

Two-Step Office-Based Hysteroscopic Operation for Submucosal Myoma

Sung-Tack Oh, MD, PhD, Hyun Kyung Ryu, MD

ABSTRACT

Background and Objectives: In the past, diagnostic hysteroscopy was used to diagnose an intrauterine mass or abnormality and surgical hysteroscopy was used to treat a uterine polyp, uterine synechia, uterine septum, and submucosal myoma. The old hysteroscope had large diameters. Thus, general anesthesia was needed for inpatient management. However, due to the development of small-diameter hysteroscopes, hysteroscopic diagnosis and surgery are now possible on an outpatient basis. Despite the development of small-diameter hysteroscopes, resection of submucosal myoma is possible only through resectoscopic operation under general anesthesia, including type 0 uterine myoma. The objective of the present study was to determine the usefulness of secondary office operating hysteroscopy after cutting the pedicle of submucosal myoma via primary office operating hysteroscopy.

Methods: We primarily cut the pedicle of type 0 submucosal myoma with the first rigid 5-mm operating mini-hysteroscopy in the outpatient clinic. We then expected the myoma to shrink. Two months later, we confirmed the size with use of 3-mm flexible diagnostic hysteroscopy. If the myoma was shrunk to less than one-third the original size, it was removed with the second rigid 5-mm operating mini-hysteroscopy.

Results: In 14 of 24 patients, the myoma had shrunk to less than one-third the size. The rest was successfully

removed with the second operating mini-hysteroscopy. In 5 of 24 patients, the myoma mass was not present in the uterine cavity. However, in another 5 of 24 patients, the myoma size had not changed significantly. The myomas were removed via resectoscopic operation under general anesthesia.

Conclusions: The trial with this 2-step operation was very useful for the removal of type 0 submucosal myoma in an outpatient clinic.

Key Words: Leiomyoma, Uterine, Hysteroscopy, Outpatient clinic.

INTRODUCTION

In the past, surgical hysteroscopy was used to remove intrauterine synechia, uterine polyp, uterine myoma, and uterine septum,¹⁻⁷ and diagnostic hysteroscopy was used to evaluate the intrauterine cavity in abnormal uterine bleeding, infertility, abortion, and suspected intrauterine abnormality.⁸⁻¹⁴ However, the original hysteroscope used for diagnosis and treatment was 10–12 mm in diameter, whereas the diagnostic hysteroscope with a single inflow channel (unlike surgical hysteroscope with dual inflow and outflow channels) was 7–10 mm in diameter. Because of complexities in surgery, intrauterine synechia, submucosal myoma, and intrauterine septum were managed for inpatients with resectoscopic operation under general anesthesia. However, with improvement in hysteroscope instruments, hysteroscopes with small diameters were developed. An outpatient procedure became available with the development of flexible hysteroscopes for diagnostic hysteroscopy.

In the past, the hysteroscopic procedure was invasive and accompanied by pain caused by speculum insertion, cervix traction with tenaculum, and cervix dilatation. The procedure became available in outpatient clinics as a result of the recent development of instruments and techniques leading to hysteroscopes with a smaller diameter and a camera with a magnified image. Hysteroscopes became about 4 mm in diameter including the sheath, and the outpatient procedure became possible under a simple

Department of Obstetrics and Gynecology, Chonnam National University Medical School, Gwangju, Korea (all authors).

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Address correspondence to: Hyun Kyung Ryu, MD, Department of Obstetrics and Gynecology, Chonnam National University Medical School, 8 Hakdong, Dong-gu, Gwangju, Republic of Korea. Tel: +82-62-220-6376; Fax: +82-62-227-1637, E-mail: hkryu@cnuh.com

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paracervical block, light anesthesia under Pethidine with Diazepam, or phenobarbital with Midazolam. Particularly, very small flexible hysteroscopy that is used in internal medicine or otorhinolaryngology is only about 3 mm in its total diameter. It is feasible to use in an outpatient setting with the patient feeling no discomfort or pain.¹⁵ Because the use of the tenaculum is not necessary in this flexible diagnostic hysteroscopic procedure, a vaginoscopic approach instead of using a speculum provides less discomfort, even in virgin patients.¹⁰ Mini-hysteroscopy has weaknesses such as a small field of vision and the loss of brightness from the light source, but with recent improvements in the light source and image magnifying technology, the weaknesses have been overcome.

Surgical hysteroscopes became smaller with the development of instruments, and outpatient hysteroscopic surgery under simple intravenous anesthesia became available with the recent development of a 5-mm-diameter surgical mini-hysteroscope. Uterine myoma and intrauterine septum surgery is usually managed for inpatients because of its complexity and procedural risks. Intrauterine synechia and uterine polyps are usually removed with outpatient mini-hysteroscopic operation. Uterine submucosal myoma was traditionally removed through a resectoscopic operation under general anesthesia. We anticipated that if we cut the pedicle of type 0 submucosal myoma via an outpatient mini-hysteroscopic operation, the myoma mass would shrink, making it possible to remove it via a secondary hysteroscopic operation. Thus, the objective of the present study was to determine the usefulness of secondary office operating hysteroscopy after cutting the pedicle of submucosal myoma during primary office operating hysteroscopy.

We first cut the pedicle of type 0 submucosal myomas with hysteroscopic scissors via primary rigid 5-mm operating mini-hysteroscopy in the outpatient clinic. Two months later, we checked the myoma mass with the use of 3-mm flexible diagnostic hysteroscopy. The rest of myoma was removed with the secondary rigid 5-mm operating mini-hysteroscopy. We anticipate that a new method to

treat submucosal myoma on an outpatient basis in a 2-step procedure will be developed if this hysteroscopic operation is proved to be useful.

MATERIALS AND METHODS

We analyzed 24 patients diagnosed as having type 0 submucosal myoma based on the results of ultrasonography and/or diagnostic hysteroscopy who underwent on an outpatient basis a 2-step procedure at Chonnam National University Hospital. The size of the myomas before the initial diagnostic hysteroscopy was determined with vaginal sonography. We primarily cut the pedicle of type 0 submucosal myoma via primary rigid 5-mm operating mini-hysteroscopy in the outpatient clinic. After assessing the myoma mass with the use of 3-mm flexible diagnostic hysteroscopy 2 months later, the mass was removed via secondary rigid 5-mm operating mini-hysteroscopy. Bleeding after the myoma pedicle was cut was controlled with bipolar coagulation. All specimens obtained during the procedure were sent to pathology for confirmation of the leiomyoma, with no occult malignancy. The aim of this study was to induce shrinkage of the myoma mass before removing the myoma mass from the uterus. We used flexible diagnostic hysteroscopy (HYF-XP; Olympus) to assess the myoma mass at 2 months after the primary operating hysteroscopy. No anesthesia was needed in this procedure. Operating hysteroscopy used at primary and secondary outpatient hysteroscopic operations was panoramic view mini-hysteroscopy with total diameter of 5 mm (RICHARD 4250; Wolf). The procedure was done with patients receiving 50 mg of pethidine and 5 mg of midazolam.

RESULTS

Among 24 patients whose myoma pedicle was cut under primary operating mini-hysteroscopy, 14 patients showed shrinkage of the myoma mass to less than one-third the original size. Their myoma was successfully removed during the secondary operating mini-hysteroscopy (**Table 1**).

Table 1.
Appearance of Submucosal Myoma on Flexible Diagnostic Hysteroscopy at 2 Months After Primary Hysteroscopic Operation (Cutting of the Pedicle)

Group	Myoma Size	Treatment
A (n = 5)	No myoma in cavity	No further treatment
B (n = 14)	Decreased size to less than one-third	Removed by secondary hysteroscopic operation
C (n = 5)	No significant change in size	Removed by resectoscopic operation

Five patients had no myoma mass in the uterine cavity; the remaining myoma mass might have been removed with menstrual blood during the menstruation period.

In 5 of 24 patients, the myoma mass gained its blood supply by readhering to the uterine wall. It did not show a significant change in myoma even after the pedicle was cut. These myomas were removed during resectoscopic operation under general anesthesia.

No significant differentiation in patient characteristics was observed among these patient groups (patients without myoma mass in the cavity versus patients with myoma of less than one-third the size versus patients with no myoma size change) (Table 2). Size of the myomas prior to the initial diagnostic hysteroscopy was checked with pelvic sonography. All specimens obtained during the hysteroscopic or resectoscopic procedures were confirmed as leiomyomas by pathology.

DISCUSSION

Indications for outpatient diagnostic hysteroscopy include abnormal uterine bleeding, infertility, habitual abortion, abnormal sonographic finding, abnormal intrauterine mass, suspected uterine synechia, and follow-up of endometrial hyperplasia.¹⁶⁻²¹ Indications for operative hysteroscopy include intrauterine synechia, endometrial polyp, intrauterine device removal, intrauterine septum, and submucosal myoma.²²⁻³⁰

In the past, even diagnostic hysteroscopy required deep anesthesia such as general anesthesia or intravenous anesthesia due to the large diameter of the hysteroscope. With the recent development of flexible diagnostic hysteroscopes with very small diameters, diagnostic hysteroscopy became easily practicable. Flexible diagnostic hysteroscopy has several advantage over common diagnostic hysteroscopy: (1) it does not require general anesthesia because its small diameter does not cause pain or discomfort, (2) it does not require the use of tenaculum or cervical dilatation, (3) the risk of complications such as

vasovagal reaction is much smaller without cervical dilatation, (4) the procedure time is much shorter, (5) there is very small pain or discomfort after the procedure, and (6) it can be separated from operative hysteroscopy in the aspect of insurance fee. It also has several disadvantages over common hysteroscopy: (1) because of its small diameter, the visual field is smaller (this can be overcome with magnification of the camera and the use of a large monitor), (2) its visual field is darker (this can be overcome with the improvement in performance of the camera and the light source), (3) special technique and training are required to insert the hysteroscope into the uterus, and (4) the diagnosis can be inaccurate or impossible when there is severe bleeding or cervical stenosis. There are 2 types of diagnostic hysteroscope with a small diameter: rigid type and flexible type. Advantages of the flexible type are (1) the total diameter, including the sheath, is smaller, leading to almost no pain or discomfort, so there is no need for anesthesia (the rigid type generally requires paracervical block or intravenous anesthesia), (2) unlike the rigid type, it does not require the use of tenaculum or cervical dilatation, and (3) the procedure time is short.

Several diseases, such as endometrial polyp, intrauterine synechia, submucosal myoma, and intrauterine septum, can be treated with hysteroscopic operation. Early operative hysteroscopes had a very large diameter. Thus, hospitalization and operation under general anesthesia were inevitable. With the recent development of hysteroscopic devices with smaller diameters such as the operative mini-hysteroscope with a diameter of 5 mm, outpatient hysteroscopic operations under light anesthesia became possible for intrauterine synechia and endometrial polyp. Nevertheless, because of the risk of bleeding and complexity of the procedure, uterine myoma and intrauterine septum surgery is usually performed for inpatients by resectoscopic operation under general anesthesia. In the case of type O submucosal myoma, which is totally prolapsed into the intrauterine cavity, we can block the blood supply by cutting the pedicle of the myoma during an

Table 2.
Patient Characteristics

Characteristic	Group A (n = 5)	Group B (n = 14)	Group C (n = 5)	p-value
Age (years)	32 ± 6	30 ± 4	34 ± 5	NS
BMI	21.4 ± 3.9	22.1 ± 2.9	21.0 ± 2.6	NS
Myoma size by sonography (mm)	29 ± 7.1	26 ± 5.8	31 ± 4.9	NS

Values are mean ± standard deviation. BMI, body mass index; NS, nonspecific.

outpatient mini-hysteroscopic operation. The myoma mass is expected to shrink. It may be possible to remove the rest during a secondary hysteroscopic operation. There have been no studies regarding this trial of using a 2-step procedure on outpatient basis. Our results revealed that 79.2% (19/24) of patients showed effective shrinkage of the myoma and the myoma was successfully removed spontaneously or with a secondary operative hysteroscopy. There was no significant difference in patient characteristics between those whose myoma mass gained its blood supply by readhering to the uterine wall and the other patients. The high success rate (79.2%) of myoma removal shows that this outpatient-basis 2-step hysteroscopic procedure can be considered primarily for type 0 submucosal myoma before resectoscopic operation.

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