

ONE-STEP HYSTEROSCOPIC REMOVAL OF LARGE SINKING SUBMUCOUS MYOMA

Fang-Wang Kang, Hsiao-Chun Yang^{1*}, Ming-Jer Chen, Min-Min Chou, Esther Shih-Chu Ho

Department of Obstetrics and Gynecology, Taichung Veterans General Hospital, and ¹Department of Obstetrics and Gynecology, Lin Shin Hospital, Taichung, Taiwan.

Uterine leiomyomas are benign tumors that occur in about 20–25% of women in their reproductive years. Submucous myomas may present a greater risk to the patient than either intramural or subserous varieties, because they cause heavy uterine bleeding and dysmenorrhea, and interfere with normal reproduction.

A transcervical approach is minimally invasive for myomectomy, and hysteroscopic myomectomy is the best treatment for women with submucous leiomyomas [1]. However, not all submucous leiomyomas can be easily treated by hysteroscopy. Although hysteroscopic resection of a pedunculated submucous leiomyoma is not difficult, myomas that are partly or mostly intramural increase the risk of uterine perforation or incomplete excision [2].

A 43-year-old single woman had experienced heavy menstrual flow for about 7 months. Her condition was complicated with anemia (hemoglobin 9.6 g/dL), which caused her to feel dizzy. She had tried herbal medicine for 6 months, but the menorrhagia worsened. She came to our gynecology outpatient department in October 2006. Gynecologic ultrasound revealed a leiomyoma of 42 × 36 × 41 mm in the central part of the uterus (Figure 1), so a submucous myoma was highly suspected. We arranged hysteroscopy for diagnosis and treatment of the menorrhagia in the early proliferative phase of the menstrual cycle. After insertion of the resectoscope, the submucous myoma could hardly be identified simply under hysteroscopy. Using an ultrasound monitor, we located the sinking submucous myoma on the right anterior wall of the uterus. Obviously, the myoma presented in this patient was type II (> 50% contained within the myometrium) according to the European Society for Gynecologic Endoscopy classification of submucous fibroids (Figure 2). Hysteroscopic myomectomy was

performed under the guidance of a bipolar intrauterine system (Versapoint; Ethicon Inc., Somerville, NJ, USA) with 0.9% normal saline as distension medium. The procedure involved first cutting open the central portion of the myoma to identify the myoma and myometrial

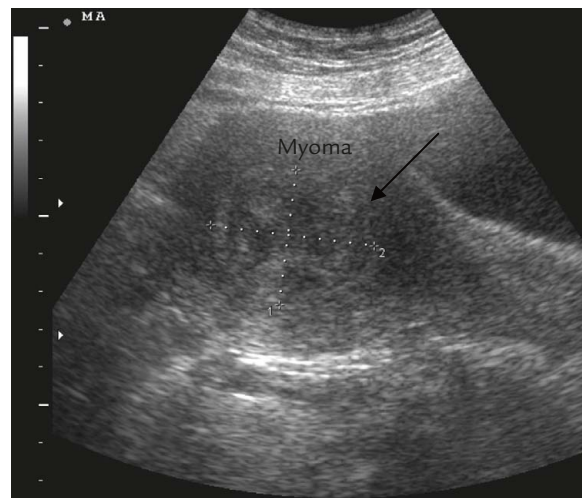


Figure 1. Two-dimensional transabdominal ultrasonography reveals a globular uterus with a leiomyoma measuring 42 × 36 × 41 mm, located in the central part of the uterus.

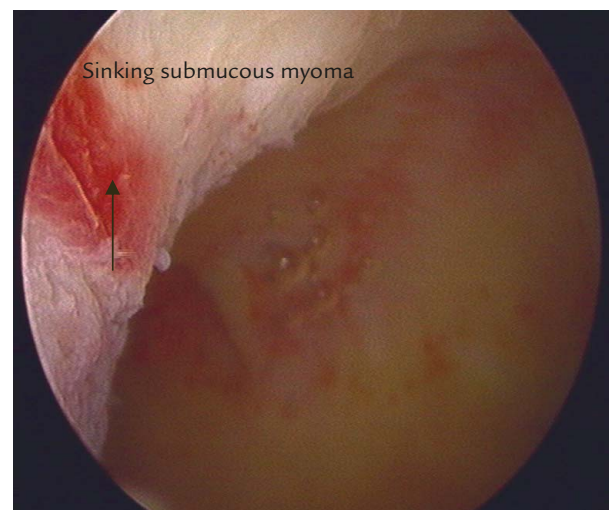


Figure 2. The submucous myoma can hardly be identified initially using hysteroscopy.



ELSEVIER

*Correspondence to: Dr Hsiao-Chun Yang, Department of Obstetrics and Gynecology, Lin Shin Hospital, 36, Section 3, Huizhong Road, Taichung 408, Taiwan.

E-mail: hcyang37@yahoo.com.tw

Accepted: July 25, 2007

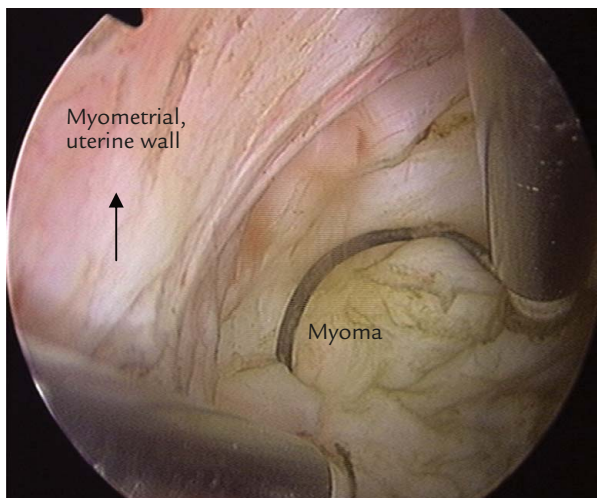


Figure 3. The junctional zone between myoma and uterine wall is clearly defined after cutting the central portion of the myoma and several passes of the electrode.

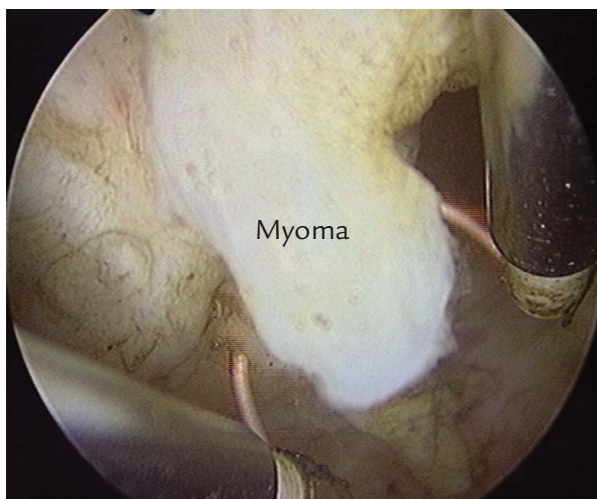


Figure 4. Hysteroscopic appearance of the intramural portion of the submucous myoma protruding further into the uterine cavity after the electrode has shaved through the myoma.

junction (Figure 3), and shaving the myoma. Then, the myoma was dissected from the muscular layer using the tip of the resectoscope via repeated sudden removal of the resectoscope to produce a rebound effect in decreasing intrauterine pressure. It gradually pulled the myoma further into the intrauterine cavity (Figure 4). Complete resectoscopic removal of the submucous myoma was achieved using the above technique. No fluid overload syndrome developed. The patient tolerated the whole procedure well and was discharged the next day. Ultrasonography revealed no residual myoma in this patient at the follow-up 2 weeks after surgery. After 9 months of follow-up, the patient was satisfied with the operation results, especially regarding menorrhagia control. No myoma recurrence was noted at a recent ultrasonographic examination.

Myomas with the greatest diameter within the uterine wall have been associated with increased operating time and potential side effects, such as heavy hemorrhage, difficulty to control uterine perforation and water intoxication, and often require a second-stage operation to remove the myoma when the remaining portion of the submucous fibroid has been pushed into the uterine cavity by continuous myometrial contraction [3].

There has been evidence of the efficacy of preoperative medical treatment with gonadotropin-releasing hormone (GnRH) agonists in facilitating surgery and improving the long-term result of hysteroscopic myomectomy [3]. In a review of several randomized and nonrandomized control clinical trials published in the English literature between 1990 and 1996, studies comparing the use of GnRH agonists and no prior treatment have shown that preoperative treatment reduced fluid absorption during surgery, ranging from 142 to 572 mL [4]. A decrease in operation time (between 2 and 25 minutes) was also observed in GnRH agonist-treated groups in comparison with untreated controls [4].

Successful outcome depends not only on operative skill but also on the guidance under sonogram. To prevent uterine perforation during removal of deep infiltrating submucous myomas, the myometrial thickness between the myoma and serosa is checked before operation. The thickness increases gradually during operation as a result of uterine contraction. According to the experience of Yang and Lin [5], it is safe even when the myometrial thickness at the implantation site is as thin as 5 mm.

Several techniques have been reported for hysteroscopic myomectomy of sessile submucous leiomyomas, including: (1) a two-step procedure combined with GnRH agonist therapy [6], (2) a one-step myomectomy with a two-resectoscope method [7] or a maneuver using digital pressure [8], (3) intraoperative injection of an oxytocic agent, prostaglandin $F_{2\alpha}$ to myometrium under laparoscopically, and (4) shaving the intramural component, whereby the uterine wall contracts and pushes the intramural portion into the uterine cavity, permitting the complete resection of myoma, if the intramural portion does not involve the entire uterine wall [9].

Two important anatomic landmarks can assist the hysteroscopist in the removal of submucous leiomyomas: (1) the consistency and texture of the fibrous tissue of the myoma are determined by gently touching the tissue with the inactivated loop, permitting the pseudocapsule to be easily felt; and (2) when the resection comes in contact with the juxtaposed myometrium, the fascicular myometrial tissue can be easily contrasted with the fibrous myomatous tissue. In addition, the

softness of the muscular tissue can be palpated with the inactivated loop, signaling the termination of resection.

To reduce the need for reintervention, appropriate patient selection and improved techniques are necessary. Our treatment approach has been proven to be safe and efficient for removal of a huge sinking submucous myoma in a one-step hysteroscopic procedure. Concurrent ultrasonography is vital in the initial resection. The uterine walls, myoma and resectoscope are all clearly seen with the aid of ultrasound, which enables a safe hysteroscopic operation.

References

1. Tulandi T, al-Took S. Endoscopic myomectomy. Laparoscopy and hysteroscopy. *Obstet Gynecol Clin North Am* 1999;26: 135–48.
2. Emanuel MH, Wamsteker K, Hart AA, Metz G, Lammes FB. Long-term results of hysteroscopic myomectomy for abnormal uterine bleeding. *Obstet Gynecol* 1999;93:743–8.
3. Crosignani PG, Vercellini P, Meschia M, Oldani S, Bramante T. GnRH agonists before surgery for uterine leiomyomas. A review. *J Reprod Med* 1996;41:415–21.
4. Parazzini F, Vercellini P, De Giorgi O, Pesole A, Ricci E, Crosignani PG. Efficacy of preoperative medical treatment in facilitating hysteroscopic endometrial resection, myomectomy and metroplasty: literature review. *Hum Reprod* 1998; 13:2592–7.
5. Yang JH, Lin BL. Changes in myometrial thickness during hysteroscopic resection of deeply invasive submucous myomas. *J Am Assoc Gynecol Laparosc* 2001;8:501–5.
6. Donnez J, Polet R, Smets M, Bassil S, Nisolle M. Hysteroscopic myomectomy. *Curr Opin Obstet Gynecol* 1995;7:311–6.
7. Lin BL, Iwata Y, Liu KH. Removing a large submucous fibroid hysteroscopically with the two-resectoscope method. *J Am Assoc Gynecol Laparosc* 1994;1:259–63.
8. Haliez JP. Single-stage total hysteroscopic myomectomies: indications, techniques, and results. *Fertil Steril* 1995;63:703–8.
9. Loffer, FD, Bradley LD, Brill AI, Brooks PG, Cooper JM. Hysteroscopic training guidelines. The *ad hoc* committee on hysteroscopic training guidelines of the American Association of Gynecologic Laparoscopists. *J Am Assoc Gynecol Laparosc* 2000;7:165.