Office Hysteroscopy using Saline as a Distending Medium: A Practical Approach

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The most important requirement for successful hysteroscopy is satisfactory distension of the uterus. While many different media have been used, recent advances in equipment have greatly simplified the use of saline for diagnostic and simple operative hysteroscopy that does not require the use of electrosurgical instruments.

In an office or outpatient setting, a distension medium should not require expensive equipment, should be simple to use, and should allow the use of small-diameter hysteroscopes that are easy to maintain. In addition, the distension medium should allow clear vision even in the presence of blood in the endometrial cavity. I have found that the use of normal saline meets all of these requirements. In addition, the total amount of fluid required is small enough that there is essentially no risk of fluid overload even if it is completely absorbed.

Do I use other distending media? Absolutely. I still frequently use carbon dioxide in the office if there is no bleeding present, and I am reasonably sure that I be doing just diagnostic hysteroscopy. The technique of carbon dioxide hysteroscopy is far more difficult to master, however, and requires the use of an insufflator. If CO2 escapes into the abdomen through the fallopian tubes it can cause annoying shoulder pain. Blood in the endometrial cavity obscures the view. Unless the technique of CO2 hysteroscopy is already mastered and the insufflator already in place, I suggest that saline hysteroscopy is much easier to learn, and less expensive to set up.

What is needed to set up for hysteroscopy with saline?

Much of the setup is the same as that for any endoscopic procedure. A light source is required. Although a video camera is not essential, inexpensive cameras designed for office use are available, and allow the patient and staff to see as well as the physician. A sterile tray with standard supplies including a speculum, a tenaculum and small dilators is needed. Although hysteroscopy can be done without any anesthesia, I do a paracervical block in everyone to make the procedure as comfortable as possible. Needle extenders are available so that a 25 gauge needle can be used, making the block virtually painless.

I use saline in 1-liter bags. Although frequently less than a liter is needed for diagnostic hysteroscopy, I see no advantage in having less fluid available. In the operating room, where I do major hysteroscopic procedures, fluid absorption is a real concern. Office procedures, and simple procedures such as the removal of a polyp are brief, and therefore I am not concerned about overload since I am using a liter or less of fluid. When fluid absorption is a concern, I use large bore tubing and gravity to supply the distending media, and use the height of the bags to regulate pressure. Some of the small diameter sheaths have narrow fluid channels, and more pressure is needed to provide good distension. For this reason, I have found the simplest method is to use standard IV tubing, and place the bag of saline in a pressure cuff. The pressure on the cuff is set to 150 to 200 mmHg. This is higher than should be usually used for operative hysteroscopy with larger instruments or a resectoscope, but is safe to use when the amount of fluid is limited as described.

What kind of hysteroscopes can I use with saline?

There are a number of hysteroscopes that can be used. The optics of the hysteroscopes have improved dramatically, so that smaller diameter scopes give large, bright images. Smaller scopes are more fragile, so that extra care must be taken not to bend them while doing hysteroscopy or cleaning them. I now use a 2.7-mm diameter hysteroscope for much of my diagnostic hysteroscopy. This telescope is available with a single channel sheath that is 3-mm in diameter, and a flow-through
diagnostic sheath that is 5-mm in diameter. Typically a flow through design is used when using a liquid distension medium. I frequently will use a single channel sheath with the 2.7-mm hysteroscope, however, and allow the fluid to leave the uterus through the cervix by leaking around the sheath. This technique allows the use of a smaller diameter sheath than the flow through sheath, and usually does not require any cervical dilation.

An operative sheath is also available for the 2.7-mm hysteroscope, to allow the introduction of hysteroscopic instruments such as scissors, biopsy forceps and graspers. I prefer to use the hooked biopsy forceps to sever the base of polyps. The "cup" biopsy forceps provide a better grasp of polyps than do the "grasping" forceps.

To summarize, all that is needed to get started with the above system is a light source, a telescope, and one or more sheaths. Accessory instruments can be added later.

Another instrument, however, has revolutionized the way I do office hysteroscopy. The compact operative hysteroscope is a complete system. It is only 5-mm in diameter, and does not require the use of a sheath, as it has three built in channels. Two small channels allow the inflow and egress of distending media, and the third, which is 5-F in diameter, allows the insertion of operative instruments. This eliminates the need to change sheaths, or start with a larger diameter operative sheath, when anticipating the need to remove polyps, cut adhesions, or do biopsies under direct vision.

Since the channels for fluid are small, I recommend the use of a pressure cuff for saline, and suction (I have a small portable suction unit) applied to the outflow port. This provides a clear field of view, even in the presence of small to moderate amounts of blood. If there are large clots in the uterus, often they will be rinsed out by simply removing the hysteroscope and allowing the distending fluid to escape. I large clots persist, they can be removed by a suction curettage. Adequate distending pressure will keep bleeding under control while hysteroscopy is being carried out.

**Step by step: how I do diagnostic hysteroscopy in the office using saline.**

1. Patients are given an NSAID, such as naproxen sodium, to take one hour before the hysteroscopy.
2. Most patients do not require any sedation or additional analgesia. If I anticipate a longer operative procedure, or if the patient is unusually apprehensive, I will use IV fentanyl, limited to 0.1-mg.
3. A standard GYN exam table is used. A trash can liner is placed under the patient’s buttocks to collect any fluid. I wear a cystoscopy apron.
4. A bivalve speculum is placed in the vagina, and a paracervical block is slowly given in four quadrants of the cervix with 10-ml of buffered lidocaine through a 25-g needle. Since the concept of the injection can be frightening, the medical assistant and I distract the patient with conversation to focus her attention away from what I am doing. I do let her know she may feel a “little pinching,” which is far less anxiety provoking than “a shot in your cervix.”
5. A tenaculum is placed on the cervix, which is painless because of the paracervical block.
6. It is usually not necessary to dilate the cervix if the 2.7-mm hysteroscope is used with the diagnostic sheath. If a larger sheath is being used, I prefer to gently pass a 13F dilator *just through the internal os* before inserting the hysteroscope.
7. The hysteroscope is inserted through the cervix under direct vision. If vision is lost, the hysteroscope is withdrawn slightly, and reinserted.
8. The hysteroscope is removed. A suction curettage can be done at this time, if indicated.

**Additional steps if operative hysteroscopy is required**

1. If the compact operative hysteroscope is being used for diagnosis, it is only necessary to insert the instrument, such as a biopsy forceps, through the operative channel. If I suspect (usually on the basis of ultrasound) that I will need to remove a polyp or do some form of operative hysteroscopy, I will place the instrument I expect to use in the operative channel *before* I start the diagnostic hysteroscopy, so it is ready to use as soon as the hysteroscope is in the uterus.
2. If a standard telescope with a diagnostic sheath has been used for diagnostic hysteroscopy, the hysteroscope is removed from the uterus, and the diagnostic sheath replaced with an operative sheath.
3. If I am using a sheath without an operative channel for diagnostic hysteroscopy, and I see some polyps that are attached to the sidewalls of the uterus, I frequently will do a suction
curettage, and immediately reinspect the endometrial cavity. (The hysteroscope should be reinserted quickly so the endometrial cavity does not fill with blood.) Many time it can be seen that the polyps have been removed. If not, then I will proceed to remove them under direct vision using hysteroscopic instruments.

**Frequently asked questions:**

**Doesn't saline enhanced sonography replace hysteroscopy?**

Vaginal probe ultrasound provides valuable information. While the introduction of saline into the endometrial cavity enhances the visualization on ultrasound, I personally find that standard ultrasonography done in conjunction with hysteroscopy has a number of advantages. If I am going to go to the trouble of introducing something into the uterus, it is usually just as easy to introduce a hysteroscope, and actually see the endometrial cavity. While a saline enhanced sonogram has a low false negative rate, the procedure cannot obtain a sample or treat pathology. I can do saline hysteroscopy in about the same amount of time it takes to do the enhanced sonogram. In addition, I can remove most polyps and obtain an endometrial sample. In addition, intrauterine adhesions can be more easily diagnosed by hysteroscopy, as can adenomyosis at times.

**What are the risks of hysteroscopy?**

The risks of diagnostic hysteroscopy are quite low. Infection is uncommon, as is perforation. One should be certain to rule out pelvic infection and pregnancy before doing hysteroscopy.

**What shouldn't I do in the office?**

Large polyps, and submucous myomas are more effectively removed with a resectoscope. This is usually beyond the scope of an office setting. The gynecologist should be able to handle any medical problems that may arise during the procedure, so women with major cardiac or other problems may be better served by having an anesthesiologist present in an operating room setting.

**Why would I want to do hysteroscopy in my office?**

Even in the era of "managed" care, I find that I can do office hysteroscopy far more efficiently in the office. I am not at the mercy of an OR schedule. I find that most insurance companies reimburse for a surgical tray and supplies. In addition, patients view office hysteroscopy as a diagnostic examination, rather than an "operation". When given the choice, almost every patient prefers to have hysteroscopy in the office rather than an operating room.

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