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ENHANCING ENDOSCOPY SKILLS

Hysteroscopy

Key Practice Points

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President & Secretary's Message

Greetings from Team IAGE,

It is our pleasure and privilege to present before you the Good Practice Points for the management of common problems in gynaecology.

Gynaecological conditions are often complex and varied in their presentation, with significant variability in patient response to treatment. These guidelines have been developed to support clinicians in delivering consistent, evidence-based, and patient-centered care in their day-to-day practice.

We extend our sincere congratulations to everyone who has contributed to the development of these guidelines. Your dedication and expertise have been invaluable in shaping this important work. We would like to especially acknowledge Dr. Bhaskar Pal for the tremendous effort and diligence invested in this initiative, as well as Dr. Atul Ghanatra for his leadership during whose tenure this work was accomplished.

We also express my heartfelt gratitude to IAGE for providing us with this opportunity to contribute towards advancing clinical practice and improving patient outcomes in gynaecological care.

Thank you.

Best wishes
Dr Sudha Tandon
President IAGE
(2026-2027)

Best wishes
Dr Vidya Bhat
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Team IAGE 2026-2027

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Abstract

This practice guideline aims to provide on the current status of the use of hysteroscopic procedures, both diagnostic and operative, in various conditions like abnormal uterine bleeding, infertility, recurrent pregnancy loss etc. Pre operative, intra operative and post operative guidelines for optimal surgical outcomes are presented, based on published evidence and expert recommendations.

Indications for Hysteroscopy

Hysteroscopy is the gold-standard for direct visualization of the uterine cavity and is indicated for a wide range of intrauterine pathologies. Indications include **abnormal uterine bleeding (AUB)** in reproductive-age and postmenopausal women (to evaluate polyps, fibroids, hyperplasia or malignancy)[1][2]. It is used in **infertility/subfertility workup** (to identify intrauterine lesions that may affect implantation, e.g. polyps, septa, adhesions) and in cases of **recurrent pregnancy loss or failed embryo implantation**[3][1]. Direct removal or biopsy of intrauterine pathology is another major indication: for example, hysteroscopic **polypectomy, myomectomy (submucosal fibroids), septum resection, or lysis of adhesions (Asherman's syndrome)**[4][5]. Other uses include retrieval of retained products of conception or intrauterine devices, and evaluation of uterine anomalies (e.g. septum, bicornuate uterus)[5][4]. In summary, hysteroscopy should be considered for any patient with unexplained AUB (especially if structural lesions are suspected) and for evaluation/treatment of intrauterine pathology in both **reproductive-age and postmenopausal populations**[6][1].

Timing of Procedure

Hysteroscopy should be timed to optimize visualization and safety. In **premenopausal women with regular cycles**, it is optimal to perform hysteroscopy in the early follicular phase (just after menstrual bleeding stops, e.g. days 6–10)[7][8]. This ensures a thin endometrium and avoids confusion of secretory changes with lesions. If the patient has irregular or heavy bleeding, schedule hysteroscopy when the endometrial cavity is least thick (post-bleed). In **postmenopausal women**, timing is flexible (any time), but avoid active bleeding to optimize view. Importantly, pregnancy must be excluded (pregnancy test in all non-contracepting, reproductive-age women) before hysteroscopy[9][10]. Outpatient (office) hysteroscopy can be performed without anesthesia if the patient is stable; use of procedural sedation is generally not needed in diagnostic cases[11] (see below).

Equipment

Hysteroscopic equipment includes the **hysteroscope** (rigid or flexible), light source, sheaths, and ancillary instruments. **Hysteroscopes** come in diagnostic (typically 2.9–4 mm diameter) and operative (with larger diameter for working channels) models[12]. Rigid scopes provide high optical quality; flexible scopes are more comfortable for office use. Scopes have viewing angles (0°–70°) – a 30° oblique lens aids visualization of fundus and tubal ostia.

Light sources (xenon or LED via fiber optics) provide bright, cool illumination[13]. **Sheaths:** A diagnostic sheath (~5 mm) holds a 2.9 mm telescope and permits inflow/outflow of distension media. Operative sheaths contain inflow/outflow channels and an accessory channel for instruments (scissors, graspers, biopsy forceps). **Resectoscopes** (26 Fr/ 22Fr/ 18 Fr/ 15 Fr) are specialized operating hysteroscopes powered by high-frequency electric loops; they require continuous-flow sheaths[14]. **Mechanical tissue removal systems** (hysteroscopic morcellators) use a rotating blade with suction to cut and aspirate polyps or fibroids continuously[15]. These devices improve visualization (debris is removed) and often shorten operative time. Other optional tools include lasers, but these are used less commonly.

Distension Media

Distension of the uterine cavity is essential for visualization. Options include **normal saline or glycine.** Carbon dioxide gas was used historically for diagnostic hysteroscopy, but liquid media (saline or other fluids) provide continuous irrigation and superior visibility (especially once bleeding obscures the view)[16][17]. **Normal saline (isotonic, electrolyte-rich)** is the most commonly used distending fluid today[18]. It is well-tolerated, compatible with bipolar electrosurgery, and does not cause electrolyte disturbances. **Electrolyte-free (hypotonic) fluids** (e.g. 1.5% glycine, 3% sorbitol, 5% mannitol) may be required if monopolar electrosurgical instruments are used[19]. These hypotonic solutions allow electrical conduction with monopolar loops but carry a risk of hyponatremia and fluid overload if absorbed[19][20]. High-viscosity (colloid) solutions are not recommended. Distension fluid may be warmed to near body temperature to avoid uterine cramping and patient hypothermia[21].

Maintain intrauterine pressure around 70–80 mmHg (enough to **expand the cavity and compress small bleeders**, but not so high as to push fluid through the tubes)[22]. Use an automated pump with real-time monitoring if available. **Fluid deficit monitoring** is critical: record all infused and collected fluid. Abort the procedure if deficit approaches safety limits (generally **≤1000 mL** of hypotonic or **≤2500 mL** of isotonic fluid in a healthy patient)[23][24]. In patients with cardiac, renal or pulmonary disease, use lower thresholds (e.g. 750–1000 mL)[23][24]. Close communication with anesthesia and nursing staff is essential to detect signs of fluid overload (hyponatremia, pulmonary edema) and to manage complications promptly.

Diagnostic Hysteroscopy Technique

Diagnostic hysteroscopy is usually done in the outpatient setting. The patient is placed in dorsal lithotomy and standard infection-control protocols are followed. **No-touch (vaginoscopic) technique** – advancing the hysteroscope through the vagina and cervix without a speculum or tenaculum – is preferred, as it significantly reduces patient pain without affecting success[25][26]. A small-diameter scope (1.9 or 2.9 mm) should be used without cervical dilation. Cervical anesthesia is optional: topical anesthetic gel or paracervical block may be used in patients with anxiety or expected difficulty, but routine anesthesia is not required. In-office procedures rarely need IV sedation [11].

Once in the uterine cavity, perform a systematic inspection. Identify the tubal ostia and examine all walls under direct vision. Directed biopsy forceps or scissors can be used to sample suspicious lesions. In the same setting, many lesions can be treated ("see-and-treat") – for example, small polyps or fibroids can be removed if operative equipment is available[27]. Diagnostic hysteroscopy is safe and well tolerated; complications are uncommon but can include transient pain, vasovagal reaction or, rarely, perforation (see below). Patient counseling and informed consent should include discussion of these risks as well as alternatives (e.g. transvaginal ultrasound, blind curettage)[28][5].

Some Points to Note:

1. The patient is best placed in the dorsal lithotomy position. Trendelenburg position is avoided to reduce risk of air embolism.
2. The use of antibiotics routinely for all hysteroscopic procedures is not necessary. The administration of antibiotics has not been shown to reduce post operative infection after diagnostic or operative hysteroscopy. However, antibiotic prophylaxis may be given if considered necessary in some cases as per local protocols.
3. Hysteroscopy is contraindicated during an active pelvic infection
4. Pre- treatment with progestins or combined oral contraceptives aids visualisation by thinning the endometrium
5. Pre- treatment with GnRH analogues also causes thinning of endometrium, temporary shrinkage of fibroids, and reduction of anaemia. It may reduce blood loss and fluid absorption for myoma resection surgeries. These agents are not recommended routinely due to their hypo estrogenic side effects.

Energy Use in Hysteroscopy

Hysteroscopic therapy may involve various energy sources:

- **Electrosurgery (Resectoscopy):** Monopolar and bipolar electrosurgical devices are widely used. **Monopolar electrosurgery** requires non-conductive distension fluid (glycine, sorbitol, mannitol)[19]. These hypotonic media increase the risk of fluid overload and electrolyte disturbances if absorbed. **Bipolar electrosurgery** (using saline as the medium) is now more common; it avoids electrical dispersion and greatly reduces hyponatremia risk[29]. Bipolar systems thus have a safer profile than monopolar ones[29]. Always ensure fluid choice matches the electrosurgical system (never use saline with monopolar loops[19]).
- **Mechanical (rotational):** Tissue removal devices (hysteroscopic morcellators) use a mechanical cutting blade with continuous suction to excise and aspirate tissue[15]. These systems require saline distension. They can rapidly remove polyps or fibroid fragments with excellent visibility and are widely used for polypectomy and submucosal myomectomy[15].
- **Laser and other energy:** Laser (e.g. Nd:YAG) and ultrasonic devices have been used historically, but are uncommon in modern practice. They generally require fluid distension and specific safety precautions. [30].)

In general, use the least traumatic energy modality sufficient for the procedure. For example, small polyps and septa can often be removed with mechanical scissors; larger fibroids may require a resectoscope.

Complications and Management

Hysteroscopy is generally safe, but clinicians must be vigilant for complications:

Potential Complication	Incidence	Risk factors
Perforation	0.12 to 1.61 %	Blind insertion of instruments, cervical stenosis, adhesions, uterine malposition (extreme anteversion or retroversion), anatomic distortion (e.g. fibroids)
Air and Gas Embolism	0.03 to 0.09 %	Repetitive insertion of instruments, inadequate purging of tubing and instruments, excessive intra uterine pressure
Fluid overload	0.20%	Excessive intra uterine pressure, resection of deep myomas, more surgical time
Haemorrhage	0.03 to 0.61 %	Cervical laceration, myoma resection, adhesiolysis, perforation
Vasovagal reaction	0.21 to 1.85%	Manipulation of cervix and instrumentation of cervical canal and uterine cavity

- **Uterine perforation:** Occurs in ~1% of cases, more often with operative resections[31]. If perforation is suspected (loss of resistance, bleeding), **immediately stop the procedure**. Assess the patient's vital signs and symptoms. If the patient is stable with minimal symptoms and no evidence of organ injury, management is conservative: monitor in recovery or admit for observation, and wait (often 24–48 h) before repeating imaging or intervention. If there is concern for bleeding or injury to adjacent organs, surgical exploration (laparoscopy or laparotomy) may be required[32][24].
- **Bleeding:** Deep myometrial resection or fibroid removal can cause uterine bleeding[33]. Manage minor bleeding with electrocautery (bipolar coagulation) or mechanical tamponade. For persistent hemorrhage, uterotonics (oxytocin, ergometrine) may help contract the uterus. A balloon catheter left in the uterine cavity can provide tamponade if needed[33].
- **Fluid overload (Intravascular/OHIA syndrome):** Operative Hysteroscopy Intravascular Absorption) Syndrome: Excess absorption of distension fluid (especially hypotonic) can lead to hyponatremia and cerebral edema[34]. Strict fluid monitoring (see Distension Media) is essential.

Abort the procedure if deficits exceed recommended limits (typically >1000 mL with glycine or >2500 mL with saline in a healthy patient[24]). Early signs include nausea, confusion, headache or cardiorespiratory symptoms. Management is supportive: stop fluid infusion, diuretics, correct electrolyte imbalance (e.g. hypertonic saline if severe hyponatremia- only in the ICU setting). Keep the patient admitted in ICU till settled.

The uterine cavity distention pressure should be the lowest pressure necessary to distend the uterine cavity and ideally should be maintained below the mean arterial pressure (MAP)
Shortly prior to performing complex resectoscopic surgery, it is advisable to obtain baseline levels of serum electrolytes including sodium, chloride, and potassium in women on diuretics or with medical conditions that may predispose to electrolyte disorders in complex surgeries like TCRE
The pre operative use of GnRH agonists may reduce incidence of fluid overload in pre menopausal patients
Patients with large myomas may require two stage surgery due to expected fluid overload. This has to be explained to the patient before surgery.

- **Air/CO_2 embolism:** When gas is used or inadvertently introduced (e.g. via tubing), there is a risk of vascular air embolism[35]. This is rare with proper technique. If suspected (sudden hypotension, hypoxia, ECG changes), immediately place the patient in left lateral decubitus/Trendelenburg (Durant's maneuver) and stop hysteroscopy[36]. Notify anesthesia team and manage as for venous air embolism (aspirate air via central line if possible). Prevent by using purging air from all tubing before starting.
- **Infection:** The risk of pelvic infection is low if aseptic technique is used. Prophylactic antibiotics are generally not recommended[37]. Treat any post-procedure endometritis with standard antibiotics. Screen and treat known genital tract infections before hysteroscopy.
- **Vasovagal reaction:** Mild vasovagal symptoms (bradycardia, hypotension, syncope) can occur (0.2–2% of office cases) due to pain or anxiety[38]. Stop the procedure, remove the hysteroscope, place the patient supine or in Trendelenburg position, and lower inflow pressure. Most reactions resolve spontaneously. If bradycardia or hypotension persist, manage supportively (IV fluids, atropine if needed) and observe until stable[38].
- **Other:** Uterine perforation and fluid overload are the most serious complications. Other rare issues include cervical laceration, allergic reactions (rare with fluids), or diathermy injury. Always have resuscitation equipment and a plan to convert to OR if needed.

In all cases, immediate recognition and management are critical. Good teamwork and communication (surgeon, anesthesiologist, nursing) help ensure patient safety.

Ambulatory (Office) Hysteroscopy
Outpatient ("office") hysteroscopy allows many procedures to be done without general anesthesia.

Diagnostic hysteroscopy and minor operative interventions (polypectomy, small submucous myoma resection) can be performed in the ambulatory setting[26][5]. Office hysteroscopy is feasible when the patient can tolerate the procedure, the pathology is not too large, and appropriate equipment is available[39][40]. Benefits of ambulatory hysteroscopy include patient convenience, avoidance of anesthesia risks, and cost savings**[41]**[42].

Outpatient hysteroscopy should be conducted outside of the formal operating theatre setting in an appropriately sized, equipped and staffed treatment room. Patients should receive the same level of safety as they receive in the operating room. The room should be appropriately equipped with basic set up for ambulatory hysteroscopy, instruments, distension media and facilities for cleaning and sterilization of equipment.

Appropriate candidates for office procedures include those with suspected small polyps or fibroids and those needing diagnostic evaluation for AUB. In-office polypectomy using mechanical removal systems is common and highly effective[27]. Patients with significant anxiety, very large fibroids, cervical stenosis, or severe medical comorbidity may be better served in the operating room with anesthesia[40]. "See-and-treat" hysteroscopy is advocated: if pathology is found during office hysteroscopy (e.g. a small polyp), remove it at once using available instruments[27]. This approach reduces the need for repeat procedures and improves patient outcomes. (If more extensive surgery is needed, the patient can be rescheduled for operative hysteroscopy.)

For ambulatory hysteroscopy, 1.9 mm hysteroscope with 4mm sheath is the preferred (if not available, 2.9mm telescope with 5 mm sheath can be used)

The procedure should be performed without the use of any additional instruments like speculum and vulsellum. A no touch technique, using direct visualisation by the vaginoscopy – hysteroscopy technique is recommended.

Preoperative Cervical Ripening

Cervical preparation is not required for most diagnostic hysteroscopies, but **cervical ripening** may be indicated in selected cases (e.g. nulliparous women, postmenopausal atrophy, cervical stenosis) to ease scope passage. Options include:

- **Misoprostol (prostaglandin):** Vaginal or buccal misoprostol 200–400 µg given several hours (commonly the night) before the procedure can soften the cervix[43][44]. Randomized trials show misoprostol increases dilation ease and decreases additional dilation needs in premenopausal (especially nulliparous) women[43]. Its benefit in postmenopausal women is less clear[43]. Side effects (cramps, bleeding, gastrointestinal upset) may occur. Routine use is not endorsed, but use in women with known stenosis or prior failed entry can be helpful[43][44].
- **Osmotic dilators:** Laminaria (seaweed sticks) or synthetic dilators (Dilapan-S) can be placed in the cervix 12–24 h before the procedure. These gradually open the canal. This is effective but requires an extra visit and possible discomfort, so it is reserved for anticipated difficult cases (e.g. postmenopausal stenosis)[43][44

- **Hormonal priming:** In postmenopausal patients with an atrophic cervix, vaginal estrogen (e.g. estradiol 25 µg daily for 1–2 weeks) can improve cervical pliability[44]. Often this is combined with a single dose of misoprostol shortly before the procedure.
- **Mechanical dilation:** If all else fails, gradual mechanical dilation with Hegar dilators or tenaculum traction can be performed at the time of hysteroscopy. However, forceful dilation increases pain and risk of perforation.

Professional guidelines note that evidence is insufficient to mandate routine cervical prep for every hysteroscopy[44]. Instead, tailor use to patient factors: consider prostaglandins or dilators if history of cervical stenosis, nulliparity, prior failed hysteroscopy or anticipated pain.

Tissue Retrieval Systems

Modern hysteroscopy often employs **mechanical tissue removal systems (hysteroscopic morcellators)** for faster, more complete resection of polyps and submucosal fibroids. These systems (e.g. rotating blade devices) are inserted through the operative sheath and are powered by an external motor. The rotating blade shaves tissue while continuous suction evacuates fragments[15]. This "tissue morcellation" approach avoids repeated insertion and removal of instruments and often achieves **complete resection** with shorter operative times. Studies show mechanical removal systems have smaller learning curve for complete polypectomy and myoma resection than traditional loop resection.

References: High-quality guidelines and recent evidence reviews were used to compile these recommendations[6][1][2][43][8][11][25][19][24], among others. These represent current consensus (ACOG, RCOG, ESGE/BSGE, AAGL, ISGE) and literature (2019–2025) on hysteroscopic practice.
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Published at Annual IAGE Conference, Kolkata
"ENDOGYN 2026"