

Office Hysteroscopy in Infertility

Mojghan Barati, M.D.^{1*}, Mahvash Zargar, M.D.¹, Sara Masihi, M.D.², Leila Borzoo, M.D.¹,
Bahman Cheraghian, M.Sc.³

1. Obstetrics and Gynecology Department, Imam Khomayni Hospital, Ahwaz, Iran
2. Obstetrics and Gynecology Department, Razi Hospital, Ahwaz, Iran
3. Abadan Nursing Faculty, Ahwaz Jondi Shapour Medical Sciences University, Abadan, Iran

Abstract

Background: For patients undergoing *in vitro* fertilization, lower pregnancy rates are observed in the presence of uterine cavity anomalies and correction of these anomalies has been associated with improved pregnancy rates. Office hysteroscopy has been proven to have superior sensitivity and specificity in evaluation of the endometrial cavity. Diagnostic hysteroscopy can be performed in an office with minimal discomfort and at a much lower cost than in an operating room. Our study was done to evaluate the importance of office hysteroscopy in diagnosis of pathology in normal appearing infertility work up.

Materials and Methods: This study was performed from September 1, 2006 till September 1, 2008 at Imam Khomayni hospital, Ahwaz, Iran. All infertile patients who had unexplained infertility or uterine factor infertility were enrolled in the study and underwent office hysteroscopy. The participants were divided into two groups. Group one was composed of 54 patients with unexplained infertility and group two was composed of 53 patients with abnormal vaginal sonography or hysterosalpingography.

Results: Of the 54 patients with unexplained infertility; 33 patients (61.2%) had normal and 21 patients (38.8%) had abnormal hysteroscopic findings. Among 53 patients in the uterine factor group, there were 7 women (13.3%) who had a normal hysteroscopy and abnormal sonography or hysteroscopy.

Conclusion: In group one (unexplained infertility), there was a 38.8% positive finding in office hysteroscopy in spite of normal hysterosalpingography and sonography results. Therefore, it seems that office hysteroscopy should be a part of a routine work up in infertile patients.

Keywords: Hysteroscopy, Hysterosalpingography, Infertility, Sonography

Introduction

About 15% of married couples experience infertility (1). For patients undergoing *in vitro* fertilization, lower pregnancy rates are observed in the presence of uterine cavity anomalies (2) and correction of these anomalies has been associated with improved pregnancy rates (3). Therefore, endometrial cavity assessment should be included in the evaluation of infertile couples. Most endometrial pathologies implicated in infertility result in both structural and functional impairments (4). The goal of uterine cavity evaluation is either to obtain a sample of the endometrium (hyperplasia or neoplasia) or to identify structural abnormalities such as polyps, myomas, or uterine septums (5).

Hysteroscopic examination is probably superior to hystero-graphy in evaluating the endometrial cavity (5). Office hysteroscopy has been proven to have superior sensitivity and specificity in evaluating the

endometrial cavity (6). In many practices, diagnostic hysteroscopy is the preferred procedure for the diagnosis of uterine pathology in infertile patients (7). Studies have shown successful rates of 98% to 100% by office hysteroscopic procedures (8). Diagnostic hysteroscopy provides information, which is not obtained by blind endometrial sampling (9), such as the detection of endometrial polyps or submucous leiomyomas (10). For most patients, diagnostic hysteroscopy can be performed in an office or clinic with minimal discomfort and at a much lower cost than in an operating room (11).

In one study the diagnostic value of hystero-graphy and hysteroscopy were compared. Of 79 women with a normal hystero-graphy, 28 women had abnormal hysteroscopic findings (12). Our study was done to evaluate the importance of office hysteroscopy in the diagnosis of pathology in a normal appearing infertility work up.

Received: 16 Mar 2009, Accepted: 27 May 2009

* Corresponding Address: Obstetrics and Gynecology Department-
Imam Khomayni Hospital, Ahwaz, Iran
Email: Brati_m@yahoo.com



Royan Institute
International Journal of Fertility and Sterility
Vol 3, No 1, May-Jun 2009, Pages: 17-20

Materials and Methods

This study was performed from September 1, 2006 till September 1, 2008 at Imam Khomayni hospital, Ahwaz, Iran. All infertile patients who had unexplained infertility or uterine factor infertility signed a consent, were enrolled the study and underwent office hysteroscopy. Ethical committee of Ahwaz Joundi Shapour medical sciences university approved the study. The infertile patients were divided into two groups. Group one was composed of 54 patients with unexplained infertility and group two was composed of 53 patients with abnormal vaginal sonography or hysterosalpingography. History, ovulation and physical exams were normal in group one. Also, semen analysis, endocrinologic work ups, sonography and hysterosalpingography were within normal limits in this group.

Office hysteroscopy was done by touchless technique without the use of a speculum and tenaculum. Each patient was given a non-steroidal anti inflammatory drug (NSAID) and a prophylactic

antibiotic 30 minutes before the procedure. Hysteroscopy was done by STORZ hysteroscope, inner sheet 26153 BI, outer sheet 26153 BO, lens 26120 BA and 30 degree lens. Normal saline was used as distending media.

Office hysteroscopy was done for all cases and findings were reviewed. Hysteroscopic findings were used as a standard reference to calculate sensitivity, specificity, and false positive and negative rates of both sonography and hysterosalpingography.

Results

In this study, 107 women were evaluated. They were 19-48 years old with a mean age of 31 years. The infertility period range was from 2-25 years. There were 71 women with primary and 36 with secondary infertility. Of 54 patients in group one (unexplained infertility), 33 patients (61.2%) had normal results and 21 patients (38.8%) had abnormal hysteroscopic findings. Table 1 shows the abnormal hysteroscopic results in these patients, and polyp was the most common pathologic finding.

Table 1: Abnormal hysteroscopic findings in the unexplained infertility group

Hysteroscopic finding	Number	Percent
Polyp	13	61.9
Asherman's syndrome	3	14.1
Subseptum	2	9.4
Myoma	1	4.7
Uterine small cavity	1	4.7
Internal os stenosis	1	4.7
Total	21	100

Table 2: Comparison of normal hysteroscopy with other results in the uterine factor group

Sonographic report	Hysterographic report	Hysteroscopic report	Number
Normal	Asherman's syndrome	Normal	3
Normal	Filling defect	Normal	2
Polyp	Normal	Normal	2
Total			7

Table3: Comparison of abnormal hysteroscopy with other results in uterine factor group

Sonographic report	Hysterographic report	Hysteroscopic report	Number
Normal	Asherman's syndrome	Polyp	3
Myoma	Normal	Asherman's syndrome	2
Myoma	Filling defect	Asherman's syndrome	1
Normal	Internal os stenosis	Subseptum	1
Polyp	Filling defect	Subseptum	1
Normal	Arcuate uterus	Polyp	1
Total			9

Among 53 patients in group two (uterine factor infertility), there were 7 women (13.3%) who had a normal hysteroscopy and either an abnormal sonography or hystero-graphy (Table 2).

Hysteroscopy was abnormal in the remaining 46 women (86.8%) from this group. In group two, there were 9 cases whose hysteroscopic diagnoses were different from the hysterosalpingographic and/or sonographic diagnoses (Table 3).

Sonographic and hystero-graphic reports were compared with hysteroscopic findings which showed that hystero-graphy had sensitivity, specificity, false negative and false positive results of 48.9%, 87.2%, 51.1% and 12.8%, respectively. Kappa index was measured to be 35% and a $p < 0.001$ was obtained. Sonographic sensitivity, specificity, false negative and false positive results were 48%, 94.4%, 52% and 5.6%, respectively. Kappa index was measured at 38.8% and a $p < 0.001$ was obtained.

Discussion

In group one (unexplained infertility) although the women had normal sonography and hystero-graphy, we found 21 women (38.8%) with abnormal hysteroscopic results. In group two (uterine factor infertility) although they had abnormal sonographic or hystero-graphic results, there were 7 women (13.3%) who had normal hysteroscopic results. There were 9 women (16.6%) with abnormal findings in hysteroscopy which were not coordinated with other reports. Hystero-graphic and sonographic sensitivities were 48.9% and 48%, and false negative rates were 51.1% and 52%, respectively. So, sonography and hystero-graphy were not accurate enough for uterine cavity evaluation. These women were mistakenly treated as women with normal uterine cavity who would probably undergo other unnecessary tests within the infertility workup, while the cause of their infertility might be a missed intra uterine lesion.

One study showed that two thirds of hysteroscopic findings were not correlated with those found on hystero-graphy. It was shown that 54.3% of intra uterine adhesions diagnosed on hystero-graphy were not found on direct hysteroscopic examination (13) which was similar to our study. In another study, the diagnostic value of hystero-graphy and hysteroscopy were compared in female infertility. The results of this study showed that among 79 women who had normal hystero-graphy; 28 women had abnormal findings on hysteroscopy, for a false negative rate of 35.4%. Of 135 women with an abnormal hystero-graphy, hysteroscopy demonstrated a normal uterine cavity in 21 women, a false positive rate of 15.6%. Sensitivity and specificity of

hystero-graphy were 80.3% and 70.1% in revealing intra uterine abnormalities (12). In another study, the most common pathologic finding in women with AUB and normal vaginal sonography was a polyp. Hysteroscopy is one of the best methods to detect polyp in this area (14).

Conclusion

In group one, we had a 38.8% positive finding in office hysteroscopy in spite of a normal hysterosalpingography and sonography. In group two, there was a 13.3% normal office hysteroscopy in spite of abnormal findings of sonography and hystero-graphy. Also, office hysteroscopy is an outpatient and feasible procedure with a high sensitivity to evaluate the uterine cavity. Therefore, it seems that office hysteroscopy should be a part of routine work up in infertile patients.

Acknowledgements

The authors of this article wish to express their thanks to Dr. Varshochi, Ms. Mohamad Moosa and the staff of the obstetrics & gynecology, emergency and medical record departments which assisted us in this research. There was no conflict of interest in this article.

References

1. Isaacson K. Office hysteroscopy; a valuable but under-utilized technique. *Curr Opin Obstet Gynecol.* 2002; 14(4): 381-385.
2. Narayan R, Rajat, Goswamy K. Treatment of submucous fibroids, and outcome of assisted conception. *J Am Assoc Gynecol Laparosc.* 1994; 1(4 Pt 1): 307-311.
3. Mooney SB, Milki AA. Effect of hysteroscopy performed in the cycle preceding controlled ovarian hyperstimulation on the outcome of in vitro fertilization. *Fertil Steril.* 2003; 79(3): 637-638.
4. Alatas C, Aksoy E, Akarsu C. Evaluation of intrauterine abnormalities in infertile patients by sonohystero-graphy. *Hum Reprod.* 1997; 12(3): 487-490.
5. Valle RF. Hysteroscopy in the evaluation of female infertility. *Am J Obstet Gynecol.* 1980; 137(4): 425-431.
6. Fedele L, Bianchi S, Dorta M. Transvaginal ultrasonography versus hysteroscopy in the diagnosis of uterine submucous myomas. *Obstet Gynecol.* 1991; 77(5): 745-748.
7. Wong AY, Wong K, Tang LC. Stepwise pain score analysis of the effect of local lignocaine on outpatient hysteroscopy: a randomized, double-blind, placebo-controlled trial. *Fertil Steril.* 2000; 73(6): 1234-1237.
8. Nagele F, O'Connor H, Davies A. 2500 Outpatient diagnostic hysteroscopies. *Obstet Gynecol.* 1996; 88(1): 87-92.
9. Goldrath MH, Sherman AI. Office hysteroscopy and suction curettage: can we eliminate the hospital diagnostic dilatation and curettage? *Am J Obstet Gynecol.* 1985; 152(2): 220-229.

10. Crescini C, Artuso A, Repetti F. Hysteroscopic diagnosis in patients with abnormal uterine hemorrhage and previous endometrial curettage. *Minerva Ginecol* 1992; 44(5): 233-235.
 11. Wallach EE. The uterine factor in infertility. *Fertil Steril*. 1972; 23(2): 138-158.
 12. Golan A, Eilat E, Ron-El R. Hysteroscopy is superior to hysterosalpingography in infertility investigation. *Acta Obstet Gynecol Scand*. 1996; 75(7): 654-656.
 13. Kessler I, Lancet M. Hysterography and hysteroscopy: a comparison. *Fertil Steril*. 1986; 46(4): 709-710.
 14. Barati M, Masihi S, Moramezi F. Office hysteroscopy in patients with abnormal uterine bleeding and normal transvaginal sonography. *IJFS*. 2008; 1(4): 175-178.
-