the resection.

Dilatation of the cervical canal with laminaria tenting is essential. We were able to extract the SMM easily and avoid dangerous cervical laceration. We could reduce the size of the SMM near the portio with naked eye observation using Mayo scissors with narrow, strong blades. If the SMM is large, we perform laminaria tent dilatation twice with a preoperative 1-day admission. For the second dilatation, we inserted an 18-gauge injection needle cap in the

center of the cervix because the laminaria is easily compressed by the cervical wall. During the preoperative pelvic examination, just prior to performing the procedure in the operating room, the operator palpates the SMM through the cervical canal. If the myoma is easily palpated, it is an indication that the operation can be performed with ease. A width great enough to pass one finger should provide enough space for easy myoma palpation, which is essential for this operation.

During this maneuver, the cervical diameter is sometimes so large that the glycine irrigation solution drains out, and the uterine cavity cannot be expanded. If drainage continues, we recommend pinching the left or right side of the portio with large Martin forceps anteroposteriorly and rotating them if necessary to close off the drainage. The Martin forceps pinching points sometimes bleed, so hemostasis must be confirmed at the end of the operation. If gauze compression does not stop the bleeding, hemostatic electrocoagulation is recommended.

If the uterine cavity does not expand, it is necessary to inject glycine irrigation solution manually with a 50-mL syringe at the three-way stopcock. Also, if clear vision is impossible because of uterine cavity bleeding, the uterine cavity must be irrigated, removing any coagula and blood clots.

Our technique has several limitations. We could not always grasp all types of SMM. Generally, the small, Type 0 SMM is easily grasped, and the large, Type II SMMs are difficult to grasp. Soft tumors, such as degenerated SMMs and adenofibromas, could be grasped with small Martine forceps but could not be moved down to the outer cervical canal orifice.

In the case of Types I and II SMM, if the tumors could be grasped, the next step was moving and rotating them. Using this maneuver, some myomas came off the uterine wall, and the dividing lines between the SSM and normal uterine wall were clearly identified. If this was the case, the next step was to incise along the dividing lines using the TCR U-loop electrode, as is usual for submucous myomectomy by TCR. If the SMM does not separate from the uterine wall, we believe that the best, safest choice is to resect only the part to the myoma that is protruding, a technique usually performed for Type II SMMs. It is also possible not to be able to grasp the under part of SMMs, especially in the case of a large Type I or Type II submucosal mass. In such cases, we usually try single resection using a U-loop electrode with the usual 30-watt cutting mode for grasping the submucosal mass. Especially in the case of the possibility of pregnancy preservation, minimal injury to the endometrium and uterine muscle wall is desirable. Thus, only one resection is preferred.

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