

Role of Hysteroscopy in Infertility Assessment

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Hysteroscopy is a valuable diagnostic and therapeutic modality in the management of infertility.

The role of hysteroscopy in infertility has been changing as its capabilities are increased while other diagnostic modalities has been replaced from its former uses.

Traditionally, hysteroscopy has been utilized for diagnostic and operative intervention for many reasons such as endometrial polyps, submucous myomas, intrauterine adhesions, and uterine septum [1-5].

It is also useful for the diagnosis of most congenital anomalies and evaluation of endocervical anatomy.

The hysterosalpingogram has been the most useful method of evaluation as the initial screening test. Because of the high false-positive yield of the hysterosalpingogram, hysteroscopy became a valuable adjunct in the evaluation of patients with abnormal hysterosgrams, permitting an accurate diagnosis and sometimes direct treatment [6].

Hysteroscopy is used as a therapeutic method in many conditions that may affect fertility, such as symptomatic uterine septum, intrauterine adhesions, endometrial polyps, submucous leiomyomas, and cornual fallopian tube occlusion. On occasions, the visualization of the bubbles being sucked into the tubal ostia, aid in the assessment for tubal patency evaluation.

Hysteroscopy offers an excellent method of evaluation and therapy, particularly in patients who have undergone intrauterine surgery, such as for intrauterine adhesions, uterine septa, and submucous myomectomy, or when symptoms, such as abnormal bleeding, pain, or dysmenorrhea persists.

To perform panoramic hysteroscopy, the uterine cavity, a virtual cavity, should be expanded with an appropriate distending medium. Because of the thickness and resistance of the uterine walls, distention requires positive pressure.

Most diagnostic hysteroscopes of less than 5-mm optical diameter (OD), do not provide adjacent channels for operations, and are strictly for diagnostic use [7,8]

However, continuous flow systems have been successfully adapted to small-caliber hysteroscopes, allowing the use of liquid media to be used, permitting the performance of some minor surgical procedures.

The operative hysteroscopes are larger and usually have a 7- to 8-mm OD and a 7-French operating channel to introduce instrumentation, usually of the semi-rigid type.

Hysteroscopy can be performed using larger operative hysteroscopes (7-mm OD) under local anesthesia; in selected patients, however, with a paracervical block, the need for cervical dilatation requires a larger amount of anesthetic to be infiltrated superficially in the paracervical areas (base of the uterosacral ligaments) with 8 to 10 mL of local anesthetic.

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The procedures performed should be expedited and confined to minor surgical procedures.

Extensive dissections or procedures using the resectoscope are better performed under regional, spinal, or general anesthesia.

The resectoscope provides inflow and outflow channels by a mechanism of assembling two concentric sheaths of 8- to 9-mm OD.

The resectoscope permits the use of electrodes such as the loop to resect, or the rollerball or rollerbar to coagulate; additionally, electrical knives are available to cut thick structures, such as uterine septa or adhesions.

Hysteroscopic shavers/morcellators are new addition to the available options to treat some polyps and myomas. Several types are available using mechanical cutting with suctioning of the removed tissues. However they offer no electrical/ coagulation option to stop bleeding if needed. Several studies compared it to electro-surgical resection with variable results [9].

Office Procedures are increasingly used for some minor cases. Because cervical dilatation is avoided, minimal or no anesthesia is required to perform hysteroscopic procedures in an office setting.

Major barriers to successful office hysteroscopy include pain, cervical stenosis, and poor visualization of the cervix [10].

Therefore, preoperative patient selection and counseling are very important.

Poor candidates for office hysteroscopy include patients who have cervical stenosis, high levels of anxiety, comorbidities, limited mobility, or significant uterine pathology requiring operative procedures.

Office hysteroscopy should be brief and usually consists of either diagnostic or minor operative procedures [11-14].

Off-label administration of oral or intravaginal prostaglandin (misoprostol, 200-400 micrograms) the night before surgery, preoperative administration of nonsteroidal anti-inflammatory

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medications or anti anxiety medications, Para cervical anesthetic block, the use of narrow-caliber hysteroscopes (less than 5 mm in diameter) and flexible hysteroscopes, and assistance of a dedicated office staff may facilitate these procedures [4,10].

Therefore, paracervical block anesthesia with 3-4 mL of a local anesthetic, such as chloroprocaine hydrochloride 1% (Nesacaine), will be sufficient to abolish any discomfort for the patient.

In these cases, the need for analgesia is also markedly reduced.

Infertility workup includes so many evaluations and assessments. Uterine factors account for less than 10% of all infertility cases [15].

The main indication for hysteroscopy in infertile patients is the abnormal or ambiguous hysteroqram.

It adds accuracy and precision in the evaluation of uterine cavity and endocervical canal, ruling out factors that may affect fertility.

Hysteroscopy for infertility (indications):

1. Abnormal hysterosalpingogram
2. Abnormal uterine bleeding
3. Suspected intrauterine pathology
4. Uterine anomalies
5. Unexplained infertility
6. Recurrent Pregnancy Loss

The European Society of Human Reproduction and Embryology (ESHRE), indicated that endometrial scratching appears to increase the chance of a pregnancy for couples trying to conceive naturally or with Intrauterine Insemination (IUI) [16,17].

The review examined eight trials, totaling over 1000 women. Several studies seemed to find some benefit of hysteroscopy after an IVF cycle had failed.

Some experts routinely performed the procedure on every woman before beginning IVF treatment, believing that removing polyps or scar tissue before starting IVF gave the treatment a better chance to succeed [18].

However, a large randomized study conducted in Europe found no significant difference in IVF success rates between those who had hysteroscopy before IVF and those who did not [19].

Hysteroscopic removal of polyps in women with unexplained infertility may increase their chances of becoming pregnant [1].

Two studies address the importance of the morphological evaluation of the uterus through assessment of the effect of office hysteroscopy on IVF outcomes in women undergoing IVF for the first time and in women with recurrent implantation failure [20].

The first study; Hysteroscopy before in-vitro fertilization (inSIGHT): a multicenter, randomized controlled trial.

Between May 25, 2011, and Aug 27, 2013, they randomly assigned 750 women to receive either hysteroscopy (n=373) or immediate IVF (n=377) [22].

They concluded that routine hysteroscopy does not improve livebirth rates in infertile women with a normal transvaginal ultrasound of the uterine cavity scheduled for a first IVF treatment. Also that Women with a normal transvaginal ultrasound should not be offered routine hysteroscopy.

The other study; Hysteroscopy in recurrent in-vitro fertilization failure (TROPHY): a multicenter, randomized controlled trial.

Between Jan 1, 2010, and Dec 31, 2013, they randomly assigned 350 women to the hysteroscopy group and 352 women to the control group.

They concluded that outpatient hysteroscopy before IVF in women with a normal ultrasound of the uterine cavity and a history of unsuccessful IVF treatment cycles does not improve the livebirth rate.

They also concluded that further research into the effectiveness of surgical correction of specific uterine cavity abnormalities before IVF is warranted.

From all the former we can conclude that:

1. Hysteroscopy is considered the gold standard for evaluating the uterine cavity, and due to improved endoscopic developments, can be performed reliably and safely as an office procedure.
2. Hysteroscopy can diagnose much more precisely, compared with HSG and even transvaginal ultrasonography, small intrauterine lesions that might affect fertility.
3. Although it has not been proven, Hysteroscopy might be beneficial on some infertility cases.
4. Hysteroscopy is helpful not only for diagnosing problems but also in definitive treatment of fertility related problems.
5. Although hysteroscopy is frequently used in the management of sub-fertile women, a systematic review of the evidence on this subject is lacking.

Competing Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. Bossteels J, Kasius J, Weyers S, Broekmans FJ, Mol BJ, et al. (2013) Hysteroscopy for treating subfertility associated with suspected major uterine cavity abnormalities. *Cochrane Database Syst Rev*.
2. Mohr J, Lindemann HJ (1977) Hysteroscopy in the infertile patient. *J Reprod Med* 19: 161.
3. Valle RF (1980) Hysteroscopy in the evaluation of female infertility. *Am J ObstetGynecol* 137: 425-431.
4. Shalev J, Meizner I, Bar-Hava I, Dicker D, Mashiach R, et al. (2000) Predictive value of transvaginal sonography performed before routine diagnostic hysteroscopy for evaluation of infertility. *Fertil Steril* 73: 412-417.
5. Bossteels J, Kasius J, Weyers S, Broekmans FJ, Mol BW, et al. (2015) Hysteroscopy for treating subfertility associated with suspected major uterine cavity abnormalities. *Cochrane Database Syst Rev* 21: CD009461.
6. Prevedourakis C, Loutradis D, Kalianidis C, Makris N, Aravantinos D, et al. (1994) Hysterosalpingography and hysteroscopy in female infertility. *Hum Reprod* 9: 2353-2355.
7. Campo R, Van Belle Y, Rombauts L, Brosens I, Gordts S, et al. (1999) Office mini-hysteroscopy. *Hum Reprod Update* 5: 73- 81.
8. Donnez J, Jadoul P (2002) What are the implications of myomas on infertility? A need for debate? *Hum Reprod* 17: 1424- 1430.

9. Shokeir TA, Shalan HM, El-Shafei MM (2004) Significance of endometrial polyps detected hysteroscopically in eumenorrheic infertile women. *J ObstetGynaecol Res* 30: 84- 89.
10. Bosteels J, Kasius J, Weyers S, Broekmans FJ, Mol BW, et al. (2015) Hysteroscopy for treating subfertility associated with suspected major uterine cavity abnormalities. *Cochrane Database Syst Rev* 21: CD009461.
11. Crane JM, Healey S (2006) Use of misoprostol before hysteroscopy: a systematic review. *J Obstet Gynaecol Can* 28: 373-379.
12. Readman E, Maher PJ (2004) Pain relief and outpatient hysteroscopy: a literature review. *J Am Assoc Gynecol Laparosc* 11: 315-319.
13. Smit JG, Kasius JC, Eijkemans MJC, Koks CAM, van Golde R et al. (2016) Hysteroscopy before in-vitro fertilisation (inSIGHT): a multicentre, randomised controlled trial. *Lancet* 387: 2622-2629.
14. El-Toukhy T, Campo R, Khalaf Y, Tabanelli C, Gianaroli L, et al. (2016) Hysteroscopy in recurrent in vitro fertilisation failure (TROPHY): a multicentre, randomised controlled trial. *Lancet* 387: 2614-2621.
15. Fatemi HM, Kasius JC, Timmermans A, van Disseldorp J, Fauser BC, et al. (2010) Prevalence of unsuspected uterine cavity abnormalities diagnosed by office hysteroscopy prior to in vitro fertilization. *Hum Reprod* 25: 1959-1965.
16. Kilic Y, Bastu E, Ergun B (2013) Validity and efficacy of office hysteroscopy before in vitro fertilization treatment. *Arch Gynecol Obstet* 287: 577-581.
17. Shokeir T (2018) Regarding "Accuracy of Tubal Patency Assessment during Diagnostic Hysteroscopy Compared with Laparoscopy in Infertile Women: A Retrospective Cohort Study". *J Minim Invasive Gynecol* 25: 542.
18. Promberger R, Simek IM, Nouri K, Obermaier K, Kurz C, et al (2017) Accuracy of Tubal Patency Assessment in Diagnostic Hysteroscopy Compared with Laparoscopy in Infertile Women: A Retrospective Cohort Study. *J Minim Invasive Gynecol* 25: 794-799.
19. Vilos GA (1999) Intrauterine surgery using a new coaxial bipolar electrode in normal saline solution (Versapoint): a pilot study. *Fertil Steril* 72: 740-743.
20. Kung RC, Vilos GA, Thomas B, Penkin P, Zaltz AP, et al. (1999) A new bipolar system for performing operative hysteroscopy in normal saline. *J Am Assoc Gynecol Laparosc* 6: 331-336.
21. Van Dongen H, Emanuel MH, Wolterbeek R, Trimbos J, Jansen FW, et al. (2008) Hysteroscopic morcellator for removal of intrauterine polyps and myomas: a randomized controlled pilot study among residents in training. *J Minim Invasive Gynecol* 15: 466-471.
22. AlHilli MM, Nixon KE, Hopkins MR, Weaver AL, Laughlin-Tommaso SK, et al. (2013) Long-term outcomes after intrauterine morcellation vs hysteroscopic resection of endometrial polyps. *J Minim Invasive Gynecol* 20: 215-221.