

# Hysteroscopic Resection of Submucous Myoma: A Result of 50 Procedures at Ramathibodi Hospital†

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## Abstract

We reported an initial result of the safety and efficacy of myomectomies performed between September 1994 and June 1997 by the hysteroscopic resectoscope in 50 patients at Ramathibodi Hospital. The indications for hysteroscopy and/or hysteroscopic myomectomy were menorrhagia in 23, metrorrhagia in 3, menometrorrhagia in 2, infertility with abnormal uterine bleeding in 12, abnormal uterine bleeding during hormonal replacement therapy (HRT) in 4, and suspected submucous myomas detected by ultrasonography and/or sonohystero-graphy in 6 patients. The mean age of the 50 patients was 39.5 years with a range of 26 to 66 years. The sizes of the submucous myomas ranged from 1-5 cm. The mean of operation time was 32 minutes (range 15-60 minutes). The mean volume of 1.5 per cent glycine required for irrigation was 800 with a range of 600-2000 ml, and the mean deficit at the end of the operation was 300 with a range of 200-1000 ml. The mean estimation of blood loss during the operation was 80 ml with a range of 50-200 ml. Postoperatively 28 out of 30 patients with menorrhagia had improvement in excessive bleeding (93.33%). One patient underwent subsequent hysterectomy due to persistent heavy uterine bleeding from recurrent submucous myoma. All patients with infertility and patients under HRT had normal menstruation after this procedure. 2 out of 12 (16.67%) patients with infertility became pregnant after submucous resection. No serious complications occurred. One patient had a cervical laceration repaired by simple stitches. One patient had mild endometritis responding to outpatient antibiotics. Forty-eight patients were discharged from hospital the day after the operation, the remaining two staying overnight for observing post-operative bleeding. Our data suggested that resectoscopic myomectomy is a safe and effective surgical procedure. The procedure offers the advantage to the patients of a shorter hospital stay along with a low complication rate. The hysteroscopic approach to the symptomatic submucous myoma has dramatically changed the treatment options for patients who classically would be offered abdominal myomectomy or hysterectomy.

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Leiomyomas uteri are found in 20-25 per cent of women over the age of 35 years. These tumors are caused by a hypersensitivity of some myometrial cells to estrogen<sup>(1)</sup>. The pelvic masses can cause menorrhagia, infertility, spontaneous abortion, premature labor, and pelvic pain depending upon their size and location. Surgical management is either hysterectomy or myomectomy. Although myomectomy was introduced to gynecologic surgery nearly 150 years ago, it has been, during recent years, becoming an increasingly important procedure performed with greater frequency. This increased use of myomectomy rather than hysterectomy results from the desire and necessity of patients to retain or improve reproductive potential. In the past, myomectomy was performed abdominally by laparotomy and removal of the myoma through a uterine incision followed by repair of the uterine incision. This procedure is potentially hazardous because of the limited exposure and difficulty in controlling bleeding from the hysterotomy. In addition this procedure often disrupts the integrity of the uterine cavity. Neuwirth and Amin<sup>(2)</sup> have suggested that transcervical hysteroscopy may be the procedure of choice for the diagnosis and treatment of submucous myoma. The use of resectoscopic technique is a less invasive surgical alternative than an abdominal myomectomy for symptomatic submucous myomas while maintaining the patient's fertility. The immediate advantages of this procedure are apparent. The need for laparotomy is avoided as it is possible to remove the myoma without dissecting through the uterine wall. This results in reduced morbidity and eliminates the need for elective cesarean section at delivery. The objective of this study was to evaluate and report an initial result of the safety and efficacy of myomectomies performed by the hysteroscopic resectoscope in 50 patients at Ramathibodi Hospital.

## MATERIAL AND METHOD

The procedure of hysteroscopic myomectomy was carried out on 50 patients between September 1994 and June 1997 at Ramathibodi Hospital School of Medicine. The indications for hysteroscopy and/or hysteroscopic myomectomy were menorrhagia in 23, metrorrhagia in 3, menometrorrhagia in 2, infertility with abnormal uterine bleeding in 12, abnormal uterine bleeding during hormonal replacement therapy (HRT) in 4, and sus-

pected submucous myomas detected by ultrasonography and/or sonohysteroscopy in 6 patients.

All women underwent myomectomy by operative hysteroscopy under general anesthesia. Most of the patients were scheduled for the operation either in the follicular phase of the menstrual cycle or after GnRH agonist treatment for 2-3 months in order to shrink the tumor and thin the endometrium. At the beginning of the surgery the cervix was dilated to 8-10 mm. A rigid 26 French resectoscope (Karl Storz, Tuttlingen, West Germany) fitted with a 4 mm forward-oblique telescope and a cutting loop was inserted into the uterine cavity under direct vision using a single chip camera and monitor. A mixed diathermy current of 100-120 W for cutting and 50 W for coagulation was used in most cases. The uterine cavity was distended using 1.5 per cent glycine. The glycine was flushed at a rate of 50-100 ml/min and a pressure of 100-120 mmHg with a Hamou Hysteromat (Karl Storz, Tuttlingen, West Germany). Fluid balance was recorded strictly by measuring the infused and drained fluid from the continuous flow hysteroscope, taking into account the fluid irrigated separately from the operative field into a collecting bag. Preventive hemostasis was performed by applying pure coagulation current to the origin of the large vessels traversing the surface of the myoma. Resection was carried out methodically, always from fundus to os. All resections were practiced under visual control. Continuous irrigation dissipated any blood and allowed total visual control, making resection easy. Alteration of the visibility strongly suggests a malfunction. It is then imperative to interrupt the resection and to verify the irrigation circuit. Hemostasis of the large vessels was performed as necessary during the surgery. It also was carried out meticulously at the end of procedure. Resected tissue was removed by periodic curettage and was sent for histological examination. At the end of the procedure the uterine cavity was inspected, any fragments of residual myoma removed, and any persistent bleeding points coagulated. Postoperative antibiotics or estrogens were not administered routinely. Patients were scheduled to come back for follow-up at 1, 3, 6, 9 and 12 months.

## RESULTS

The mean age of the 50 patients was 39.5 years with a range of 26 to 66 years. The

sizes of the submucous myomas ranged from 1-5 cm. The sizes of myomas were determined by preoperative ultrasonography and were supplemented clinically by comparing the myomas to the known size (0.7 cm) of the resectoscope cutting loop. The mean operation time was 32 minutes (range 15-60 minutes). The mean volume of 1.5 per cent glycine required for irrigation was 800 with a range of 600-2000 ml, and the mean deficit at the end of operation (negative balance of intake and output) was 300 with a range of 200-1000 ml. The mean estimation of blood loss during the operation was 80 ml with a range of 50-200 ml. Postoperatively 28 out of 30 patients with menorrhagia had improvement in excessive bleeding (93.33%). One patient underwent subsequent hysterectomy due to persistent heavy uterine bleeding. All patients with infertility and patients under HRT had normal menstruation after this procedure. 2 out of 12 (16.67%) patients with infertility became pregnant after submucous resection. No serious complications occurred. One patient had a cervical laceration repaired by simple stitches. One patient had mild endometritis responding to outpatient antibiotics. No cases of fluid overload and electrolyte imbalance or excess bleeding occurred. Forty-eight patients were discharged from hospital the day after the operation, the remaining two staying overnight for observing post-operative bleeding. There was no patient requiring blood transfusion during or after surgery.

## DISCUSSION

Patients with submucous myomas in this series presented with a variety of patterns of abnormal uterine bleeding. However, menorrhagia was the commonest presentation (30 patients, 60%). Like a number of other intrauterine abnormalities, submucous myomas can now be treated successfully by means of operative hysteroscopy, thus making it possible to avoid laparotomy. However, it is generally agreed that such an approach not only requires skilled operators, but also accurate presurgical evaluation of the size, location, and degree of intramural extension of the submucous myomas(3-5).

Baggish et al(6) in the series of 23 patients with symptomatic submucous myomas and complaints of menorrhagia or infertility and who were treated hysteroscopically with Nd:YAG laser, reported the correction of abnormal bleeding in

22 of the 23 patients. Corson and Brooks(7) reported on resectoscopic excision of submucous myomas in 92 patients complaining of menorrhagia, dysmenorrhea, pregnancy wastage, and/or infertility. There was improvement in bleeding pattern in 65 of 80 patients (81%) complaining of menorrhagia and correction of dysmenorrhea in 24 of 28 patients (86%). Wortman and Dagget(8) reported the results of hysteroscopic myomectomy with resectoscope and a concomitant procedure to destroy the endometrium in 75 women with menorrhagia. The outcome of a single operation was satisfactory to 84 per cent. Our current series totals 50 patients with resectoscopic removal of submucous myomas with the complaints of menorrhagia in 23, metrorrhagia in 3, menometrorrhagia in 2, infertility with abnormal uterine bleeding in 12, abnormal uterine bleeding during HRT in 4, and submucous myomas detected by ultrasonography and/or sonohysterography in 6 patients. Of these, 28 out of 30 (93.33%) patients with menorrhagia had improvement in excessive bleeding. One patient underwent subsequent hysterectomy due to persistent menorrhagia from recurrent submucous myoma. All patients with infertility and patients under HRT had normal menstruation after this procedure. The improvement in excessive bleeding in our series after removal of submucous myoma by hysteroscopic resectoscope were comparable to those reported by others performed by operative hysteroscopy(6-12).

The reproductive outcomes after hysteroscopic myomectomy have been reported using a resectoscopic loop(7), Nd:YAG laser(13), or hysteroscopic scissor(14). The pregnancy rates after removal of submucous myomas through operative hysteroscopy ranged between 40 and 70 per cent (7,13,14). The results are somewhat better than those achieved by us in which only 2 out of 12 (16.67%) patients with infertility became pregnant after submucous myoma resection. This fact may be attributed in part to a short follow-up period.

The complications of operative hysteroscopy includes perforation, fluid absorption and hyponatremia, bleeding, infection(15). No serious complications occurred in our series, one patient had a cervical laceration repaired by simple stitches another patient had mild endometritis responding to outpatient antibiotics.

Problems of fluid overload were minimized by limiting the infusion pressure of the infu-

sion pump (Hamou Hysteromat) to less than 120 mmHg. This is critical. In addition, intake and output should be monitored carefully to alert the anesthesiologist and surgeon to impending problems. Our current small series of 50 hysteroscopic myomectomies, to stict to the precautions as mentioned we found no cases of fluid overload and electrolyte imbalance during this procedure.

Hemorrhage is a concern to all surgeons while doing this procedure. GnRH agonist treatment before hysteroscopic myomectomy has been suggested recently in order to reduce this risk<sup>(16)</sup>. GnRH agonist before this procedure was proved to decrease the diameter of submucous myoma, reduce bleeding and mucous debris, improve visibility and limiting operating time and fluid intravasation<sup>(16)</sup>. Presently we schedule this procedure either in the follicular phase of the menstrual cycle in patients with small submucous myomas (<3 cm) or after GnRH agonist treatment for 2-3 months in patients with larger tumors. We had no cases of heavy bleeding and no patient required a blood transfusion in our series of 50

hysteroscopic myomectomies. The mean estimation of blood loss during the operation was 80 ml with a range of 50-200 ml.

In conclusion, the use of the resectoscope not only for diagnosis but also for treatment of a variety of intrauterine lesions. Our data suggested that resectoscopic myomectomy is a safe and effective surgical procedure. The procedure offers the advantage to the patients of a shorter hospital stay along with a low complication rate. The hysteroscopic approach to the symptomatic submucous myoma has dramatically changed the treatment options for patients who classically would be offered abdominal myomectomy or hysterectomy.

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## การผ่าตัดเนื้องอกมัยโอมาใต้เยื่อหุ้มมดลูก ผ่านกล้องส่องโพรงมดลูก: รายงานผลการผ่าตัดผู้ป่วยที่โรงพยาบาลรามธิบดีจำนวน 50 ราย

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ได้รายงานผลการผ่าตัดเนื้องอก submucous myoma ผ่านกล้องส่องโพรงมดลูกจำนวน 50 ราย ผู้ป่วยมีอายุระหว่าง 26-66 ปี อายุเฉลี่ย 39.5 ปี ผู้ป่วยที่ได้รับการผ่าตัด 50 ราย มีปัญหาเรื่องเลือดประจำเดือนออกมากจากโพรงมดลูก (menorrhagia) 23 ราย, metrorrhagia 3 ราย, menometrorrhagia 2 ราย ภาวะมีบุตรยากร่วมกับมีเลือดออกผิดปกติจากโพรงมดลูก 12 ราย มีเลือดออกผิดปกติจากโพรงมดลูกระหว่างที่มีการรักษาด้วยฮอร์โมนบำบัด 4 ราย ตรวจพบก้อนเนื้องอกภายในโพรงมดลูกจากการตรวจ ultrasonography และ/หรือ sonohysterography 6 ราย เวลาเฉลี่ยในการผ่าตัด 32 นาที (ค่าพิสัย 15-60 นาที) ใช้สารนำเกลือ 1.5% glycine ระหว่างผ่าตัดเฉลี่ย 800 มล. (ค่าพิสัย 600-2000 มล.) มีการดูดซึมของ 1.5% glycine เข้าสู่ร่างกายระหว่างผ่าตัดเฉลี่ย 300 มล. (ค่าพิสัย 200-1000 มล.) เสียเลือดระหว่างผ่าตัดเฉลี่ย 80 มล. (ค่าพิสัย 50-200 มล.) ผลการผ่าตัดพบว่า ผู้ป่วยที่มีปัญหาเรื่อง menorrhagia 30 ราย มีอาการดีขึ้นเป็นปกติ 28 ราย (93.33%) มี 1 รายต้องรักษาต่อด้วยการตัดมดลูกออกภายหลัง เนื่องจากยังมีเลือดประจำเดือนออกมากจากการเกิดเนื้องอกซ้ำ ผู้ป่วยที่มีบุตรยากร่วมกับมีเลือดออกผิดปกติจากโพรงมดลูก และผู้ป่วยที่รักษาด้วยฮอร์โมนบำบัดที่มีเลือดออกผิดปกติจากโพรงมดลูกระหว่างรับประทานยา พบว่ามีประจำเดือนเป็นปกติภายหลังการผ่าตัด ผู้ป่วยที่มีปัญหาเรื่องมีบุตรยากจำนวน 12 ราย สามารถตั้งครรภ์ได้ภายหลังการผ่าตัด 2 ราย ภาวะแทรกซ้อนจากการผ่าตัดที่พบได้แก่ เกิดการฉีกขาดของปากมดลูก 1 ราย รักษาโดยการเย็บซ่อมให้เป็นปกติ เกิดการอักเสบของโพรงมดลูก 1 รายรักษาโดยการให้ยาปฏิชีวนะ ผู้ป่วยที่ได้รับการผ่าตัดทั้งหมด 50 ราย พบว่าสามารถกลับบ้านได้ในวันเดียวกัน 45 ราย ที่เหลืออีก 5 รายรับไว้ในหอผู้ป่วยหนึ่งคืนเพื่อเฝ้าดูอาการเลือดออกผิดปกติภายหลังการผ่าตัด

การผ่าตัดเนื้องอก submucous myoma ผ่านกล้องส่องโพรงมดลูกสามารถทำได้ปลอดภัย ให้ผลการรักษาอยู่ในเกณฑ์ดี ผู้ป่วยสามารถกลับบ้านได้เร็วขึ้น ส่วนใหญ่กลับบ้านได้ในวันเดียวกัน การเลือกผู้ป่วยที่เหมาะสมเพื่อทำการผ่าตัดโดยวิธีนี้จะเป็นการหลีกเลี่ยงการผ่าตัดใหญ่ เช่น การผ่าตัดเอาเนื้องอก หรือผ่าตัดเอามดลูกออกทางหน้าท้อง และลดการเกิดภาวะแทรกซ้อนจากการผ่าตัดชนิดนี้ได้

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