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Is hysteroscopy justified in infertile women?

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Abstract---This retrospective study aimed to assess the value of Hysteroscopy (HS) in studying the rate and types of abnormalities found in uterine cavity during evaluation of infertile patients in comparison to hysterosalpingography (HSG). Subject and Methods: this study included 149 infertile women underwent HS for primary & secondary infertility, recurrent abortions and failed IVF cycles at Department of Obstetrics & Gynecology at Zliten teaching Hospital, Misurata center for Diagnosis and treatment of Infertility . Preoperative assessment: history, pelvis evaluation with necessary investigations including ultrasound and HSG. Data were analysed in terms of type & rate of abnormality found, their relation with age and type of infertility including correlation between HSG and HS findings. Results: Abnormalities of uterine cavity were detected in more than half of the patients studied (59%), significantly more at ages of 31-42 years (58.3%) when compared with ages of 20-30 years (34.6%), ($P < 0.05$). Endometrial polyps (20.4%), septate and subseptate uterus (17.2%). Submucous myomas, cornual polyps and intrauterine adhesions were seen at same rate (6%),. Most of the pathologies were seen in primary infertility patients except the intrauterine adhesions which exclusively found in those with secondary infertility. In this study, abnormalities seen during HS were significantly more than those detected with HSG, ($P < 0.05$). When compared with HS, HSG found to have a sensitivity of 69.4%, specificity of 66.6%, and false positive rate of 33.4% and a false negative rate of 30.6%. In HS neither intra-nor postoperative complications were encountered. Conclusion: Hysteroscopy should be considered as a part of first-line investigations in infertility workup regardless of age, while HSG shows unpromising diagnostic value for intracavitary and structural pathologies in infertility evaluation.

Keywords---hysteroscopy, hysterosalpingography, infertile women.

Introduction

Approximately 15% of couples are affected with infertility. Female factors are identified in approximately 50% of couples. Uterine cavity abnormalities can be a contributing cause of infertility in 10% of women and found in as many as 50% of women with recurrent implantation failure (1). Up to 20% of cases remain unexplained which could be caused by small endometrial polyp, small cervical polyp, adhesion at corneal polyp, corneal polyp, endometrial atrophy or hyperplasia that may affect implantation (2). Thus uterine cavity assessment has been suggested as a routine investigation in the evaluation of infertile women (3). Traditionally hysterosalpingography (HSG) has been the most commonly used technique in the evaluation of infertility. It gives reliable information about the patency and morphology of the fallopian tubes. It is also helpful in evaluating uterine cavity abnormalities (4,5).

HSG is an indirect means of showing the interior of the uterus and tubes. Endometrial polyps or fibroids are shown as filling defects or uterine wall irregularities. HSG can also show intrauterine adhesions and congenital anomalies as it enables clinicians to visualize the general configuration of the cavity (6). Compared with hysteroscopy, previous studies showed that HSG have a sensitivity of 79% and a specificity of 82% with 18% false positive rate and 19% false negative rate (7). The false positive findings which make high sensitivity of HSG was explained by presence of air bubbles, mucus, menstrual debris that could mimic filling defects. False negative findings was also explained by excessive amount of contrast media in the uterus obliterating shadows caused by small endometrial lesions (8). The differential diagnosis of filling defects in HSG are endometrial polyps, submucous myomas and intrauterine adhesions which needs further evaluation (9).

Hysteroscopy is the gold standard for the investigation of uterine cavity, particularly when pathology is suspected. It is a safe test for the direct and accurate diagnosis of intrauterine abnormalities. It permits direct visualization of uterine cavity, revealing the nature, location, shape, size and vascular pattern of any uterine cavity abnormalities. In addition, it has the advantage of being a see and treat modality (10,11). In view of low positive predictive value and low specificity of the HSG, many studies have suggested that HSG should be replaced by diagnostic hysteroscopy as a first line infertility investigation and treatment (12,13).

There is accumulated evidence that hysteroscopy is beneficial for women experiencing implantation failures after IVF. Not only the correction of hysteroscopic findings improves the pregnancy rates, at least when compared to controls not having a hysteroscopy, but also the procedure itself may have a positive prognostic value for achieving a subsequent pregnancy (14,15). The aim of this retrospective study is to describe the hysteroscopic findings in infertile women in term of rate and type of uterine abnormalities found in such women.

Also correlation of HSG findings with that of hysteroscopic findings was performed.

Patients and Methods

We analyzed retrospectively 194 patients with infertility, recurrent abortions, failed IVF cycles from the February 2009 February 2011. The patients subjected to either combined laparoscopy and hysteroscopy or assessed only by hysteroscopy. Hysteroscopy performed in the follicular phase of the menstrual cycle with perior tranvaginal ultrasound examination before the procedure. One hundred women with previous HSG report were also compared with hysteroscopic findings.

All hysteroscopies were performed under general anesthesia. Video-assisted diagnostic hysteroscopy with outer sheath 5.2 mm (Storz GmbH, Germany). Pathology in the uterine cavity was treated in the same setting using an operative hysteroscope 10 mm fibreoptic resectoscope (Storz GmbH, Germany). All procedure were videorecorded. The uterine cavity was expanded using distension media (Glycine 1.5%) administrated via electronically controlled irrigation delivery system (Endomate) (Storz GmbH, Germany). Hysteroscopy was performed with standard sequence, inspecting ectocervix, endocervical canal, uterine cavity, endometrium and tubal ostia. Findings were recorded using a standard report. Statistical analysis was performed using SPSS software. The P value was calculated by applying student t test.

Results

Hysteroscopic findings in 194 women were analyzed, 46 women underwent hysteroscopy only, 148 women underwent combined hysteroscopy and laparoscopy either as a part of infertility workup or to control the resection of uterine septum and dissection of intrauterine adhesions. We observed two uterine perforations with Hegar dilator during hysteroscopic dissection of severe intrauterine adhesion but no cases of hemorrhage or metabolic complications were seen.

The mean age at hysteroscopy was 33.4 yrs (20-42yrs). Indication for hysteroscopy was primary infertility in 106 women (54.6%) and secondary infertility in 88 women (45.4%). Forty six women of those with secondary infertility have also recurrent abortion. Failed IVF cycles was seen in 30 (15%) cases of total women. Normal findings were reported in 79 patient (41%) seen in (Figure 1).

Abnormal findings were seen in 115 women (59%). The type and rate of uterine abnormalities were demonstrated in chart 2. As we can see, the most common pathology was endometrial polyps seen in 42 women (20.4%) followed by septate and subseptate uterus seen in 30 women (17.2%), other abnormalities such as submucous myomas, corneal polyps and intrauterine adhesion were seen 13 women each (6%), endometrial hyperplasia was seen in 4 cases (3.4%). Endometrial polyps were frequently encountered in women with primary infertility 25/106, whereas intrauterine adhesions was frequently seen in women with

secondary infertility 12/88. There was on difference in frequency of other uterine abnormalities between primary and secondary infertility (Figure 2).

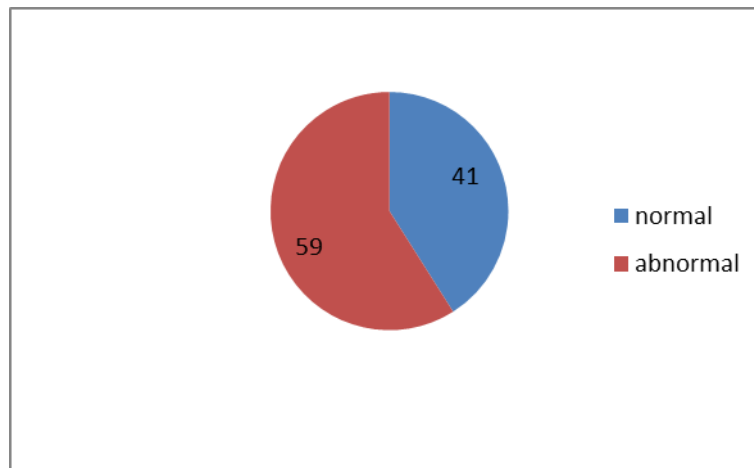


Figure 1: illustrating the rate of hysteroscopic findings (No.=194)

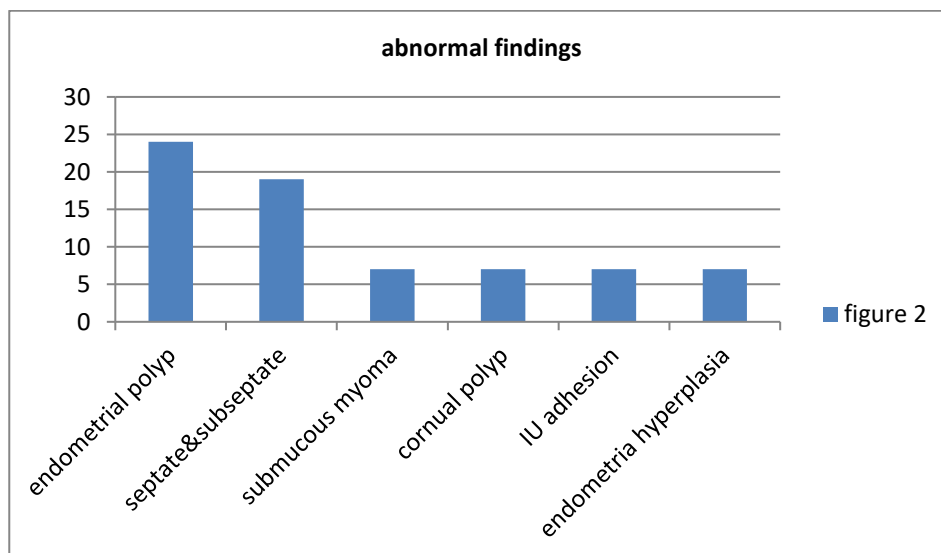


Figure (2): types and rate of the hysteroscopic finding (No.=115)

The result of HSG in 100 women was compared with their result in hysteroscopy. Abnormal findings were seen on HSG in 35% of women (35/100) while on hysteroscopy, abnormal findings were seen on 65% of women (65%). Endometrial polyp was seen in 24 cases compared with only 8 cases on HSG. Septate and subseptate uterus were seen in 19 cases on hysteroscopy compared with only 13 cases in HSG, corneal was seen in 7 cases on hysteroscopy whereas on HSG it was seen in only 4 cases, submucous myoma was seen in 7 cases on hysteroscopy whereas on HSG it was seen in only 3 cases. HSG was accurate in diagnosing intrauterine adhesions, 7 cases were seen on HSG which was confirmed by hysteroscopy. Normal findings on HSG were found in 65% (34/70) of women. When compared with hysteroscopy, HSG found to have a sensitivity of

69.4% and a specificity of 66.6% and a false positive rate of 33.4% and a false negative rate of 30.6% (Table 1).

Table (1): comparison between HSG and Hysteroscopy in detection of uterine abnormalities (No=100) *P<0.05

Abnormalities	Hysteroscopy	HSG
Endometrial polyp	24	8
Septate & subseptate ut.	19	13
Corneal polyp	7	4
Submucous myoma	7	3
IU adhesions	7	7
Total	65%	35%

Discussion

Uterine abnormalities is a contributing cause of infertility in 10% of women, and reported in as many as 50% of women with recurrent implantation failure (12). These lesions can interfere with spontaneous fertility and can compromise pregnancy rate in assisted reproduction. Hysteroscopy is currently considered the gold standard for diagnosis of intrauterine lesions. However, the benefit of the systematic use of hysteroscopy in the initial assessment of infertility remain unclear (14,16).

From the our findings, uterine abnormalities were seen in 59% of women and that seen frequently in ages >30 years. This was comparable to previous study by Lasmar et al. (17) which showed 54.2% of abnormal findings. In our study, the most common abnormalities in our study was endometrial polyps (20.4%), corneal polyps (6%) seen in patient with primary infertility especially at age more than 30 years. Torre et al. (18) showed higher rate of endometrial polyps (33%) in infertile patients especially after the age of 30 years but Lasmar et al. (17) study showed lower rate 12.1%.

Several studies as Torre et al. (18); Silberstein et al.(19); Muzii et al.(20); Stamatellos et al.(21);and Bosteels et al.(22) reported that hysteroscopic polypectomy is often recommended to increase the pregnancy rate in infertile women and perior to IVF cycles . In our study, Septate and subseptate uteri were the second frequent abnormalities seen on hysteroscopies (17.2%). Eight of these cases were suggested by HSG but combined Laparoscopy and hysteroscopy was needed to differentiate between septate and bicornuate uteri and to apply controlled resection of the septum. Previous studies have found that the prevalence of congenital uterine anomalies in infertile population 6.7% which is similar to that of general fertile populations 7.3%. But is significantly higher in women with recurrent miscarriage population 16.7%. However, there seems to be a higher prevalence of septate uteri in the infertile population, suggesting a link between the septate uteri and infertility. Homer et al. (23) & Nouri et al. (24) found that hysteroscopic septoplasty in women with a septate uterus and otherwise unexplained infertility is a safe and effective procedure resulting in a pregnancy rate of 60% and a live birth rate (LBR) of 45%.

In addition, Roy et al.,(25) and Homer et al. (23) revealed that removal of the septum will potentially decrease the risk of miscarriage and preterm birth if these women are to conceive. Lasmar et al. (17) reported that submucous myomas were seen in 6% of women. In previous studies, the submucous myomas were reported in 5% of women and hysteroscopic removal of submucous myomas double the pregnancy rate (26,27).

Intrauterine adhesions were seen in our study (6%). It was also noted that intrauterine adhesions were seen exclusively in secondary infertility as a result of recurrent abortion followed by repeated evacuation in 2 cases and post-partum hemorrhage in 2 cases. One Lasmar et al. (17) study showed that the frequency of intrauterine adhesion was 19.6% which was explained by the high rate of patient with recurrent miscarriages and concluded that hysteroscopic evaluation in women with infertility and recurrent miscarriages is valuable. In addition, Roy et al.,(25) found that hysteroscopic adhesiolysis shown to be a safe and effective method of choice for restoring menstrual function and fertility. HSG is considered to have a high sensitivity (60-98%) and low specificity (15-80%) in detecting uterine abnormalities and is, therefore, associated with relatively high false positive and false negative rates (28-30).

In a study Roma et al.(30) of demonstrated that HSG have a sensitivity of 79% and a specificity of 82%, with an 18% false positive rate and a 19% false negative rate. Our study showed, HSG found to have a sensitivity of 72% and a specificity of 66.6% and false positive rate of 33.4% and false negative rate of 28%. The high false positive findings which rate of HSG was explained by presence of air bubbles, mucus, menstrual debris that could mimic filling defect. False negative findings was also explained by excessive amount of contrast media in the uterus obliterating shadows caused by small endometrial lesions (30). In addition, in our study the nature of fillings defect in HSG was not accurate, the differential diagnosis was endometrial polyps, submucous myomas and intrauterine adhesion. Therefore, in view of low positive predictive value and low specificity of the HSG, our study and others suggest that HSG should be replaced by diagnostic hysteroscopy as standard method infertility investigation.

Conclusion

Our study showed that uterine abnormalities have been reported in a significant proportion among infertile women. Therefore, diagnostic hysteroscopy with or without laparoscopy should be considered as gold standard investigation in infertility workup. More works are needed to study the reproductive outcome of hysteroscopic surgical treatment of any pathology seen.

No conflict of interest.

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