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Original Research Article

Evaluation of the uterine cavity by office hysteroscopy in patients with infertility and recurrent pregnancy loss: a cross sectional study

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ABSTRACT

Background: The aim of the present study is to determine role of hysteroscopy in women presented with primary or secondary infertility and in women presented with recurrent pregnancy loss.
Methods: This cross-sectional study was conducted at Obstetrics and Genecology Department, Women Health Hospital Assiut University, Egypt from October 2016 to February 2018. Reproductive aged women who are suspected as having intrauterine pathology, such as submucosal myoma, endometrial polyps or other endometrial pathological findings based on the transvaginal ultrasound were enrolled. All patients were scheduled for office hysteroscopy as an outpatient. An informed consent was obtained prior to participation in the study.
Results: Hysteroscopy was performed in 139 infertile women and 41 cases of repeated pregnancy loss. With regard to infertile patients; 67.6% of the patients had normal findings, 10.1% of the patients had intrauterine adhesion, 8.6% of the patients had intrauterine polyp. 5.8% of the patients had septate uterus and 3.6% of the patients had depressed fundus. With regard to patients with recurrent pregnancy loss; 51.2% of the patients had normal findings, 21.9% of the patients had partial septum, 9.8% of patients had intrauterine adhesions, 7.3% of patients had intrauterine polyp and 4.9% of the patients had submucous myoma.
Conclusions: It was concluded that hysteroscopy should be considered as routine investigation in evaluation of women with primary and secondary infertility.

Keywords: Hysteroscopy, Infertility, Recurrent pregnancy loss

INTRODUCTION

The introduction of hysteroscopy in the routine gynecologic practice represented a real revolution in the diagnosis and treatment of the intrauterine disease, which strongly influenced the approach to and the management of these pathological conditions.

Over time, new methodological, technical, and technological developments have made hysteroscopy much more efficient, cost-effective, safe, and useful. Furthermore, a number of diagnostic and operative hysteroscopic examination can be currently easily performed in the office base setting, without the need neither of the operating room nor of any analgesia or anesthesia.[1] The presence of uterine malformations can influence the reproductive outcome by increasing the rate of abortions, preterm deliveries, and obstetric complications.[2] According to the newest available data, the incidence of congenital uterine anomalies is around 5% in women with a normal reproductive history, 3-5% in infertile women, 5-10% in women with recurrent abortions in the first trimester, and more than 25% in

women with recurrent pregnancy loss.[2] Uterine septum is the most common congenital anomaly of the reproductive organs with an incidence of 2-3% in the general population.[3] Embryologically, malformations of the Mullerian ducts consist of different groups of congenital anomalies, resulting from arrested development, abnormal development or incomplete fusion of the paramesonephric ducts.[4] Evaluation of the uterine cavity has become an important step and it might be routinely performed in the basic evaluation of infertile women. Structural abnormalities of the uterus are also known risk factors for recurrent spontaneous miscarragies.[5] Hysteroscopic results in women with history of two or more consecutive miscarriages and did not find significant differences in the rates of uterine anomalies and prevalence of acquired (adhesions, polyps, fibroids) and congenital uterine anomalies (septate or bicornuate uterus, etc). However, uterine anomalies are frequently found in patients with recurrent spontaneous miscarriages. Due to the high rate of uterine anomalies in patients with recurrent miscarriages and a possible therapeutic approach, hysteroscopy might be a diagnostic option for these patients.[6] Transvaginal ultrasonography, hysterosalpingography, saline infusion sonography and hysteroscopy could be used as tools to evaluate the uterine cavity.[7] The essential role of hysteroscopy in the diagnosis of intra uterine pathologies is emphasized, especially in infertile patients.[8] However, hysteroscopy does not utilize as a routine investigation for infertile women and there are different guidelines about performing the hysteroscopy. Some researchers believe that hysteroscopy is necessary for treatment of suspicious uterine pathologies.[9]

The aim of the present study is to determine role of hysteroscopy in women presented with primary or secondary infertility and in women presented with recurrent pregnancy loss.

METHODS

This cross-sectional study was conducted at Obstetrics and Genecology Department, Women Health Hospital Assiut University, Egypt from October 2016 to February 2018. Reproductive aged women who are suspected as having intrauterine pathology, such as submucosal myoma, endometrial polyps or other endometrial pathological findings based on the transvaginal ultrasound were enrolled. All patients were scheduled for office hysteroscopy as an outpatient. An informed consent was obtained prior to participation in the study. All participants underwent a physical examination, and detailed medical, obstetric and gynecologic histories were obtained.

Inclusion criteria

- Recurrent pregnancy loss.
- Unexplained infertility.

Exclusion criteria

- Any sign of genital infection
- History of major cervical surgery.

Data collection

Patients demographic data, clinical findings and results of ultrasonographic and hysteroscopic evaluations were recorded in the study data collection sheet intervention.

Diagnostic procedure

The patients underwent diagnostic hysteroscopy at the follicular phase of the menstrual cycle (days 3-15) and all procedures were performed by skilled gynecologists. The examiner did not know the test indication when it was performed. The procedure was performed with 3mm optics with an angle of view of 30o. Normal saline was used as a distending medium with a pressure of 20 mmHg to 50 mmHg. Hysteroscopy was performed on an outpatient basis, with neither use of anesthesia nor antibiotic prophylaxis, without cervical grasping (vaginoscopy technique).

Classification of findings

Changes found by hysteroscopy were subdivided into congenital or acquired abnormalities:

Congential changes were classified as

- Arcuate uterus
- Didelphic uterus
- Bicornuate uterus
- Unicornuate uterus
- Septate uterus.

The acquired changes receive the following diagnoses

- Uterine polyp
- Leiomyoma
- Interauterine adhesions
- Endometritis
- Hyperplasia

Statistical analysis

The data was collected coded, tabulated and finally statistically analyzed, using SPSS program (software version 22.0). Descriptive statistics were done for numerical parametric data as mean ± SD (standard deviation). Inferential analyses were done for quantitative variables using independent t-test in cases of two independent groups with parametric data. Inferential analyses were done for qualitative data using Chi square test for independent variables. The level of significance was taken if P value <0.05, otherwise was considered non-significant.

RESULTS

Hysteroscopy was performed in 139 infertile women with age between 20-44 years, and 41 cases of repeated pregnancy loss with age between 18-38 years (Table 1). Hysteroscopy was performed in 139 women of infertility: 103 cases with primary infertility and 36 cases with secondary infertility.

Table 1: Age of the study participants.

Age (years)	Infertility (n=139)	Recurrent pregnancy loss (n=41)	P-value
Mean±SD	29.60±5.42	28.56±4.88	0.404
Range	20-44	18-38	

Mann-Whitney test

Hysteroscopy was performed in 41 women with recurrent pregnancy loss: 29 with primary recurrent pregnancy loss and 12 with secondary recurrent pregnancy loss. Table 2 shows the results of office hysterosocpy in patients with infertility and recurrent pregnancy loss. With regard to infertile patients; 67.6% of the patients had normal findings, 10.1% of the patients had intrauterine adhesion, 8.6% of the patients had intrauterine polyp. 5.8% of the patients had septate uterus and 3.6% of the patients had depressed fundus.

Table 2: The results of hysteroscopic evaluation.

Conclusion	Infertility (n= 139)		Recurrent pregnancy loss (n= 41)	
	No.	%	No.	%
Normal finding	94	67.6	21	51.2
Adhesion	14	10.1	4	9.8
cervical stenosis	0	0.0	0	0.0
Depressed fundus	5	3.6	0	0.0
Narrow cervix	3	2.2	0	0.0
Old cervical tear	0	0.0	1	2.4
Polyp	12	8.6	3	7.3
Polyp-arcuate uterus	0	0.0	1	2.4
Septum	1	0.7	0	0.0
Septum-adhesions	1	0.7	0	0.0
Submucous myoma	1	0.7	2	4.9
Subseptate uterus	8	5.8	9	21.9

With regard to patients with recurrent pregnancy loss; 51.2% of the patients had normal findings, 21.9% of the patients had partial septum, 9.8% of patients had intrauterine adhesions, 7.3% of patients had intrauterine polyp and 4.9% of the patients had submucous myoma.

DISCUSSION

This study was designed to evaluate the role of hysteroscopy in three common problems encountered in reproductive medicine, namely infertility and recurrent pregnancy loss. Several studies have demonstrated that once the uterine cavity has to be investigated as part of the infertility work-up; hysteroscopy is much more accurate than other diagnostic methods, mainly HSG.[10] In the present study out of 139 hysteroscopy performed, 103 women with primary infertility, while 36 women had secondary infertility. Abnormal uterine findings included narrow cervix, intrauterine adhesions, endometrial polyp, submucous myoma, septate uterus and arcuate uterus. In the present study, 94(67.6%) patients had normal hysteroscopic finding and 45 (32.4%) patients had positive hysteroscopic finding which agrees with the paper published by Latika et al that showed 35% of women, undergoing infertility evaluation, had abnormal uterine findings on hysteroscopy.[11] These results are comparable to those of the other studies reporting that only 43% to 69% of infertile patients have a normal uterine cavity.[12] These results agree with the study done by Jain et al., (2016) that showed 56% women who underwent hysteroscopy for infertility work up were found to have abnormal uterine cavity findings on hysteroscopy.13 The previously published data show large ranges of abnormal finding rates from one study to another (7.2% to 64%). Out of 45 women with abnormal intrauterine finding on hysteroscopy, the most common pathology found in the present study was intrauterine adhesions, seen in 14 women (10.1%) which agrees with various studies that had shown the incidence of intrauterine adhesions ranging from 3-10%.[14] Risk of adhesions is positively correlated with uterine curettage done for missed abortion, incomplete abortion or post-partum bleeding, thus more commonly seen in women with secondary infertility. Similarly, Oliveira et al has found 10% intrauterine adhesions on hysteroscopy in women with repeated IVF failure without any prior history of uterine manipulation, thus bringing to conclusion that other factors also should be considered in pathogenesis of intrauterine adhesions.[15]

Developmental uterine anomalies have long been associated with pregnancy loss and obstetric complications, but the ability to conceive is generally not affected. Septate uterus is one of the common developmental intrauterine anomalies. In present study, it was seen in 10/45 cases (7.2%) and 5/45 cases (3.6%) of depressed fundus which agrees with the study done by Jain et al., (2016) that showed 12.5% of women, undergoing infertility evaluation, had septate uterus and 6.2% had arcuate uterus on hysteroscopy finding.[13] Uterine abnormalities are estimated to play a pivotal role in a substantial number of couples seeking treatment for recurrent miscarriages.[6] Their described patho-physiological mechanism is that they prevent proper embryo implantation and development due to poor vascularization with subsequent infertility or miscarriage.[12] The current study showed 21 (51.2%) patients with normal hysteroscopic finding and 20(48.8%)patient with positive hysteroscopic finding included intrauterine adhesion 9.8%, old cervical tear 2.4%, partial septum 21.9%, intrauterine polyp 7.3%, arcuate uterus 2.4% and Submucous myoma 4.9% which

agrees with those of Ventolini et al a prospective cohort study included 23 patients with recurrent pregnancy losses underwent diagnostic hysteroscopy and 60.9% had normal hysterscopic finding and 39.1% had abnormal hysterscopic finding.[16] The reported rate of abnormalities for women with recurrent pregnancy losses varies from 6.3% to 67% with most studies showing. more than 25% anomalies. This discrepancy for the incidence of abnormalities among women with recurrent miscarriages represents differences in study design and in the types of abnormalities detected.[17] This study has both strengths and weaknesses. A major strength of this study that it was included high risk groups of patients (infertility, and recurrent pregnancy loss). Secondly, its design as a prospective study. Thirdly; the hysteroscopy was done by skilled hysteroscopists (5 years' experience) to decrease false positive results. However, the present work had some limitations. The small sample size that was available for the final analysis at the end of the study. The heterogeneous nature of recruited women may affect the results.

CONCLUSION

In present study, we conclude that hysteroscopy should be considered as routine investigation in evaluation of women with primary and secondary infertility. Structural uterine abnormalities were detected in nearly 48.8% of patients with recurrent pregnancy loss, hysteroscopy has much to offer in the diagnosis of uterine cavity abnormalities, for this reason it should be included in assessment of patients with a history of recurrent miscarriage.

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