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HYSTEROSCOPIC POLYPECTOMY AND MYOMECTOMY

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Polyps

- Endometrial polyps are one of the most common etiologies of abnormal genital tract bleeding in both premenopausal and postmenopausal patients
- **HISTOPATHOLOGY :** Endometrial polyps are localized hyperplastic overgrowths of endometrial glands and stroma around a vascular core that form a sessile or pedunculated projection from the surface of the endometrium

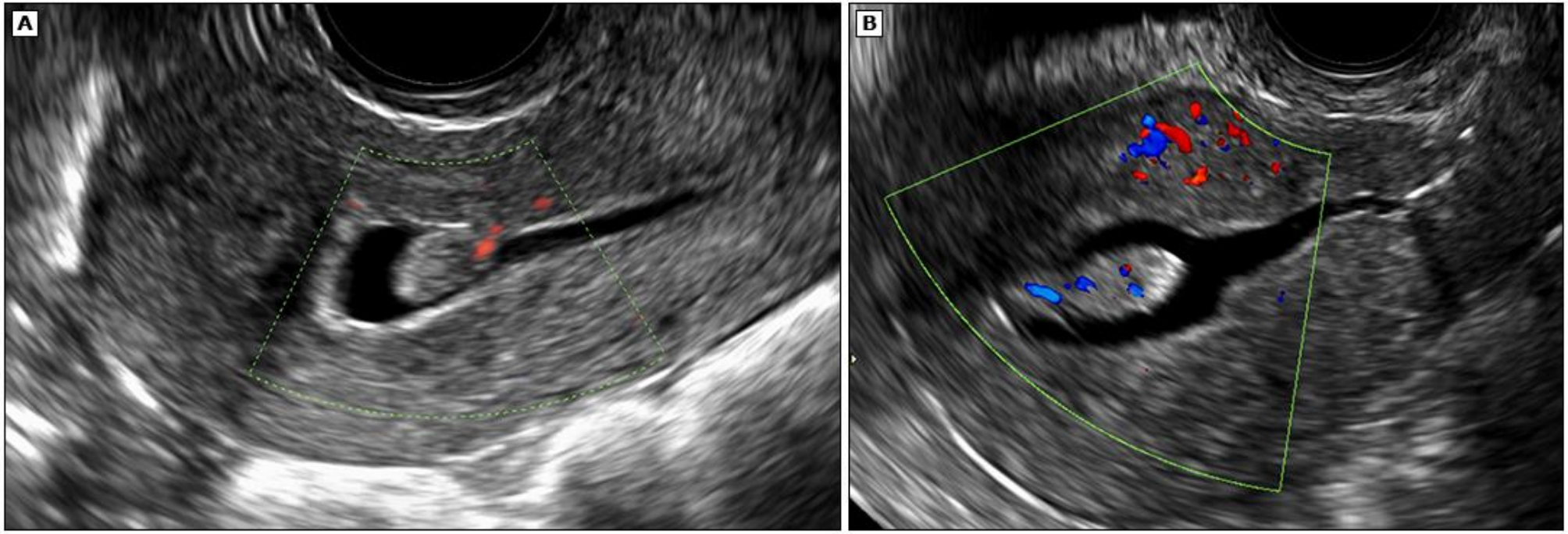
- **PATHOGENESIS :** monoclonal endometrial hyperplasia, overexpression of endometrial aromatase, somatic gene mutations, cytogenetic rearrangements
- **PREVALENCE:** The frequency of polyps is difficult to establish. Among patients undergoing endometrial biopsy or hysterectomy, the prevalence of endometrial polyps is 10 to 24 percent

- **RISK FACTORS:**
- Tamoxifen
- Obesity
- Menopause
- Hormone replacement therapy
- Lynch and Cowden syndrome

- **NATURAL HISTORY:**
- **Continued growth or regression**
- **Risk of malignancy** : Approximately 95 percent of endometrial polyps are benign, malignancy risk in postmenopausal patients , patients with abnormal uterine bleeding , The data regarding polyp size and risk of malignancy are less clear(1.5 cm in greatest dimension)
- **Effect on fertility and pregnancy:** the reported prevalence in those undergoing in vitro fertilization is 6 to 8 percent, Endometrial polyps do **not** appear to be associated with an increased risk of spontaneous abortion or adverse obstetric outcomes

- **CLINICAL PRESENTATION:**
- **Abnormal uterine bleeding** : 64 to 88 percent , Postmenopausal bleeding
- **Incidental finding:**
- **On imaging, On cervical cytology , On endometrial biopsy , Prolapsed polyp**

- **DIAGNOSTIC EVALUATION:**
- **History**
- **Physical examination**
- **Pelvic imaging:**
- **Transvaginal ultrasound, Sonohysteroscopy** or **diagnostic hysteroscopy :** An uncertain finding on TVUS alone, Postmenopausal patients with a thickened endometrium on TVUS, Premenopausal patients in whom removal is **not** indicated and expectant management is planned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- **DIAGNOSIS:** histologic diagnosis
- **DIFFERENTIAL DIAGNOSIS:** Intracavitary leiomyomas**,** Endometrial hyperplasia or carcinoma
- **MANAGEMENT:**
- **Postmenopausal patients : remove**
- **Premenopausal patients:** based on symptoms
- **With abnormal bleeding**

- **With other indications for removal:**
- Risk factors for endometrial hyperplasia or carcinoma
- Polyp >1.5 cm in diameter
- Multiple polyp
- Prolapsed polyp
- Infertility
- Recurrent polyps
- Tamoxifen therapy

- In rare cases, endometrial polyps recur after removal. In such cases, care should be taken to completely remove the polyp(s) in a repeat polypectomy procedure; however, there are no data regarding the management of recurrent endometrial polyps.
- The formation of recurrent polyps may be prevented by use of the levonorgestrel-releasing intrauterine device (Mirena, Liletta; LNG 52), given its reported efficacy in reducing recurrent polyps in patients receiving tamoxifen treatment. Endometrial ablation may also be an option for patients who have completed childbearing, however it is less preferred as it does not provide contraception.

- **POLYPECTOMY:**
- **Procedure:** Hysteroscopic instruments that may be used to remove a polyp include grasping forceps, microscissors, electrosurgical loop (ie, resectoscope), morcellator, or a bipolar electrosurgical probe , Some surgeons visualize the polyp via hysteroscopy and then remove it using a blind approach (eg, using Randall polyp forceps or a Kelly clamp). If this approach is used, the hysteroscope should be used again after polypectomy to confirm complete removal of the polyp.

- **Efficacy:** For patients with symptomatic polyps, polypectomy results in improvement of symptoms in 75 to 100 percent of patients, based on studies with follow-up intervals of 2 to 52 months
- **Complications** : Complications of hysteroscopic polypectomy are infrequent, and the risks are the same as for other hysteroscopic procedures

Uterine fibroids (leiomyomas): Hysteroscopic myomectomy

- Uterine fibroids (leiomyomas) are the most common pelvic tumor in women
- Abnormal uterine bleeding, the most common symptom associated with fibroids, is most frequent in patients with tumors that abut the endometrium (lining of the uterine cavity), including submucosal and some intramural fibroids
- Submucosal leiomyomas, which derive from myometrial cells just below the endometrium, account for approximately 15 to 20 percent of fibroids

- **symptoms:**
- Dysmenorrhea
- Leukorrhea
- preterm delivery
- Postpartum hemorrhage, Puerperal infection arising in or exacerbated by a submucosal fibroid , Postmenopausal bleeding

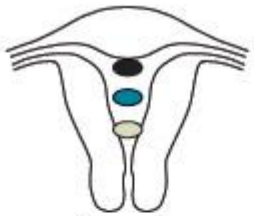
- **Indications** — The most common indications for hysteroscopic myomectomy in the setting of intracavitary fibroids are:
- Abnormal uterine bleeding
- Recurrent pregnancy loss
- Infertility
- Hysteroscopic myomectomy is also performed in selected patients with intracavitary fibroids who have conditions that are more commonly attributed to etiologies other than fibroids. In these patients, hysteroscopic myomectomy is performed when other therapies have failed or it is reasonable to attribute symptoms to an intracavitary fibroid.

- Dysmenorrhea, Leukorrhea , Necrotic leiomyoma following uterine fibroid embolization, magnetic resonance imaging (MRI)-focused ultrasound, or transcervical ultrasound therapy , Histologic evaluation of intracavitary lesions with uncertain findings on pelvic imaging , History of preterm delivery , Postpartum hemorrhage, Puerperal infection arising in or exacerbated by a submucosal fibroid , Postmenopausal bleeding

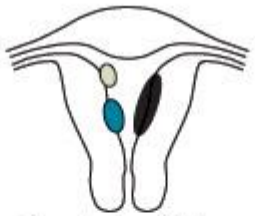
- **Contraindications:**
- In whom hysteroscopic surgery is contraindicated (eg, active pelvic infection, pyometra, intrauterine pregnancy, cervical or uterine cancer).
- Medical comorbidities (eg, coronary heart disease, bleeding diathesis) are also potential contraindications to hysteroscopic surgery. However, since this is a minimally invasive procedure, medical comorbidities are rarely a contraindication

- **Leiomyoma characteristics:**
- **Classification systems:**
- the European Society of Hysteroscopy (ESH):**Type 0** – completely within the endometrial cavity , **Type I** – extend less than 50 percent into the myometrium , **Type II** – extend 50 percent or more within the myometrium
- Another classification system, the STEP-W submucosal fibroid classification system takes into account additional features of the fibroid utilizing transvaginal ultrasound or MRI to assess five myoma characteristics

Size of the nodule—specifically, whether it is <2 cm, 2–5 cm,

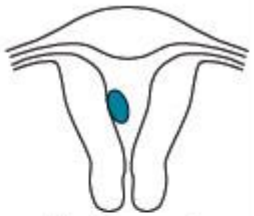


Topography



The extension of the base of the nodule with respect to the wall of the uterus

Degree of penetration of the myoma into myometrium



When the myoma is on the lateral wall, add an extra point

= Score 0

= Score 1

= Score 2

How to score a myoma using the STEP-W Classification

Total score	Group	Suggested treatment
0–4	I	Low-complexity hysteroscopic myomectomy
5–6	II	Complex hysteroscopic myomectomy. Consider giving a preoperative GnRH analog or performing a two-stage procedure, or both.
7–9	III	Hysteroscopic approach is not recommended

GnRH = gonadotropin-releasing hormone

- **Myometrial penetration:** For patients with symptomatic fibroids, we suggest hysteroscopic myomectomy **only** for fibroids that are completely within the endometrial cavity or extend less than 50 percent into the myometrium. Removal of fibroids with deeper myometrial involvement requires advanced hysteroscopic skills or myomectomy using laparotomy or laparoscopy.

- **Leiomyoma size and number:** Increasing size of fibroid requires exquisite hysteroscopic skill, complete understanding of fluid management, ability to quickly remove myoma chip fragments that might preclude surgical visualization, and techniques to decrease risk of uterine perforation when chip fragments are removed.
- **Presence of other leiomyomas or uterine pathology:**

- The greater the volume of additional fibroids, the greater the likelihood that symptomatic relief will be provided only by a laparoscopic or abdominal approach to myomectomy and the less likely that isolated removal of intracavitary fibroids will provide symptomatic relief.
- Patients with fibroids that are both intracavitary and in other locations who have bulk symptoms (abdominal pain, pressure, or distension; urinary urgency, frequency, or retention; or constipation) are not likely to benefit from hysteroscopic resection alone.

- On the other hand, patients without bulk symptoms and normal or slightly enlarged uterine size who have heavy uterine bleeding or conditions that appear to derive specifically from the presence of an intracavitary lesion, such as recurrent pregnancy loss or fibroid-associated leukorrhea, may benefit from the isolated removal of an intracavitary myoma, even if other leiomyomas are present.
- Patients with abnormal uterine bleeding or dysmenorrhea may have adenomyosis in addition to intracavitary fibroids. For patients with diffuse adenomyosis, a hysteroscopic myomectomy is unlikely to provide complete symptomatic relief.

- However, patients with focal adenomyosis and normal uterine size can be offered hysteroscopic myomectomy. Such patients should be counseled preoperatively regarding the limited evidence regarding outcome of this procedure among patients with these two uterine pathologies. These patients can also benefit from medical therapy or insertion of a levonorgestrel-containing intrauterine device in combination with hysteroscopic myomectomy

- **PREOPERATIVE EVALUATION AND PREPARATION:**
- **Informed consent**
- **History**
- **Evaluation of the uterus**
- **Laboratory testing**

PERIOPERATIVE MEDICATIONS

Agents to decrease bleeding:GnRH agonists , Danazol, **Vasopressin(**we mix 10 units in 100 mL of normal saline and inject into the cervical stroma in 5 mL aliquots at the 10, 2, 5, and 8 o'clock positions around the ectocervix. This dose can be repeated every 30 to 45 minutes if bleeding is encountered or the procedure is prolonged.**)**

Cervical preparation

Prophylactic antibiotics : not indicated , **Thromboprophylaxis: no**

- **INSTRUMENTATION:**
- **Distension fluid control:**Risk factors for increased absorption of fluid includes operating time, depth of myometrial incision, and size of the lesion. Continuous fluid monitoring is necessary throughout the procedure to avoid complications (eg, hyponatremia, pulmonary, cardiac, or laryngeal edema) or the need to abort the procedure. Hypotonic solutions (ie, glycine) are used when a resectoscope with monopolar electrical wire loop technique is employed. Bipolar resectoscopes are used with isotonic fluids. Tissue extraction (morcellation) and vaporization devices are used with saline.

- **Leiomyoma resection** :The wire loop with a monopolar or bipolar resectoscope has traditionally been the technique used for hysteroscopic myomectomy .Hysteroscopic morcellation and vaporization devices have also been introduced.
- The goals of newer techniques, such as morcellation or vaporization, is to make resection of fibroids technically easier . produce fewer tissue fragments, require fewer insertions of the hysteroscope, and use saline as the distention medium
- Fewer insertions of the hysteroscope is helpful for patients with marked cervical stenosis, a retroverted/retroflexed uterus, or a small uterine cavity associated with menopause. Any of these factors may increase the risk of uterine perforation, particularly with repeat insertions of the hysteroscope

- The use of saline avoids use of hypotonic solutions (ie, glycine), that may result in hyponatremia. In addition, because resection is performed mechanically or with limited bipolar radiofrequency (Symphion), there is minimal risk of damage to the endometrium. These devices are designed to enter only to a shallow depth and therefore are not likely to cause an incision that penetrates the full thickness of the uterine wall. As with any intrauterine instrument, it is possible for uterine perforation to occur if the entire device is pushed through the wall of the myometrium.
- Visual dilation and curettage can be performed with the hysteroscopic morcellators. The hysteroscopic morcellator cutting aperture is aligned next to or abutting the endometrium. Under direct hysteroscopic visualization, the endometrium can be sampling with a to and fro maneuver with the hysteroscope, duplicating the same technique used with a curette

- **Tissue removal:**grasping as many myoma fragments under direct visualization with the wire loop and removing tissue fragments, chip by chip, Other techniques include blind insertion of uterine polyp forceps or myoma graspers, suction curettage, or slow removal of the hysteroscope through the dilated cervix allowing the tissue fragments to tumble out. Overall these techniques require multiple insertions of the hysteroscope

- **PROCEDURE:**
- **Anesthesia**
- **Wire loop technique:**
- Insert the resectoscope through the cervix under direct visualization.
- After distension with fluid, inspect the uterine cavity. Note the size and location of the fibroids and whether they are sessile or pedunculated

- We set a monopolar resectoscope to a cutting current of 60 to 120 watts; fibroids that are calcified may require a current up to 120 watts. Bipolar technology uses the default setting for both cutting and hemostasis. The wire loop should easily pass through the tissue. If it does not, the power setting is increased to prevent tissue adherence to the wire loop.
- Begin incising at the most cephalad surface of the myoma. For a pedunculated fibroid, the loop electrode can be used to cut directly through the base.

- Bring the resectoscope loop towards the surgeon using the spring mechanism of the loop alone or by moving the entire resectoscope towards the surgeon. To avoid injury, it is important to keep the loop in view at all times and activate the loop only when moving it towards the operator.
- Repeat this motion until the fibroid has been resected to the level of the surrounding endometrium
- Perform intermittent uterine decompression to facilitate fibroid removal and prevent a false-negative view of the fibroid (ie, a fibroid can "sink" into the myometrium and no longer be visualized when pressure is held continuously), which would prevent complete extraction.

- **Tissue extraction device:**
- A hysteroscopic tissue extraction device, also referred to as a morcellator (eg, Intra Uterine Morcellator, Truclear, and Myosure), utilizes a rotary blade for resection and suction tubing to remove tissue fragments. The Symphion system utilizes a bladeless resection technology with radiofrequency energy and has a proprietary self-contained recirculating fluid management fluid and internal uterine pressure monitoring system.

- **Vaporization technique:**Vaporization electrodes (eg, VaporTrode, Force FX, and Gyne-Pro Perforated roller electrode) can be used with a monopolar or bipolar hysteroscope, operate at a higher power density (120 to 220 watts versus 60 to 120 watts with a monopolar resectoscope), and vaporize the tissue
- **Radiofrequency ablation:** Ultrasound-guided radiofrequency ablation (RFA) of fibroids is a technique that can be accomplished using a hysteroscopic (eg, Sonata) or, more commonly, laparoscopic approach.

- **FOLLOW-UP:** Most patients experience postoperative cramping or light bleeding, and some complain of vaginal discomfort. Acetaminophen or nonsteroidal anti-inflammatory drugs are usually adequate for postoperative pain control, if necessary. The patient may resume most normal activities within 24 hours and should follow standard postoperative instructions for gynecologic procedures

- **COMPLICATIONS:**
- **Uterine perforation**
- **Excessive fluid absorption**
- **Excessive bleeding:** Bleeding is usually minimal and averages 5 to 100 mL, in our experience. When there is excessive bleeding encountered, it is often associated with preoperative factors, such as patients who present with heavy bleeding or performing the procedure at the time of menstruation

- Intrauterine adhesions
- Infection

- **OUTCOME:**
- **Complete myoma resection**
- **Recurrence of leiomyomas or bleeding symptoms:**The recurrence rate of fibroids and/or abnormal uterine bleeding was approximately 20 percent in most studies in which patients were followed for three or more years after hysteroscopic electrosurgical myomectomy

- **Reproductive outcomes:**
- **Infertility and recurrent pregnancy loss:** Patients with cavity-distorting fibroids who undergo myomectomy are more likely to conceive a pregnancy; however, the effect on the risk of miscarriage is uncertain
- **Obstetric issues** : It is not known whether hysteroscopic myomectomy affects placentation in subsequent pregnancies. In addition, there have been no case reports of uterine rupture after hysteroscopic myomectomy


Thank you