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Chapter 16

# Office Hysteroscopy

Pados George and Makedos Anastasios

Additional information is available at the end of the chapter

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**Abstract**

Hysteroscopy is the most accurate technique in order to visualise the endometrial cavity and diagnose relevant pathologies. Despite the further evolvement of ultrasonography, hysteroscopy provides not only diagnosis but also treatment, when needed. Based on fine hysteroscopes produced recently, hysteroscopy can be easily performed in an office-based environment, not only for diagnostic but also for treatment of minor pathologies. The more attractive office environment compared with the conventional operating theater, the no-need for general anaesthesia and the reduced cost compared to the classic hysteroscopy are the main advantages that characterize office hysteroscopy and that made it more popular during the last years.

**Keywords:** Office, hysteroscopy, diagnostic, operative, minimal invasive surgery

## 1. Introduction

The evolution of the medical technology during the last decades has introduced hysteroscopy in the everyday clinical practice, for the visualization of the endometrial cavity for diagnostic and also operative purposes. This has led to the precise management of gynecological problems in the field of infertility, recurrent miscarriages, postmenopausal bleeding, uterine cancer, and menstrual disorders. Although transvaginal ultrasound scanning in 2D and 3D mode are considered useful tools for first line screening, the gap between precise diagnosis before treatment was covered by the introduction of a fine hysteroscope, which provides more accurate information. Nevertheless in most cases operative hysteroscopy substituted the blind technique of dilation and curettage, solely used over the past years.

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Office hysteroscopy is a very useful technique for diagnosis and treatment of uterine pathology in an office-based environment (Figure 1). It is directly related to the technological explosion, which during the last years has further evolved and given us the opportunity to perform hysteroscopy without providing general anesthesia or sedation to the patients, due to the narrow width of the latest generation hysteroscopes. This means that after adequate and thorough experience and toward the reduction of the cost and satisfaction of the patients, hysteroscopy in an outpatient environment, called office hysteroscopy, has started to attract the majority of gynecologists.

The aim of this chapter is to familiarize the clinicians in the field of gynecology with the instrumentation and setup, the technique itself, indications, and contraindications for performing office hysteroscopy and finally the advantages for the patient and the clinician who perform this endoscopic approach.




**Figure 1.** Typical setup for office hysteroscopy in a private office-based practice

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## 2. Instruments

### 2.1. Hysteroscopes

There are two different types of hysteroscopes available. The rigid hysteroscopes are composed of two parts, the scope and the outer sheath with a total diameter of 2.9–4 mm (Figure 2, Figure 3). The outer sheath comes with suction and irrigation valves, which allows the inflow and outflow of the distension medium of the uterine cavity and can be mounted on an irrigation-suction device. Further, there is an operating channel from which specifically designed instruments can go through for operative purposes or retrieval of endometrial tissue for biopsy. The advantages are that they are exactly the same as the non-office hysteroscopes, so for a clinician who is experienced in hysteroscopy there is no learning curve, and they can be used without inserting a vaginal speculum (no-touch technique or vaginoscopic approach). Furthermore, they can be used with suction device, while a great variety of instruments are specifically designed for these and the scopes are available in 12, 25, or 30 degrees angular vision. In the disadvantages we need to mention that they come in many parts and also the optics are very thin, from 2 mm in diameter, which makes them very fragile during cleaning and disinfection, while there is an existing risk of uterine perforation due to the rigidity. Finally, they have greater width compared with the flexible hysteroscopes.

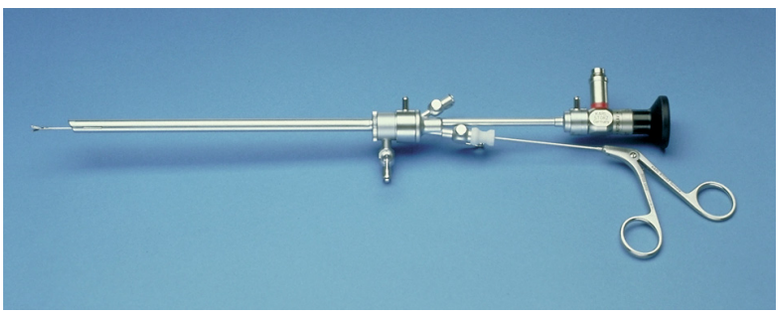


**Figure 2.** Operative hysteroscope for office hysteroscopy

The flexible hysteroscopes (Figure 4) are compact without any additional part, even the light source cable is permanently fixed on these. They do not come with an outer sheath, which means that they lack suction mechanism but there is a working channel, through which flexible instruments can be inserted and used for biopsy and minor surgical procedures. The visual angle is up to 120 degrees due to the flexibility, so there is no external manipulation of the hysteroscope, which can minimize the discomfort of the patient. Cleaning, disinfection, and storage are simpler than the rigid ones. The possible perforation of the uterus is quite non-existing, but on the contrary during insertion the scope might be obstructed by even loose adhesions or endometrial structures such as large polyps or fibroids. In practice, and from our experience, it means that it is preferable to dilate the cervical canal before insertion with a thin dilator. The vaginoscopic approach is more difficult to be performed with a flexible hysteroscope compared to the rigid ones and therefore in all cases the use of a vaginal speculum is needed but on the other hand the use of a tenaculum for straightening the cervical canal is

almost never needed, as long as due to the flexibility the scope can easily go through all types of uterus (anteverted, retroverted, etc.). Finally, there is clear evidence that in procedures where flexible hysteroscopes are used patients experience less pain and discomfort [1].

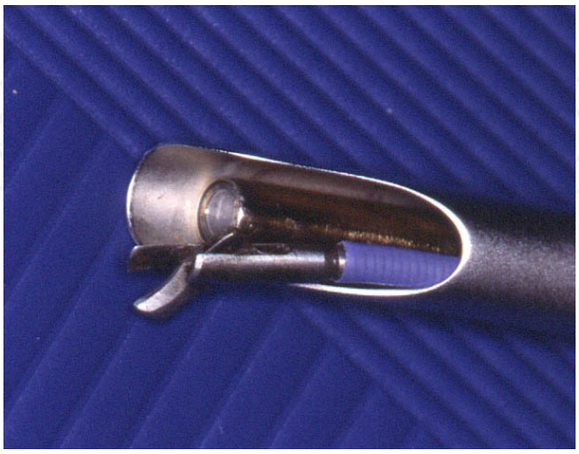


**Figure 3.** Distal part of an office operative hysteroscope



**Figure 4.** Flexible hysteroscope of 3.1 mm total diameter

## 3. The setup

The basic setup in order to perform an office hysteroscopy consists of a camera, a camera control unit connected to a -DVD recording device, a light source, and a monitor, connected exactly the same way as in the operating theater, all of them placed on an equipment cart, or there are also compact devices where all the above mentioned come as a single appliance. An irrigation-suction unit for the distension medium can be used, but for diagnostic purposes a handcuff with a manual air pump can be used for irrigation, around the bottle of the distension medium, as long as for experienced clinicians the whole procedure will last less than 5 minutes and the amount of the distension medium to be used will be less than 200 ml. Additional equipment ready for use can be a dental syringe fitted with a sealed cartridge containing anesthetic solution for cervical local anesthesia and a plastic cervical dilator, a vaginal speculum, sterile gauges, and a forceps in order to control spotting bleeding from the cervix, after injection of local anesthetic, all placed on a secondary equipment cart. The patient is placed on a gynecological chair, in lithotomy position that will allow the clinician to perform manipulations with the hysteroscope without restrictions. It is advised that a flat examination bed is also present in the same room, in case of vasovagal reaction after the end of the procedure. A typical setup is shown in Figure 1. Finally it is advised that a chaperon is present during the procedure, but in terms of assistance the setup described is ideal for a single person to perform.

## 4. Analgesia/anesthesia

There is no clear evidence that local anesthesia should be used prior to office hysteroscopy, while results from several studies cannot reach a definite conclusion. Nevertheless in cases of non-vaginoscopic procedures from our experience, we strongly recommend the proposal of cervical local anesthetic, which can possibly lead to less pain experienced by the patients, especially if cervical dilatation is needed, but also gives a feeling of confidence to the patients before getting through the procedure. Moreover, in cases where the use of tenaculum is needed, local cervical anesthesia should be applied [2]. It should be mentioned that use of intracervical or paracervical local anesthesia for preventing vasovagal reactions is not an indication.

Conscious sedation should not be used as it does not contribute to pain control more than local anesthesia and also dangerous complications that may occur cannot be controlled in an office-cased environment [3].

As far as analgesia is concerned, it is recommended that NSAIDS (non-steroidal anti-inflammatory drugs) should be used an hour prior to the procedure for pain relief but the use of opioids should be avoided as they may have adverse effects like nausea, vomiting, and drowsiness [2].

In general the choice for analgesia prior or during the procedure should be decided by the clinician according to the patient's history, possible vasovagal reaction in the past, the

condition of the uterine cervix (nulliparous or multiparous), and the reluctancy of the patient regarding the possible pain that she may experience during the procedure. All the choices should be offered to the patients during the consent procedure.

## 5. Distention medium

Office hysteroscopy can be performed with the use of normal saline solution or CO2. It is advisable that the choice of the medium is at the discretion of the clinician. Nevertheless, there seem to be advantages from the use of normal saline as long as it can provide better visibility and clearing out of blood clots and debris, less possible vasovagal reactions (sickness, bradycardia, and hypotension) from the patients, and also the setup is more simple and more practical compared to CO2. Furthermore, the use of normal saline does not offer reduction of pain but can lead to quicker procedures [4,5], but the latter is clearly affected also by the clinician's experience with the medium and the procedure itself.

## 6. Types of office hysteroscopy

### 6.1. Diagnostic office hysteroscopy

Office hysteroscopy is the most accurate diagnostic tool for endometrial pathologies and a second line tool after primary diagnosis deriving from 2D or 3D transvaginal ultrasound scan. Compared to the hysteroscopy performed in the operating theater under general anesthesia or sedation, there are clear benefits for the patients, such as the avoidance of taking general anesthesia, especially for patients who are at high-risk for anesthetic complications. The reduced time of the whole procedure and also the location, especially when performed in an out-of hospital environment, are crucial for the patients in order to decide. Also, the reduced cost of around 40–60%, as long as hospital and anesthetic costs are excluded, attracts more patients and also more clinicians to propose, especially in current years of financial recession. Finally the provision of this diagnostic tool in an office-based environment gives an added value to the private practice and its services, but also assists the clinicians to provide more than one choice to their patients.

Indications for diagnostic office hysteroscopy can be categorized for premenopausal and postmenopausal women.

#### *6.1.1. Premenopausal women*

Abnormal uterine bleeding is an indication for office hysteroscopy, if there is clear evidence of pathology at the ultrasound scan. The authors recommend that before proposing the technique, if there are no obvious ultrasonographic findings, it is wise to exclude any other endocrine, ovarian, or cervical pathology.

In terms of infertility investigation, office hysteroscopy is very useful in the investigation of the endometrial cavity in women who underwent two complete cycles of in vitro fertilization (IVF) – two failed implantations, even if there is no ultrasonographic evidence. The same indication stands for women with recurrent miscarriages – more than three consecutive miscarriages. Small endometrial polyps, uterine septae, endometrial adhesions, and cervical adhesions are common findings, which can be revealed with hysteroscopy. This approach is, also, very useful for the evaluation of the quality of the endometrium during the luteal phase.

Women who take tamoxifen as a regime for breast cancer are in need of endometrial assessment by biopsy and thus hysteroscopy is not an absolute indication, but in cases where endometrial thickness is ≥ 8 mm it is highly recommended in order to exclude an endometrial polyp or ongoing endometrial cancer [6].

#### *6.1.2. Postmenopausal women*

Postmenopausal women with uterine bleeding should be investigated with office hysteroscopy regardless of the ultrasonographic findings, which apart from benign pathologies can lead to the diagnosis of uterine or cervical cancer. In cases of cancer the benefit of accurate diagnosis outweighs the risk of spreading neoplastic cells into the abdominal cavity and thus dilatation and curettage is advised not to be preferred over hysteroscopy [7]. A finding of an endometrial polyp in postmenopausal women is not a rare finding.

### 6.2. Operative office hysteroscopy

Operative procedures performed in an office-based environment are quite limited. There is no specific guideline regarding operative procedures but usually minor procedures such as endometrial biopsies, removal of endometrial polyps, dissection of loose intrauterine adhesions, removal of intrauterine devices with a missing thread or foreign objects and also for permanent tubal sterilization with the insertion of tubal coils (Essure®) are performed in the everyday clinical practice and are well tolerated by the patients. Operative office hysteroscopy can be an extension of diagnostic office hysteroscopy, as long as there are no special setup requirements and cervical preparation is not needed.

Contraindications for both diagnostic and operative hysteroscopy are heavy uterine bleeding or menstruation, vaginal infection, active pelvic inflammatory disease, and history of adverse reactions during a previous office hysteroscopy. As mentioned earlier, suspicion of cancer is not a contraindication for performing diagnostic hysteroscopy and biopsy.

## 7. Advantages and disadvantages of office hysteroscopy

### 7.1. For the patient

Office hysteroscopy is mainly designed for the patient's advantage. The use of hysteroscopy in an office-based environment, especially in the "one-stop" clinic, in a hospital or in a private

practice, can give fast and accurate diagnosis and treatment without waiting lists and at a substantially lower cost, as hospital and anesthetic costs are excluded. Without the use of sedation or anesthesia, patients can go back to their everyday activities just after the end of the procedure. The disadvantage of the possible discomfort during the procedure or the cramp-like lower abdominal pain after are outweighed by the benefits that the patients can have.

### 7.2. For the clinician

For the clinicians in the fields of gynecology, infertility, and gynecological oncology, office hysteroscopy is the ultimate tool for accurate diagnosis of endometrial pathologies. A future management plan can be easily scheduled after the end of the procedure, unless a further pathology report from biopsies is expected.

Regarding the diagnosis, from our experience, miniature hysteroscopes with a low width inflow channel for the distention medium provide low pressure distention of the uterine cavity and so in cases of soft tissue structures like polyps, adenomyomas, and fundal adhesions we get a first more realistic depiction of the uterine cavity.

Of course the setup in a private practice is not time-consuming, as long as the time needed for the setup arrangements before and after the procedure is many times more than the procedure itself and so it is suggested that a special separate room or appointment on a specific day should be used, if the same room is to be used after for other examination purposes. In general though, in a private gynecological practice, application of office hysteroscopy extends the list of the provisional services and gives the clinician an added value, though even in our days the technique is not very widespread.

## 8. Discussion

Office hysteroscopy is the undoubtful gold-standard tool for the investigation of the uterine cavity. It is a technology-based technique that has greatly evolved during the last decade, and there is still place for further improvements. Ideas for change come from the gynecologists, through the everyday practice, and should be addressed to the manufacturing companies in the field.

For the clinicians who want to apply hysteroscopy in an office-based environment, the training is much shorter and easier if they had previous training and experience in hysteroscopy under general anesthesia. This, on the other hand may restrict many clinicians from getting involved for the first time with diagnostic office hysteroscopy, which is a simple and low-risk technique. This reluctance may also derive from up-to-date guidelines, which are unclear in specific details as the type of hysteroscope to choose, provision of local anesthesia or not.

Practically, from the patient's point of view and against all the benefits that office hysteroscopy provides, the only fear is the experience of pain and discomfort during the procedure. On the contrary pain intensity is a subjective evidence described in relative research, thus local

anesthetic should always be discussed with the patients when consenting and provided according to the possible length of the procedure.

The use of flexible hysteroscopes result in less painful diagnostic procedures compared to the rigid one, so for a clinician who will only perform diagnostic hysteroscopy in the office seems like a better choice, though taking into consideration that the learning curve is longer, compared to the rigid hysteroscope.

Clinicians in the field of gynecology who are reluctant against the technique should get more familiar with office hysteroscopy where training is available, courses or any type of medical literature. Further research will probably clarify some details and assist the clinicians to take the right decisions for providing the best possible care according to the patients' needs. We assume that in the near future almost all diagnostic and minor operative hysteroscopic procedures will be solely performed in an office-based environment either inside a hospital or in a private practice.

## 9. Conclusions

It is evident that office hysteroscopy enables the clinician to perform not only diagnostic but also minor operative procedures in an office setting with less risk, low cost, and better results. The near future comprises improvements in the hysteroscopic instrumentation, new energy supplies, and new systems for controlling intrauterine pressure, which will yield further benefits for the patients and the clinicians.

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