

# The Place of Diagnostic Hysteroscopy Before Ivf (Review of the Literature)

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**Abstract:** *Diagnostic hysteroscopy is an examination that evaluates the cervico-isthmic process, endometrium, uterine cavity, and tubal orifices. It is a rapid, minimally invasive, outpatient examination. In this work, we will see successively what are the advantages of hysteroscopy compared to hystero-graphy and hysterosonography, what are the pathologies encountered and what is the place of hysteroscopy in an in vitro fertilization (IVF) program. Today, it seems logical to systematically propose a hysteroscopy before any IVF attempt. There are many arguments in favor of this attitude. The rate of abnormalities detected at hysteroscopy in patients who are going to participate in an IVF program is significant and is between 30 and 45%. These abnormalities are responsible for transfer failures, once treated; the results obtained on fertility are identical to those obtained in patients with normal hysteroscopy. Finally, it informs the person who will perform the transfer about the appearance and the course of the duct. Thus, hysteroscopy is a quick, non-invasive and inexpensive examination, whereas IVF is a cumbersome, invasive and expensive procedure.*

**Keywords:** Diagnostic Hysteroscopy , Ivf, Review Of The Literature .

## INTRODUCTION

Diagnostic hysteroscopy is an examination that evaluates the cervico-isthmus canal, the endometrium, the uterine cavity and the tubal orifices.

It is a rapid, minimally invasive, outpatient examination.

In this work, we will see successively what are the advantages of hysteroscopy compared to hystero-graphy and hysterosonography, what are the pathologies encountered and what is the place of hysteroscopy in an in vitro fertilization (IVF) program.

## Place of hysteroscopy in the exploration of the uterine cavity:

It is important to explore the uterine cavity in the assessment of infertility, because many intrauterine lesions can be found. [1] Currently, there are three examinations that allow correct evaluation of the uterine cavity: hysteroscopy, hystero-graphy and ultrasound with hysterosonography.

Hystero-graphy is an essential examination in the assessment of infertility because it allows visualization of the genital tract from the cervical canal to the tubal pinna with an excellent assessment of tubal permeability.

On the other hand, as far as the uterine cavity is concerned, hystero-graphy is less efficient than hysteroscopy for the diagnosis of intra-uterine lesions (polyps, submucosal fibroids, synechiae). Numerous comparative studies have shown the existence of false positives and false negatives of hystero-graphy when systematic hysteroscopy is performed. False positive rates range from 13 to 30% and false negative rates from 8 to 35% [2, 3, 4]. [2, 3, 4] Hystero-graphy is reported to have a positive predictive value of 45-70% with a negative predictive value of 80-95%. [2, 3, 4] The concordance between the two examinations is about 75%. [3] The interest of hystero-graphy in endometrial pathology (endometrial hyperplasia, endometritis) compared to hysteroscopy is very limited. Hysteroscopy seems to be very efficient in the evaluation of the uterine cavity. Indeed, the sensitivity, specificity, positive and negative predictive values are respectively between 84 and 100%, 96 and 98%, 75 and 98%, 89 and 100% [6, 7, 8, 9] for the diagnosis of intra-uterine lesions (polyps, submucosal fibroids, synechiae) and endometrial pathologies (endometrial hyperplasia, endometritis). The extreme values corresponding to each type of lesion found in the literature [6, 7, 8, 9] are shown in Table 1.

The greatest variation concerns the diagnosis of synechia. This significant variation highlights the operator-dependent nature of this examination.

Endovaginal ultrasound allows evaluation of all the pelvic organs and more particularly the myometrium and uterine cavity.

## COMPARAISON HSG / ECHO / HSC

Myometrial, endometrial, and tubal abnormalities detected by each modality (*N* = 55)

Category	TVS	HSG	HSC	Statistical significance
<b>Myometrium</b>				
Fibroids	17 (31 %)	6	4	$p < .0001$ (TVS vs HSC)
Adenomyosis	6 (11 %)	0	0	
<b>Endometrium</b>				
Polyps	1	2	10	$p = .0001$ (HSC vs TVS) $p = .0007$ (HSC vs HSG)
Cysts	1	0	0	
Cavity distortion	0	4	2	
Nonspecific asymmetry	0	2	1	
<b>Tubes</b>				
Total Obstructed	6	19 (35 %)	5	$<0.0001$ (HSG vs HSC)
Unilateral	6	16	5	
Bilateral	0	3	0	
Anomalies	0	1	31	

### Place of hysteroscopy before in vitro fertilization :

For many years, hysteroscopy was performed in the absence of a progressive pregnancy after two IVF attempts. [10] Today, it seems logical to systematically propose a hysteroscopy before any IVF attempt. [11] There are many arguments in favour of this attitude. The rate of abnormalities detected at hysteroscopy in patients who are going to participate in an IVF program is significant and is between 0 and 5%. [12, 13]:

5% cervical anomalies

6% arched fundus

6% other intrauterine pathologies

15% endometrial anomalies: hyper-vascularization, hypertrophy, micropolyps.

It is highly probable that these anomalies are responsible for the transfer failures, as their rate is very high in patients who have had at least two transfer failures [10, 13]. [10, 13] When these lesions are treated before any transfer, the results obtained on fertility are identical to those obtained in patients with normal hysteroscopy. [10] Finally, in an observational study of patients with normal hystero-graphy who had diagnostic hysteroscopy before IVF, the pregnancy rate was higher in the normal hysteroscopy group. [14] Hysteroscopy allows the demonstration of abnormalities of the cervico-isthmic canal (stenosis, endocervical polyp, abnormal direction or bayonet-shaped canal). The demonstration of an abnormality of the endocervical canal is important. It helps to explain transfer failures. It informs the person who will perform the transfer about the appearance and the course of the canal. Thus, hysteroscopy is a rapid, non-invasive and inexpensive examination, whereas an IVF attempt is a cumbersome, invasive and expensive procedure.

### CONCLUSION

correct evaluation of the endometrial cavity requires diagnostic hysteroscopy regardless of the results of the other examinations. An operative hysteroscopy is only indicated in case of an abnormality confirmed by the diagnostic hysteroscopy. This diagnostic hysteroscopy can be completed by an endometrial biopsy which will provide additional information on the endometrium (hyperplasia, signs of endometritis, phases of the cycle). The biopsy is performed at the end of the operation, after the hysteroscopy. In case of localized endometrial anomaly, the biopsy will be directed.

**Références :**

- [1] Merviel F, Mergui JL, Samanes S, Antoine JM, Salat-Baroux J, Uzan S. Place de l'hystérocopie dans le diagnostic et le traitement de l'infertilité. *Presse Méd* 2000;29:1302-10.
- [2] Prevedourakis C, Loutradis D, Kalianidis C, Makris N, Aravantinos D. Hysterosalpingography and hysteroscopy in female infertility. *Hum Reprod* 1994;9:2353-5. [3] Preutthipan S, Linasmita V. A prospective study between hysterosalpingography and hysteroscopy in the detection of intrauterine pathology in patients with infertility. *J Obstet Gynaecol Res* 2003;29:33-7.
- [4] Wang CW, Lee CL, Lai YM, Tsai CC, Chang MY, Soong YK. Comparison of hysterosalpingography and hysteroscopy in infertility. *J Am Assoc Gynecol Laparosc* 1996;3:581-4.
- [5] Golan A, Eilat E, Ron-El R, Herman A, Soffer Y, Bukovsky I. Hysteroscopy is superior to hysterosalpingography in infertility investigation. *Acta Obstet Gynecol Scand* 1996;75:654-6.
- [6] Loverro G, Nappi L, Vicino M, Carriero C, Vimercati A, Selvaggi L. Uterine cavity assessment in infertile women: comparison of transvaginal sonography and hysteroscopy. *Eur J Obstet Gynecol Reprod Biol* 2001;100:67-71. [7] Shalev J, Meizner I, Bar-Hava I, Dicker D, Mashiach R, Ben-Rafael Z. Predictive value of transvaginal sonography performed before routine diagnostic hysteroscopy for evaluation of infertility. *Fertil Steril* 2000; 73:412-7. [8] Narayan R, Goswamy RK. Transvaginal sonography of the uterine cavity with hysteroscopic correlation in the investigation of infertility. *Ultrasound Obstet Gynecol* 1993;3:129-33.
- [9] Soares SR, Barbosa dos Reis MM, Camargos AF. Diagnostic accuracy of sonohysterography, transvaginal sonography, and hysterosalpingography in patients with uterine cavity diseases. *Fertil Steril* 2000;73:406-11.
- [10] Schiano A, Jourdain O, Papaxanthos A, Hocke C, Horovitz J, Dallay D. The value of hysteroscopy after repeated implantation failures with in vitro fertilization. *Contracept Fertil Sex* 1999;27:129-32.
- [11] Feghali J, Bakar J, Mayenga JM, Ségard L, Hamou J, Driguez P, et al. Systematic hysteroscopy prior to in vitro fertilization. *Gynecol Obstet Fertil* 2003;31:127-31.
- [12] Seneira P, Maccario S, Visentin L, Di Gregorio A. Hysteroscopy in an IVF-ER program. *Acta Obstet Gynecol Scand* 1988;67:654-6.
- [13] La Sala GB, Dessanti L, Sacchetti F. Hysteroscopy and female sterility: analysis of the results from 213 patients. *Acta Eur Fertil* 1985;16:47-9.
- [14] Shamma FN, Lee G, Gutmann JN, Lavy G. The role of office hysteroscopy in in vitro fertilization. *Fertil Steril* 1992;58:1237-9.