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Dear hysteroscopy friends,

The year 2020 is coming to an end. As we look back with disbelief and a great deal of disappointment, sadness and sorrow, we need to stay stronger than ever as we see this terrible COVID-19 pandemic continue to spread around the word and not wanting to leave. It has had catastrophic consequences at all levels. Starting from the thousands of people who have lost their lives succumbing to this terrible infection, including many physicians standing at the front line, the devastating hit on the economy, the psychologic impact that is having on all of us, the consequences of social distancing measures. When comparing 2020 to any of the previous years, I can’t avoid missing what we can now call “the good old days”. Those multiple scientific meetings in which we used to share our knowledge, have some drinks, enjoy good food and take a couple of selfies with the professors. The crowded “auditorium” full of people waiting for the meeting to start, multiple friends from all over the word sharing their knowledge and eager to learn. But, all that, for the better or worse will only live in our memory.

My dear friend, believe me, not all is bad. With difficult times good things happen. It is well known that during big crisis 2 things always happen (we have learned this from the past, such as after the 9/11 terrorist attack). The first is altruism, people start being nicer to each other, we help each other more and work together to achieve the same goal, and the second is innovation. I can safely attest that the scientific innovation of the year, as we wait for the COVID-19 vaccine, is the “Webinar”. All our scientific activities, meetings and gatherings move to the screen of our laptop, tablet or cell phone. We now only have to look back to move forward facing “the new normal”.

The hysteroscopy newsletter will also innovate and adapt to the new normal. We have been with all of you over the last 6 years and we really appreciate the support of each one of you who have provided interesting articles and beautiful pictures, and to the readers that always gave us great feedbacks. Facing the new normal, Hysteroscopy Newsletter will now become more digital, with less words and more pictures and videos. We will take advantage of the social media platforms and will have the opportunity to reach all of you with the same enthusiasm that we have done it over the last 6 years. Hysteroscopy Newsletter will now be “Quarterly”. Will have 4 issues/year loaded with videos, photos and up to date information about what is happening in the world of hysteroscopy. As we stand strong looking forward with great stoicism, we are preparing for the “new normal” with more enthusiasm and energy than before. As always, we count on you to continue supporting the “Hysteroscopy Newsletter” as you have done it over the last 6 years. Will always stay strong together looking forward to a great future.

Stay safe,

Jose “Tony” Carugno

If you are interested in sharing your cases or have a hysteroscopy image that you consider unique and want to share, send it to hysteronews@gmail.com
In office diagnostic hysteroscopy for beginners
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The main goal during in office diagnostic hysteroscopy is to obtain a smooth access the uterine cavity, making a full assessment, in a way that the patient can tolerate the procedure with minimal discomfort. Here we will describe common everyday situations and provide some tips to improve your skills.

What is the best tolerated uterine access technique?

To access the uterine cavity by “vaginoscopy” without the use of a speculum allows not only to decrease the stimulation of the cervix, but also to perform a visual inspection of its entirely. We place the tip of the hysteroscope at the external os opening the outflow slowly distending the walls of the cervical canal adapting to its larger diameter.

To explain the procedure to the patient using simple words and informing her what she is going to perceive is essential to reduce anxiety and fear improving patient’s tolerance to the procedure.

Tips to reduce discomfort at the beginning of the hysteroscopy and decreasing vasovagal symptoms.

One of the main causes of pain during diagnostic hysteroscopy is cervical stimulation during uterine cavity access. It is very important to match the diameter of the hysteroscope to the diameter the cervical canal, which is achieved with smooth turns of 30 to 90° to introduce the hysteroscope with the least possible resistance. This requires knowledge of the diameters of the sheath and the angle of the lens of the hysteroscope that is being used.

Another key point to decrease vasovagal symptoms is to avoid lateral movements of the hysteroscope at the cervical canal; ideally, the use an angled lens allows improved lateral visualization that is key for adequate diagnostic hysteroscopy. Only by making gentle 90° turns we can assess all the uterine walls with minimal cervical stimulation.

Rapid uterine relaxation is another the cause of pain. It is advisable not to use high intrauterine pressure, reducing the in-flow of distention media at the beginning of the procedure. If the distention media enter the cavity too fast (high pressure), or if we have to release adhesions to enter the cavity it will cause pain. It is desirable to distend the cavity gradually. This is achieved by regulating in-flow of distention media.

Stenotic cervix and intrauterine adhesions

Sometimes it can be difficult to introduce the tip of the hysteroscope in a pin-point cervical os, requiring to increase the diameter of the cervical os. This can be done with scissors and/or forceps to allow passage of the hysteroscope.

Similarly, it is sometimes necessary to release intrauterine adhesions to gain access to the cavity. Sometimes it is hard to determine the direction of cervical canal. What we do in these cases is to obtain a closer look with the hysteroscope to identify passage of a small amount of distention media. If the canal is not clearly seen, we carefully use the tip of a grasper to lead the way forward, avoiding excessive pressure preventing uterine perforation.
Uterus with marked anteflexion

When in presence of a marked anteflexed uterus, we find it difficult to access cavity with a rigid hysteroscope. A simple way to correct this angle and access cavity is to have an assistant apply light suprapubic pressure to improve the angle of the uterus and cervical canal facilitating the insertion of the hysteroscope.

Access to the cavity

Before we begin to evaluate the cavity, we must always ask ourselves, where the tip of the hysteroscope is? That is achieved by slightly withdrawing the hysteroscope to get an overall view. The best point of reference in the uterine cavity is visualization of the tubal ostium, especially in cases where the uterine cavity has abnormal shape or access has been difficult.

I am inside the cavity but can’t see well...

The accumulation of uterine secretions or blood may hinder the view preventing an adequate diagnostic hysteroscopy. The easiest way to “wash” the uterine cavity is to place the tip of the hysteroscope at the fundus and to open the outflow to allow the content to exit the uterine cavity progressively improving vision.

Systematically analyze the cavity

Evaluating the uterine shape and size is an important part of diagnostic hysteroscopy. It is really important to be systematic in the assessment, especially in cases where we find intracavitary pathology. We must be rigorous in assessing the endometrium, as behind a polyp or fibroids can hide endometrial pathology. Therefore, before performing any procedure, such as taking biopsy or resect a polyp or fibroid, it is recommended to assess the entire endometrium.

How to properly take a biopsy and perform tissue extraction?

Taking an adequate biopsy prevent the need of multiple insertions of the hysteroscope causing unnecessary discomfort to the patient. The biopsy grasper must move en bloc along with the hysteroscope, without working at excessive distance from the tip of the hysteroscope, not to loose strength or definition when performing a direct biopsy. To get more biopsy tissue and avoid loosing the specimen when removing the hysteroscope through the cervical canal, when taking the biopsy do not obtain a pinch of tissue but place the specimen inside the open biopsy clamp and advance the clamp into the tissue as you close its jaws, ensuring a greater amount of tissue within the clamp.

If I want to take multiple biopsies?

Sometimes it is necessary to take several biopsies of the most representative areas and take them in an orderly manner can facilitate our work, especially if it is friable tissues that bleed easily. It is advisable to analyze well all areas to be biopsied before and to initially take the biopsies that are closer to the uterine fundus or are difficult to access, so that potential bleeding will not stop us from performing all the required biopsies.

Once the hysteroscopy is completed, how to document the findings?

It is very important to document the findings of hysteroscopy describing the details as thoroughly as possible, we also describe the route taken with the hysteroscope to enter the cavity since having this information will be very valuable for future reference in case of assisted fertility procedures or simply placing an IUD in the future.
The endocervical canal
Strategies for an easy access to the uterine cavity
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INTRODUCTION

The rapid advance of technology and the miniaturization of hysteroscopes has allowed an easier and painless access to the uterine cavity. As a result, the number of interventions carried out in the office setting, and outside the operating room, is increasing in a rapid manner.

However, failed access to the uterine cavity, either due to cervical stenosis or pain, remains the leading cause of inability to perform in office hysteroscopy. This chapter will discuss different strategies to facilitate the access through the uterine cervical canal.

TECHNICAL ASPECTS

Although performing in-office hysteroscopy is a relatively easy procedure, there are several aspects that determine the success in its implementation. A clear communication between the physician and the patient as well as a pleasant environment help to reduce patient’s anxiety. The use of small diameter instruments and the experience of the hysteroscopist performing the procedure, also determine the success.

Classic uterine entry technique

The classic uterine entry technique consist in placing a vaginal speculum to gain visualization of the cervix, after cleaning it with an antiseptic solution, the cervix is fixed with the application single tooth tenaculum on the anterior lip.

Once this phase is completed, the tip of the hysteroscope is introduced in the external os allowing the entrance normal saline solution and starting to move through the cervical canal toward the internal os. This entry technique is currently used very rarely and could be considered to be obsolete.

The Bettocchi technique (vaginoscopy)

The uterine approach by vaginoscopy first described in 1995 by Bettocchi and Selvaggi (1) avoids both the use of the speculum and tenaculum to grab the uterine cervix, an obvious way to reduce the discomfort experienced by the patient. This technique consist of direct introduction of the hysteroscope in the vagina, getting the expansion of the vaginal walls by fluid distention with normal saline. This separation of the vaginal walls allows to locate the EO introducing the hysteroscope, and then continue through the cervical canal.

This is the most commonly entry technique used in clinical practice. A study published by Sagiv R. et al. showed that the approach by vaginoscopy was significantly less painful for the patient than the classic approach with speculum and paracervical block. (2)
Scrolling through the cervical canal

Progress through the cervical canal should be done with a clear and comprehensive vision of the entire canal and following the angle that this presents. The orientation of the longitudinal crests “plica palmatae” guide us the way to the IO.

The technique varies according to the angle of the optics utilized (0º-12º-30º) the main aspect of this technique is to advance the hysteroscope through the middle of the cervical canal, avoiding collision with the side walls. Perhaps the most difficult area encountered when using this technique is at the level of the IO where there is a fibromuscular area that narrows the final access to the uterine cavity.

SPECIAL MEASURES

There are certain measures that are used to reduce pain and anxiety of the patient. Pre-procedure patient preparation, cervical priming and the use of local anesthesia, are very often utilized when performing in office hysteroscopy. A study published by Naegle F. el al, revealed that pain experienced by the patient is the most common cause of failure to complete in office hysteroscopy.

Pre-procedure preparation (analgesia)

Most practitioners use some form of analgesia prior to performing hysteroscopy. A common practice is the use of a non-steroidal anti-inflammatory (indomethacin, diclofenac) one hour before performing the procedure. A review published by of Ahmad et al (4) on management of pain during in office hysteroscopy revealed a significant reduction in discomfort experienced by the patient with the use of analgesia both during the procedure as well as 30 minutes after conclusion of the hysteroscopy. Often the analgesic is associated with an anxiolytic (midazolam) thereby also reducing anxiety before the procedure.

Cervical Priming

The first published reference on the use of prostaglandins for cervical priming before hysteroscopy dates back to 1985 (5). Currently, the routine use of prostaglandins is under discussion; it seems logical to use it only in cases where difficulty with the insertion of the hysteroscope is anticipated.

The use of prostaglandins before hysteroscopy facilitates cervical dilation, lower the possibility of complications such as cervical laceration, decreases consistency and resistance of the cervix and reduces pain during the performance of hysteroscopy. (6) Misoprostol, a synthetic analogue of prostaglandin E1 (PGE1) is the most commonly used prostaglandin for cervical preparation due to its effectiveness, low cost and availability. These benefits are clear in premenopausal patients while they are not proven in postmenopausal or in patients receiving GnRH analogues. Although, in a recent study, Oppegaard et al observed that after 14 days of pretreatment with vaginal estradiol, the administration of misoprostol has a significant effect on cervical ripening prior to hysteroscopy in postmenopausal patients. (7)
Anesthesia

Different anesthetic that can be applied on the cervix to decrease pain during hysteroscopy are the paracervical block, intracervical injection and topical anesthesia. The paracervical block anesthesia is the only one that has proven to be effective in decreasing pain perception, while topical anesthesia has no significant effect on pain.

Paracervical block anesthesia

The technique for paracervical block administration of anesthesia involves the injection of 10 to 20 ml of anesthetic at the cervicovaginal junction at 4 and 8 o’clock, this will block pain transmission through the uterosacral ligaments. Several studies have shown that paracervical block anesthesia produces an improvement in pain perception with cervical manipulation during hysteroscopy, however, it does not seem to reduce pain associated with the manipulation of the corpus / uterine fundus, or fallopian tubes. The anesthetic most frequently used is 1% lidocaine with epinephrine for added vasoconstriction properties which decreases the absorption of the lidocaine and increases the duration of the anesthetic effect for up to 2 to 6 hours. Infiltration is usually done at the level of the uterosacral ligaments, between 3 and 10 mm deep and about 5 to 10 ml of the anesthetic is injected.

Cervical anesthesia

It consists of the injection of the anesthetic directly into the cervical tissue. Usually infiltration takes place in the quarters, injecting a total of 5 ml each puncture to a depth of 10 mm. As in the paracervical anesthesia, 1% lidocaine with epinephrine is the most commonly used anesthetic. There is conflicting evidence regarding the efficacy of this route of administration, generating doubts about the decrease of pain perceived by the patient.

SPECIAL SITUATIONS

Cervical stenosis

There is no consensus on the definition of cervical stenosis, but from the hysteroscopy point of view, it could defined as the cervix that present a difficult access and require special maneuvers to introduce the hysteroscope into the cervical canal. Perhaps, the definition proposed by Bandalf defining cervical stenosis when the cervical canal does not allow the passage of a Hegar dilator 2.5 mm is more objective. Stenosis of the external os has been defined when there is less than 4.5 mm expansion. (2) Cervical stenosis and pain during the procedure, are the main causes of failure to perform in office hysteroscopy.

Cervical stenosis may be congenital or acquired. Congenital cervical stenosis is observed in the rare case of cervical atresia. Acquired is the most common cause of cervical atresia and is related to age, hormonal status and previous surgical procedures on the cervix.

Cervical stenosis may affect the external os, the internal os or the entire cervical canal. In all three locations, the most frequently affected by stenosis is the IO. Cervical stenosis is a condition that affects mainly postmenopausal women.

Technique to overcome cervical stenosis

When confronted with a stenotic cervix while performing in office hysteroscopy, we offer various alternatives that facilitates the access to the uterine cavity, which depend on the location and consistency of the cervical tissue adhesions.
Input optical rotation technique

Rigid optics have a bevel tip, which gives the capacity for tissue penetration and ability to separate the fibers. Most cases of cervical stenosis are solved by a rotational movement of the tip of hysteroscope to separate the fibrous tissue and allow to advance of the hysteroscope.

Mechanical entry

The use of biopsy forceps or hysteroscopic scissors help to overcome more severe cases that are not solved by the input optical rotation technique. The introduction of scissors or a closed clamp into the stenotic cervical canal and subsequent opened extraction, dilate the cervix just enough to introduce the tip of the hysteroscope. Sometimes the use of scissors is needed to cut the lateral corner of the cervical canal or fibrous tissue adhesions at the level of the internal os.

Entrance with bipolar electrode

The use of a bipolar electrode allows the section of the ring fibers of the cervix, extending the cervical os allowing the passage of the hysteroscope. These sections should be done at the level of the side edges of the cervical os.

Dilation with stems

There is evidence describing that the injection of a dilute solution of vasopressin (0.05 U/mL) at the cervical stroma, significantly reduce the force needed to dilate the cervix. This technique could be an alternative when faced with a stenotic cervix in a patient that has not received pre-procedure prostaglanding to prime the cervix.

Cervical disintegration

In certain situations, we face a real cervical disintegration in which we are unable to identify any recognizable structure and, of course, it is impossible to determine where the external os is located. Cervical disintegration often occurs in patients with history of invasive surgical procedures on the cervix such as trachelectomy or cold knife conization. In these patients access to the cervix represents a challenge and the use of ultrasound guide or cold cervical incision with a scalpel often allows access to the unstructured cervix. There are some case report describing hysteroscopic uterine access in patients with unstructured cervix. Shankar et al. reported a case of a 65 year old patient with postmenopausal bleeding in whom a cut of 15 mm performed with a cold knife was performed to introduce the hysteroscope into the uterine cavity.

Overcoming cervical stenosis in office hysteroscopy is challenging and often requires to abort the procedure and to take the patient to the operating room for treatment under general anesthesia.

REFERENCES

What do you want? What do you need?
or How to make your best office hysteroscopy system

Dimitar Cvetkov, MD. Nadezhda Women’s Health Hospital, Sofia, Bulgaria

The first time I touched the magic of office hysteroscopy was during a workshop in Bulgaria in 2010, when Prof. Stefano Bettocchi came and performed several demonstrational operations. It was really amazing how in a few minutes he solved some difficult cases, which even after 2 or 3 curettages did not have the right diagnosis. And all this was without anesthesia, without any medication, without masks…

When I asked “How can I make that?”, the company representative told me “It is not so difficult or expensive! We will arrange you a good set for 30,000 euro.” It would be quite an investment for me, as I was a resident. And at that moment I wondered how I could make it more accessible for more doctors, especially beginners, as I was. Because when you want to learn driving a car, you do not make it on a Lamborghini or a Ferrari, but on your daddy’s old car or a small self-bought one.

The question was “Do I need all those things for my office procedures, if I only need it for diagnosis and small procedures as biopsy or small adhesion resections?” And my answer was “NO”. The motto of Linda Bradley “The hysteroscope is my stethoscope” from Hysteroscopy Congress in Barcelona 2017 stayed in my mind and I tried to arrange the working combination for everyone, according to his personal needs.

So one hysteroscopy set consists of parts that are essential – camera, light source, monitor, distension media pump/device, recording equipment, instruments, and, of course, hysteroscope.

First I must mention all-in-one systems. They have integrated camera, light, monitor and recording system in one, and some are really small in size. An example for that is EndoSee by Cooper Surgical. In fact it is an excellent device, which was available in few European countries. It has disposable working part, which can be changed for every patient. Disadvantage of EndoSee is the absence of a working channel. You cannot take even a small biopsy, which will be your desire after a few procedures. So you will like to change it quickly.

A similar product is Hysteroscopic Canula of MedGyn. It is a device created to perform safe abortion under video visualization. Some clever people decided to make hysteroscopy with it. It is relatively cheap; you can take some biopsy with suction during procedure. The disadvantage of that system is the outer diameter of 7 mm, which requires small cervical dilatation.

There are a lot of classical all-in-one systems similar to the first of that kind – TelePack by Storz, which can give you a mobile complete solution. They are relatively cheap, but the disadvantage is that if one part is broken, the whole system becomes useless.
If someone decides to assemble his own set, the first thing he needs is a camera. Relatively new devices, which can be used as hysteroscopy cameras are smartphone camera adapters, like ClearScope of ClearWater. You can change quality of the image and storage capacity of your “camera-smartphone” every month. It is light weight and good quality.

My personal opinion is that the disadvantages of the camera endoscopy adapter are the difficult adjustment of the phone on the camera hole and its easy accidental removal during the procedure – you can lose the image during hysteroscopy. Also it is fixed to the hysteroscope -if you try to perform the vaginoscopic approach, during the down and up movements you won’t be able to see the screen. But the idea looks great, if you take the cervix with a tenaculum, and maybe could be even better to have a special fixed adaptor for your phone – there are such for iPhone on the market.

For office hysteroscopy purposes you do not need 3chip CCD camera with full HD picture. You can use a simple one with 1 chip CCD. Some colleagues prefer to buy second hand brand camera –prices can be between 300 and 2 500USD. The problem with used ones is that the companies do not supply spare parts for old models. If you decide to do so, spend as much money as you can afford to lose, because such investment is risky.

Otherwise you can choose a USB camera, which resolution is acceptable. On the market you can find brand ones as UbiPack by Comeg, but also similar cameras from Alibaba web for 3 to 5 times better price. The problem with web-ordered one is the service. If you do not buy from a trusted supplier, you can end up with an expensive child’s toy for several hundred dollars. On the market there are even HD USB cameras with full HD resolution, but in that case the price reaches the cheapest brand models cameras. In fact, according to the camera, it is up to the doctor to find which image is good for him. I even know about cases when laparoscopy operations are performed with colposcopy camera. For office purposes it will be ideal to combine one camera for hysteroscopy and video colposcopy.

Light source can also be brand new or a used one -halogen, xenon or LED. The problem with these models is the price of bulb replacement. Several times colleagues have called me to ask for a reasonable solution for their light lamps. In my practice I have found excellent old-fashion models with great light, where the replacement of the lamps would cost less than 5 USD, but sometimes the costs can be more than 300 USD for a non-original bulb. So when you choose the light, pay attention to spare parts. My personal preference for office procedures is a portable LED light source. The price is less than 200 USD, but the light is strong enough to perform even laparoscopy (I have tried it 😁) . In the case with LED portable light you connect it directly to the scope and do not need a light cable, which must be replaced after few years of usage and the price of such is approximately like of the new LED light.

Monitor also depends on your preferences. Some companies stated that you need a medical monitor for office procedures. It is clear that your office is not an operating theatre, there are no gases. You do not need a high grade medical monitor, as long as you do not have a special medical monitor for you PC or laptop in your office. It will be really useful to connect all your machines to a switch device – you can have a picture of your ultrasound, colposcope and hysteroscope on one monitor on the wall, so the
A recording device is essential as we need data for educational purposes and also to protect ourselves from possible patient prosecution after the procedures. Also it is better if the patient has her own copy of the operation – one picture talks more than 10 operative protocols. You can find very interesting things in cases another hysteroscopist found usual. The easiest way is to have a recording program on your laptop, with which you can connect your USB camera. In all other cases use external recording device. On the market there are plenty of them, with prices between 1000 and 5000 USD, as probably MediCap of Medicapture is one of the best known.

The cheapest option is an analog TV tuner with recording software, connected from you camera to a PC – its price is less than 20 USD. Also some doctors prefer to take pictures on a color printer, which is still an option, although a little old-fashioned one. Once again – when you try to combine and connect different devices, pay attention to the possible connection interfaces of the TV. Usually some old model cameras have only analog or S-video output. In that case you would need to find suitable connectors between the camera and the monitor – all possible opportunities are available on the web. Also depending on PAL or NSCT system you can have problems with colors of the picture.

The distension media is important for visualization during the procedures. The most used media is the saline, as it is both cheap and safe. Usually office hysteroscopies are quick and you do not need to count deficit of the media, which must not exceed 2500 ml. If you decide to use an electronic pump, you will have stable pressure during the procedure, which can be changed accordingly to patient reactions of anxiety or pain. The prices for such pumps vary between 500 and 5000 USD for used and new one. Here you need to pay attention on the tubing sets for the pump. Every brand has a different one that is not compatible with another. The new pumps also come with integrated chip in it, it will prompt you to replace the tubing set after a few procedures, which can lead to unexpected costs. I started performing office hysteroscopy procedures with a 3-liter bag under a pressure with a cuff, which is pumped manually. The disadvantage is that you need one additional person to pump constantly, so you cannot rely on your nurse. For office purposes the easiest way is to put the distension bag on 120 cm above patient’s position. With an appropriate diameter of the tube you can achieve sufficient pressure for diagnostic and even small operations procedures.

A recording device is essential as we need data for educational purposes and also to protect ourselves from possible patient prosecution after the procedures. Also it is better if the patient has her own copy of the operation – one picture talks more than 10 operative protocols. You can find very interesting things in cases another hysteroscopist found usual. The easiest way is to have a recording program on your laptop, with which you can connect your USB camera. In all other cases use external recording device. On the market there are plenty of them, with prices between 1000 and 5000 USD, as probably MediCap of Medicapture is one of the best known. The cheapest option is an analog TV tuner with recording software, connected from you camera to a PC – its price is less than 20 USD. Also some doctors prefer to take pictures on a color printer, which is still an option, although a little old-fashioned one. Once again – when you try to combine and connect different devices, pay attention to the possible connections between them – analog, S-video, HDMI, RGB, composite etc.
Hysteroscope is really crucial for the successful office practice. There are a lot of systems on the market, but I think you have to keep in mind 2 magic words – oval shape and less than 5.5 mm. Oval shape of the sheath is anatomically acceptable and causes less pain. You can use it as a screw during the procedure and dilate the cervical canal in nulliparous or postmenopausal women. About the 5.5 mm – that is the cut-off of painless hysteroscope diameter. You can use Versascope with fiber optical 1.8 mm semi rigid body, with single use sheath with total diameter 3.2 mm. Or old Bettocchi system with 2.9 mm optics without outer sheath with total diameter of 4.2 mm.

All of these systems have their advantages and disadvantages, but you must know them when you try to choose the perfect one for your practice. It is not necessary to discover the hot water, just ask the experts during workshops and congresses or even on discussion groups in Internet, everyone will share its experience and you will have enough information to take the right decision.

In brief I can summarize that everything depends on what you want and what kind of procedures you plan to perform, taking into account the number of patients and the type of financing /healthcare insurance, selfpayment/. All information discussed above is according to author’s personal experience. Probably there are so many other good devices and equipment, and every doctor can find the best solution for himself. But the idea is that you need to face your desires what you want to do, to discuss your wishes with more people and experienced colleagues and accordingly to build your own “best office hysteroscopy system”.

Or the new BIOH hysteroscope with small diameter, which cannot give you the inflow and outflow at the same time. Built-in Compact Office Hysteroscope of Richard Wolf has all advantages of office hysteroscopes. The only important thing to count in the two last hysteroscopes is that after every procedure the system must be sterilized. If your practice is too busy, but you plan to have mainly diagnostic procedures even a single use Gynko of MedicalSwan Italia sheath on 2.9 mm 30 or 0 degrees hysteroscope, with total diameter of 3.2 mm and working channel for 7 FR instrument is a solution. Just attention must be paid to the fact that the small diameter of Gynco cannot protect fully the optics which could cause damage to it during procedure. And if a bleeding occurs the visualization of the cavity is worse.
How to avoid complications of hysteroscopy
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Hysteroscopic surgical techniques have advanced to include more endometrial ablation devices, bipolar electrosurgery, hysteroscopic sterilization, and morcellators. As residents complete simulation training programs and learn to become hysteroscopic surgeons, it is important to follow safety tips at each step of the surgery. Hysteroscopy procedures involve the introduction of instruments into the uterus and distention with fluid media.

There are particular risks that surgeons must be aware of. The most common perioperative complications associated with operative hysteroscopy are hemorrhage (2.4%), uterine perforation, (1.5%), and cervical laceration. Other complications include fluid overload, visceral injury, infection, air embolism, and rarely death.

The following are a list of safety tips:

1. **Appropriate patient preparation** involves proper positioning to avoid nerve injury. Care should always be taken since the OR time may be longer than expected.

2. For difficult cases such as Asherman syndrome or large type II submucosal myomas, combined **synchronous laparoscopic control or ultrasound guidance** may be considered to decrease the risk of perforation and visceral injury.

3. Prior to initiating the surgical procedure, all hysteroscopic equipment should be connected to light sources, suction, and fluid irrigation. **It should be tested to ensure it is working appropriately** prior to starting the procedure. Backup equipment should be available if technical difficulties occur on the day of surgery.

4. During the initial portion of the procedure adequate visualization of the cervix should be obtained. Hysteroscopic dilation of the cervix using the scope and hydrodistension is ideal. If cervical dilation is needed, it is important to **only dilate the cervix and not advance the dilator all the way to the fundus** to avoid perforation and trauma to the endometrial cavity that will affect visualization. Often in postmenopausal patients, the uterine depth will be small, and perforation could even occur during dilation.
5. In order to avoid air embolism, preventative strategies including flushing air from tubing and making sure that the procedure is stopped and tubing is purged of air when bags are changed. In addition the patient should not be placed in the Trendelenburg position during cervical dilation or during the procedure in order to avoid a suction that may draw air into the uterine cavity. If there is a sudden cardiovascular collapse immediate management should be initiated for an air or CO2 emboli.

6. Care should be taken while inserting the hysteroscope into the uterine cavity to assure that a false tract in the cervical canal has not been made. If one proceeds to close to the depth of sounding without visualization of the cavity this should be considered, with re-attempts to gain entry into the uterine cavity.

7. Hemorrhage may occur during hysteroscopic surgery and can be controlled with electrosurgical coagulation if the bleeding site can be visualized. Other strategies include injection of vasopressin into the cervical stroma or Foley catheter balloon tamponade.

8. Monitor fluid intake to avoid fluid overload. Complications may be prevented by limiting excess fluid absorption, keeping track of ins and outs, and selecting a distending medium such as saline that minimizes risks in healthy patient's using isotonic solutions. A maximal fluid deficit of 2500 mL is acceptable in a young healthy patient, but is 1000 mL for hypotonic solution such as glycine. The fluid deficit should be limited in older patients or patients with heart failure or renal insufficiency.

9. A preoperative pelvic exam should be completed by the clinician to determine uterine position. Ultrasound guidance may be useful to avoid uterine perforation. If the hysteroscope is inserted and the uterus is unable to be distended at any point during the procedure it is possible there is a uterine perforation. At this point the case should be stopped and reassessed. Laparoscopy may be needed and useful to determine the extent of damage.

10. It is important that if any new devices are used for hysteroscopy that the entire surgical team has been trained and is aware of their use ahead of time. This could include new morcellators or electrosurgical devices.

If one follows these general safety tips and consideration it will ensure an emphasis on patient safety and continuous audit of new techniques or technologies. Remember it is always appropriate to select cases carefully and practice using simulation. There should be patient and surgical team preparation before entering the operating room. One should be familiar with the equipment and distention media in order to maximize patient care.
Dramatic progress in Hysteroscopy
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Hysteroscopy is a rapidly developing field of gynecologic practice, progressing from an inpatient to an outpatient procedure. Today hysteroscopy is the gold standard for evaluation of the endometrial cavity with more accuracy than blind methods, and gives the possibility to more accurately diagnose uterine abnormalities in patients presenting with pre or postmenopausal uterine bleeding, intermenstrual spotting, or infertility [1].

It took more than a hundred years since the first time hysteroscopy was performed in 1869 by D&C. Pantaleoni. He used a device similar to a cystoscope. In 60-year-old woman it was found an endometrial polyp, which probably caused uterine bleeding [2].

Subsequently technological part has been modified significantly with dramatic improvement of examination conditions (preliminary removal of blood from the uterus, stretching of the walls of the uterus with distention media). A new era came after the introduction into medical practice portable optics and optics with rigid lens systems and later introduction of video camera, improvements of lighting possibilities.

The introduction of electrosurgery in hysteroscopy has created a new surgical areas unknown before. Today a big number of surgical procedures are carried out by means of hysteroscopy avoiding laparotomy and sometimes hysterectomy [3].

The advent of small-sized instrumentation with a final diameter of <5 mm turn hysteroscopy into a safe and more comfortable intervention and permit it be performed as an office procedure without anesthesia. In 1997, Bettocchi et al developed the “vaginoscopic approach” or “no-touch technique” for the atraumatic insertion of the hysteroscope into the external uterine orifice, without the aid of the speculum or the tenaculum, introducing the scope directly into the vaginal canal. This method reduces patient discomfort and allows the performance of endoscopic examination even in nulliparous patients or in postmenopausal women who have severe vaginal atrophy or stenosis [4-8]. In fact, the miniaturization of the instruments effectively reduces the difficulties both for the operator and for the patient, allowing even less skilled gynecologists to perform office hysteroscopy. Moreover, it has been demonstrated that a smaller hysteroscope size makes its introduction easier and less painful compared with conventional ones [3, 9, 10].

One of the small hysteroscopes is a thin 3.2-mm semi-rigid mini-hysteroscope (Versascope, Ethicon Inc., Somerville, NJ, USA) with a disposable sheath and 1.9-mm fibre optic (Alphascope). Another one is CAMPO TROPHYSCOPE 2,9 mm thin with the Office Continuous Flow Operative Sheath 4.4 mm, Karl Storz. Innovative feature of the last one are sheaths with gliding mechanism: primary approach to uterine cavity with 2.9 mm outer diameter and than intraoperative changeover from single-flow to continuous-flow and operating sheath. The operative procedure is facilitated by 7-Fr or 5-Fr mechanical instruments, which is compatible with a 5-Fr bipolar electrode [11].
Additionally, to decreasing of scopes caliber there are new mechanical and bipolar instruments been developed these days. Some data showed high efficacy and tolerability of new instruments for outpatient operative hysteroscopy. In one study the outpatient polypectomy was associated with a success rate of 95%.

Other outcomes such as discomfort after the procedure, time away from home, analgesia requirements, description and satisfaction of the procedure were all in favour of the outpatient setting. Further, patients in the outpatient group recovered faster [12].

Recently even more portable devices of office hysteroscopy have been introduced to the market. One of these is EndoSee device (CooperSurgical, Trumbull, CT, USA). The EndoSee Hysteroscope is a lightweight, handheld, battery operated portable system. It is used with a single-use Disposable Diagnostic (Dx) Cannula with a camera and light source at the distal end to illuminate the area for visualization and image and video capture. The video signal is electronically transferred to the main body of the hysteroscope via an electrical connector. An LCD touch screen display monitor on the hysteroscope is used for viewing [1].

At present, conventional hysteroscopic resection can be considered the gold standard procedure for major hysteroscopic operations. Despite well-recognized advantages of resection, several problems, such as fluid overload, uterine perforation due to electric current, lack of visualization and need of removal of resected fragments resulting in a time-consuming procedure, thermal damage to endometrium with permanent detrimental effects on future fertility and relatively long learning curve, remain still unsolved. Invention of mechanical hysteroscopic morcellators has made a great improvement in management polyps and myomas. Hysteroscopic morcellator was developed to reduce problems mentioned above and decrease an operative time comparing with traditional approach. Hysteroscopic mechanical morcellation allows removal of the tissue automatically during hysteroscopic resection and leads to a reduced operating time. There is evidence that the learning curve for use of the hysteroscopic morcellator is shorter than for conventional monopolar resectoscope in relative novices [11].

Hysteroscopy has become an important tool to evaluate intrauterine pathology including endometrial polyp, submucous myoma, intrauterine adhesions and uterine anomaly. In most cases, the diagnosis and treatment of these lesions can be performed in the office or outpatient setting without need for anesthesia. Smaller, more portable systems are now able to provide good views and with image storage facilities. As a consequence, a single room can be used for various purposes, providing more opportunity for the development of outpatient facilities for ambulatory gynecology.

Hysteroscopy Newsletter is an opened forum to all professionals who want to contribute with their knowledge and even share their doubts with a world-wide gynecological community.