

Office hysteroscopy: a valuable but under-utilized technique

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Purpose of review

The purpose of this review is to remind gynecologists of the indications for office hysteroscopy as well as to provide an update on equipment, techniques, and reimbursements.

Recent findings

Office hysteroscopy is a technique that has been available for over three decades. Whereas nearly 100% of urologists utilize office cystoscopy to evaluate bladder pathology, it is estimated that less than 20% of gynecologists utilize office hysteroscopy to evaluate intrauterine pathology. Although no one knows for sure, I speculate that the reasons for its under-utilization include a perceived lack of patients who would benefit from the procedure, expensive capital equipment with poor reimbursement, and a lack of expertise in performing the procedure.

Summary

As a result of not routinely using office hysteroscopy, many women who could greatly benefit from the use of the office hysteroscope are being denied a technique that is likely to keep them from more invasive and less useful procedures, such as diagnostic hysteroscopy and dilatation and curettage performed in the operating room under general anesthesia. This paper addresses these misconceptions in an effort to encourage more gynecologists to employ this technology.

Keywords

Office hysteroscopy, abnormal uterine bleeding

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Abbreviation

D&C dilatation and curettage

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Introduction

It has been estimated that only 15% of gynecologists in the United States routinely perform office hysteroscopy. Several reasons given for this include a perceived paucity of patients who would benefit from the procedure, a duplication of procedures for patients who need surgery in the operating room, a high level of expertise needed to perform the procedure, and the expense of the capital equipment with relatively poor reimbursements from third-party payers. The intent of this paper is to address these issues and correct such common misconceptions.

Indications for office hysteroscopy

The indications for office hysteroscopy are summarized in Table 1.

Evaluation of abnormal uterine bleeding

It is estimated that over 30% of all visits to the gynecologist are related to the symptom of abnormal uterine bleeding. There are a variety of causes of abnormal uterine bleeding, including anatomical abnormalities, endocrinopathies, coagulopathies, chronic systemic diseases, iatrogenic medication, and bleeding related to abnormal pregnancies. Approximately 20% of all hysterectomies performed in the United States are done to treat women with abnormal bleeding, even when the uterus is normal size [1].

Anatomical lesions account for the majority of the conditions that lead to abnormal uterine bleeding. These include benign lesions such as uterine polyps, fibroids, and adenomyosis, as well as pre-malignant and malignant lesions such as endometrial hyperplasia, endometrial carcinoma and uterine sarcoma. There is little controversy that pre-malignant and malignant lesions are usually best treated by total abdominal hysterectomy. However, this is not necessarily the case when considering treatment for benign uterine conditions. Abnormal uterine bleeding resulting from benign conditions can often be treated with less invasive outpatient therapies, such as hysteroscopic polypectomy and myomectomy, global and standard endometrial ablation techniques, and uterine artery embolization.

Uterine cavity assessment is of the utmost importance when counseling patients about their treatment options. Once the non-uterine conditions associated with abnormal uterine bleeding have been ruled out, it is imperative that the uterine cavity and myometrium be evaluated to locate the source of the problem. This is

Table 1. Indications for office hysteroscopy

Evaluation of abnormal uterine bleeding	
(1)	Premenopausal ovulatory bleeding
(2)	Premenopausal anovulatory bleeding that fails medical therapy
(3)	Post-menopausal bleeding off HRT
(4)	Post-menopausal bleeding on HRT with failed hormonal manipulation
	Infertility evaluation
(5)	Routine infertility
(6)	Pre-IVF evaluation
(7)	Abnormal hysterosalpingogram
(8)	Recurrent miscarriage
(9)	History of Asherman's syndrome
	Location of intrauterine devices and foreign bodies
	Preoperative evaluation
(10)	Grade 0, I, II submucous myomata
(11)	Asherman's syndrome
(12)	Septate uterus
	Evaluation of endometrial hyperplasia and carcinoma
	Minor surgical procedures
(13)	Endometrial polypectomy
(14)	Adhesiolysis
(15)	Tubal recanalization

HRT, Hormone replacement therapy; IVF, in-vitro fertilization.

most often done by dilatation and curettage (D&C) or with diagnostic imaging modalities such as a hysterosalpingogram, abdominal or vaginal ultrasound, hysterosonogram or hysteroscopy. Hysteroscopic assessment can be performed in the operating theatre under anaesthesia or in the office with either local or no anaesthesia.

Once and for all, the diagnostic D&C should be put to rest. No longer should a blind procedure be performed in the operating room to evaluate abnormal bleeding, when an office Pipelle will detect diffuse endometrial disease. Moreover, the D&C will miss up to 30% of focal lesions [2]. Ross [3] recently described the use of the 3.5 mm flexible hysteroscope to examine and biopsy 384 patients for a variety of indications, including abnormal and postmenopausal bleeding. A total of 382 out of 384 patients (99.5%) underwent this procedure with no cervical dilatation or local anaesthesia. The biopsies were performed using a 3 F instrument [3].

Compared with hysterosalpingography and vaginal probe ultrasound, hysteroscopy has been shown to have superior sensitivity and specificity in evaluating the uterine cavity. Raziell *et al.* [4] demonstrated a sensitivity of 74% and specificity of 60% for hysterosalpingography, whereas Vercellini [5] showed the vaginal ultrasound values to be 85 and 84%. Fedele [6] showed the sensitivity of hysteroscopy to be 100% and the specificity to be 95%. Hysterosonography is a technique in which the uterine cavity is evaluated after 15–20 ml saline is injected. It greatly enhances the sensitivity and specificity of detecting intracavitary lesions over standard vaginal ultrasound, but it does not give the surgeon a direct view of the cavity as seen with office hystero-

scopy. This is a good adjunct to hysteroscopy in that it will help detect intramural and subserosal uterine lesions.

In premenopausal ovulatory women with abnormal uterine bleeding, hysteroscopy will detect an anatomical structural lesion in 65–80% of patients [7]. Cacciatore [8] found the sensitivity, specificity and positive predictive value of diagnosing lesions in postmenopausal women with abnormal bleeding to be 87, 91 and 90%, respectively. Even 10% of postmenopausal women with no symptoms and a normal endometrial stripe by ultrasound have endometrial pathology detected by office hysteroscopy [9]. The same group found that 28% of asymptomatic postmenopausal women with an endometrium greater than 4 mm had intrauterine pathology detected by office hysteroscopy and that 76% of symptomatic postmenopausal women had endometrial pathology detected by office hysteroscopy. The positive predictive value of office hysteroscopy in postmenopausal women with a thickened endometrium was 97% and the negative predictive value was 100% [10].

Evaluation of the infertile patient

Intracavitary abnormalities that have been described to affect embryo implantation include intrauterine scar tissue, submucous myomata, endometrial polyps and uterine septae. It is estimated that 10–62% of infertile couples will have one of these abnormalities [11]. Hysteroscopy has been recommended as a standard part of the work-up for all infertile couples, and particularly those undergoing advanced therapies such as in-vitro fertilization [12].

Staging endometrial carcinoma

Hysteroscopy can clearly display the appearance of endometrial cancer and its involvement in the lower uterine segment and cervix. In one study of 80 patients with endometrial cancer [13], in only 3% did hysteroscopy fail to detect the distal border of the cancer. The concern, of course, is whether the intrauterine distention medium will carry cells into the peritoneal cavity and worsen the prognosis for the patient. Tanizawa *et al.* [14] reviewed 1040 hysteroscopies performed in the management of endometrial cancer. Compared with a group of 2641 women with endometrial cancer who did not have hysteroscopy before their operation, the authors found that hysteroscopy had no effect on cytological malignancy in the peritoneal cavity.

Hysteroscopy is also useful in the follow-up of the non-surgical or hysteroscopic treatment of endometrial hyperplasia and cancer. This is particularly valuable when the cancers or lesions are focal or are contained within an endometrial polyp.

Preoperative surgical planning

It is well recognized that grade II submucous myomas, which have less than 50% of their volume within the endometrial cavity, cannot always be removed during a single operative hysteroscopic procedure [15]. Also, patients who have multiple submucous myomata are at greater risk of incomplete hysteroscopic surgery as a result of fluid intravasation during long procedures. As a result, patients should be aware of the risk of incomplete surgery and be informed of alternative therapies such as uterine artery embolization, abdominal myomectomy, and hysterectomy.

Office-based hysteroscopic procedures

It is currently possible to perform simple office-based hysteroscopic procedures with either no anesthesia or local anesthesia in the form of a paracervical block. These procedures include optically-directed biopsy, endometrial polypectomy, and lysis of adhesions. Lindheim and colleagues [16] recently described the successful resection of endometrial polyps, fibroids and adhesions within the office using the 2 mm Versapoint system. After office hysteroscopy was used to diagnose pathology in 44 patients, pathology resection was attempted in the office for 33 of these patients, with successful therapy in 32 of the 33 attempts. There was one false passage and one perforation during a lysis of adhesions procedure. The average operating time was 45 min [16].

In the 1970s and 1980s, many attempts were made to occlude the fallopian tubes hysteroscopically for sterilization purposes. The destruction of the oviduct has been attempted with thermal energy, the injection of sclerosing substances and adhesives, and mechanical occlusion using a silicon plug [17]. Unfortunately, only 13% of the population tested with the silicon plug technique was able to obtain bilateral occlusion. The most common problem was inadequate visualization of the tubal ostia.

With the improvement of hysteroscopic technology, new devices are being introduced again to perform hysteroscopic tubal occlusion. Conceptus Inc. is furthest along with their trial of Essure, a hysteroscopically placed coil within the isthmus of the tube. They are hoping to gain Food and Drug Administration approval for this device in the autumn or winter of 2002.

Office hysteroscopy versus hospital-based hysteroscopy

As previously mentioned, office hysteroscopy provides the advantage of having no surprises in the operating room that can affect patient management while the patient is asleep. For example, if a patient is scheduled for an endometrial ablation for menorrhagia and the

surgeon finds a submucous fibroid, should the fibroid be removed without an ablation or should both procedures be performed? Obviously, it would be helpful to have the patient's input when making this decision. Also, knowing the exact contour of the endometrial cavity may influence the presurgical management of the patient. If only a grade II myoma is present, the surgeon may elect not to pretreat with a gonadotropin-releasing hormone agonist in fear of shrinking the fibroid too much and making it inaccessible for hysteroscopic resection. Alternatively, if a patient has been on a gonadotropin-releasing hormone agonist, preoperative evaluation in the office is helpful to evaluate the cavity before the patient is put under general anesthesia.

Not only is preoperative evaluation helpful for the management of submucous fibroids, but it can be helpful in assessing the prognosis for intrauterine adhesiolysis and septum repair for infertile couples. Again, when couples have alternative options such as gestational carriers, they should know the expected outcome before the operative procedure.

The most common concern of the gynecologist is that the patient who needs surgery will undergo two procedures if there is a lesion to be removed. Although this is valid, up to 30–50% of patients who go to the operating room with abnormal bleeding have normal cavities. The D&C performed in the operating room can and should be replaced by the office pipelle biopsy, in that it is equally diagnostic of microscopic diffuse disease, and the D&C provides no long-term therapeutic benefits. The office hysteroscope should be used to make the diagnosis of intrauterine disease (or lack thereof), and macroscopic lesions should be removed in the operating theatre.

A needed expertise to perform office hysteroscopy

Before the mid-1980s, all hysteroscopy was performed using either a viscous solution such as Hyskon for uterine distention or carbon dioxide gas. Both of these media are difficult to use and both have a significant learning curve associated with them. As a result, most gynecologists who trained before 1990 rarely got to see how easily office hysteroscopy can be performed with the current technology.

Office hysteroscopes now come in either a small 4–5 mm rigid construction or a 3.1–3.5 mm flexible unit. The flexible scopes have a thumb manipulator that allows the zero degree lens to be deflected from 0 to 100° in a bidirectional motion. Both the rigid and the flexible scope are easily used with normal saline for distention, which has dramatically reduced the learning curve for these procedures. In my own experience in training

attending academic teaching physicians and residents over the past 12 years, it ordinarily takes from three to five procedures for a gynecologist to master the technique of office hysteroscopy.

Training gynecologists in office hysteroscopy is best performed by individual preceptorships. These are usually offered by hysteroscopic companies such as Karl Storz, Olympus, Circon and Wolf. Didactic and laboratory courses are also useful in getting the surgeon used to the equipment and practicing their hand–eye coordination for the procedure. The quality of the equipment now available in the office will allow the surgeon to easily detect an endometrial anomaly greater than 1 mm. To reassure the surgeon, the tubal ostium is from 1 to 1.5 mm in diameter, and this is easily seen during a routine evaluation. Surgeons are not likely to miss any macroscopic endometrial lesion.

Concerns about capital expense and poor reimbursement

If an office does not already own video equipment for colposcopy or hysteroscopy, the basic list of capital equipment is included in Table 2.

Typically, the basic office hysteroscopic package will cost approximately US\$5000 without the hysteroscope. The rigid hysteroscope is less expensive than the flexible hysteroscope and will cost approximately US\$2500. The flexible hysteroscope will cost between US\$5000 and 7500.

Reimbursement varies by location and payer. In each locale, it is possible for individual physicians to negotiate fees with insurance carriers, using evidence-based savings from performing hysteroscopy in the office rather than surgical centers or hospital operating rooms.

Diagnostic hysteroscopy has a CPT code of 58555 (5.63 Relative Value Units), with a national average for reimbursement of US\$233 for managed care and US\$723 for service insurance. The CPT code for a

hysteroscopy with a biopsy is 58558 (7.18 RVU), with an average reimbursement of US\$312 and US\$812 for managed care and fee for service, respectively. As a rule of thumb, if a physician performs one office hysteroscopy a week, the equipment will pay for itself.

To perform an office hysteroscopy usually takes 10–15 min from the time the patient is in the examination room until the room is turned over for the next patient. There are no preoperative laboratories required or separate history and physical required. There is essentially no turnover time between cases. In short, four office hysteroscopies can be performed in the office in the same time that it takes to do one hysteroscopy in the operating room. The patient receives no intravenous sedation or general anesthesia, and therefore is able to return to her normal activities immediately.

From a financial perspective, it is much more productive to perform a rapid diagnosis within the office than to take a patient to the operating room. From a patient care perspective, there is far greater patient satisfaction when a patient can see the pathology and participate in the decision-making process when deciding on appropriate therapies.

Conclusion

All gynecologists who have busy outpatient practices will find the office hysteroscope to be an invaluable tool in providing state-of-the-art patient care. Patients who will benefit from this technology include most premenopausal women with abnormal uterine bleeding as well as all postmenopausal women with any vaginal bleeding. Also, the office hysteroscope has tremendous diagnostic value for couples undergoing infertility evaluation and has been shown to be useful in the diagnosis and follow-up of women diagnosed with endometrial carcinoma. The office hysteroscope is useful in improving patient outcomes and satisfaction by providing the patient and the surgeon with accurate intracavitary information before the patient falls asleep in the operating room. Finally, there will probably be an explosion in the demand for office hysteroscopy when patients realize that many procedures such as tubal sterilization can and will be performed in the office using local anesthesia and no incision as opposed to the standard laparoscopic approach.

Experience has shown that office hysteroscopy is not a difficult procedure to teach and that the learning curve is actually quite short. Preceptorships are very effective for teaching, but newer, less expensive techniques such as web-based training and telesurgery may also prove to be valuable.

Finally, office hysteroscopy is financially productive for the gynecologist and provides better medicine for the

Table 2. Capital equipment needed for office hysteroscopy

Mandatory equipment
(1) Hysteroscope – flexible or rigid
(2) Camera
(3) Light source and light cord
(4) Monitor
Highly recommended
(5) Video printer
(6) Mobile cart
Optional equipment
(7) Video cassette recorder
(8) Digital still printer
(9) Digital video recorder or MP3 recorder
(10) Automated documentation system
(11) Disinfection station

patient. It is anticipated that, with improved patient education and state-of-the-art facilities for physician education, office hysteroscopy will proliferate not only in the United States, but also in the rest of the world.

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