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TO ASSESS THE ROLE OF HYSTEROSCOPY IN THE EVALUATION OF INFERTILE WOMEN WITH RECURRENT INTRAUTERINE INSEMINATION FAILURE

Obstetrics & Gynaecology

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ABSTRACT

Background: There have been numerous advances in the area of assisted reproduction. Among the various reasons of implantation failure, intrauterine lesions play an important role. Hysteroscopy enables the clinician evaluate the uterine abnormalities such as endometrial polyps, submucous myomas, adhesions, septa, tubal ostia, and inflammatory endometrial pathologies like endometrial tuberculosis and chronic endometritis. Hysteroscopy also allows the diagnosis as well as the treatment of the intrauterine pathology in the same setting, thereby increasing the pregnancy rate in subfertility. ***Objective:*** To evaluate the endometrium by hysteroscopy in infertile women with recurrent intrauterine insemination failure. ***Materials and Methods:*** It is a hospital based prospective study, done for one year(May 2018-April 2019) in department of reproductive medicine, IGIMS, Patna in 60 infertile women with recurrent (3 or more) IUI failure. ***Results:*** Significant uterine pathology was found in 78.3% infertile women in spite of normal HSG results. ***Conclusion:*** Our study emphasizes that hysteroscopy is an accurate and less invasive method for the evaluation of uterine cavity and allows treatment of the pathology in the same setting. So, hysteroscopy has a role in evaluation of infertile women with no obvious abnormality on HSG before they proceed to more aggressive treatment.

KEYWORDS

Assisted reproduction, hysteroscopy, implantation failure, recurrent IUI (intrauterine insemination) failure

INTRODUCTION:

Implantation is one of the most critical step in pregnancy and hence, any intrauterine abnormalities i.e, polyps, adhesions, submucous myomas, endometritis, septa, anomalies of ostia or cervical canal might have negative influence on the reproductive performance of a female.[1] It has been well known that the uterine factor contributes to approximately 15-20% as a cause of female infertility. Hysterosal pingography and transvaginal sonography are most commonly used for this purpose. However, ,these modalities do not necessarily prove to be efficient always and might lead to numerous false positive as well as false negative findings leading to increase in the dilemma of treating clinicians.[1] Hence, ruling out any evidence of any intrauterine pathology by hysteroscopy becomes an important step before subjecting the patient to any of the assisted reproductive techniques (ART).

With recent advances in hysteroscopic techniques, it has become feasible to perform diagnostic office hysteroscopy with such ease that patients do not even require anesthesia thus, avoiding any related complications and other invasive procedures too. Moreover, hysteroscopy helps in diagnosing as well as treating certain uterine pathologies in the same sitting. This further reduces the burden on patients both financial as well as psychological.

In the present study, we have evaluated intrauterine pathologies with hysteroscopy in patients with recurrent intrauterine insemination (IUI) failures i.e, with 3 or more failed attempts of IUI.

MATERIALS AND METHODS:

It was a hospital based prospective study which was conducted in the department of reproductive medicine, I.G.I.M.S, Patna. A proper ethical clearance was obtained from the Institutional Ethical Committee before beginning the study.The duration of our study was one year (May 2018-April 2019). We recruited 60 infertile patients who had 3 or more IUI failures in this study.

Inclusion criteria:

- Infertile women in the age group 20-35 years
- These women had history of 3 or more attempts of Intrauterine insemination(IUI) failures.

Exclusion criteria:

- Women having history of previous pelvic surgeries and /or having history of symptoms of severe dysmenorrhea, pelvic pain, hydrosalpinx and pelvic inflammatory disease
- Women with sexually transmitted disease
- Women with active vaginal bleeding

Technique

All women in whom hysteroscopy was done were informed about the technique and the potential risks in the form of a written consent. The selected women underwent the procedure of hysteroscopy under general anesthesia in the lithotomy position. The patients underwent standard hysteroscopy (5 mm outer diameter, continuous flow) in the proliferative phase of the menstrual cycle using normal saline as a distension media. The uterine pressure was maintained between 100 to 120 mm of mercury. The entire uterine cavity including the cervical canal and uterotubal junction was evaluated thoroughly and any lesion found was treated in the same sitting.

RESULTS:

A total of 60 women were recruited and underwent hysteroscopy under anesthesia. The mean age of all the patients was 27.4±6.1 years with a range of 20 to 35 years. The mean BMI of the patients was 25.1±2.5 kg/m^2. The average duration of infertility was 5.6±4.6 years. Out of these 60 patients, 44(73.3%) had primary infertility while rest 16(26.7%) had secondary infertility. These findings are mentioned in Table 1.

Table 1: Characteristics of women in study

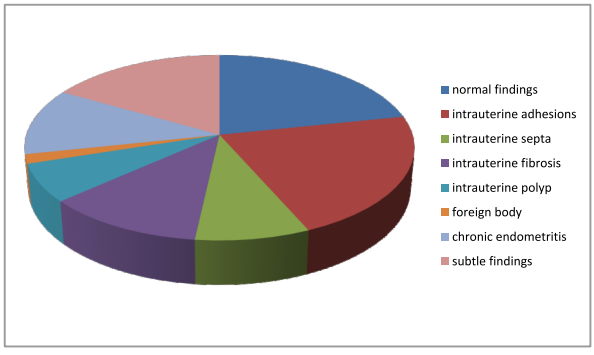
Age (years) Mean ±SD	**27.4±6.1**
BMI (kg/m^2)	**25.1±2.5**
Duration of infertility(years)	**5.6±4.6**
Type of infertilty	
Primary	**44(73.3%)**
Secondary	**16(26.7%)**

Out of these 60 patients, 13 revealed no pathology in uterine cavity in hysteroscopy. The rest 47 patients had some findings in hysteroscopy. The type, location and size of these abnormalities were noted and simultaneously treated wherever possible to the best of our abilities in the same sitting. None of the patients reported any major complications after the procedure. Among the patients who had positive findings in hysteroscopy; 13(21.6%) had intrauterine adhesions, 10(16.6%) had subtle findings, 7(11.6%) had chronic

endometritis, 7(11.6%) had intrauterine patchy fibrosis, 5 (8.3%) patients had intrauterine septa, 4(6.6%) had intrauterine polyps and 1(1.6%) had intrauterine foreign body (Table 2). Subtle lesions are lesions of unknown pathological significance that include diffuse polyposis, strawberry pattern, hypervascularization, mucosal elevation and other endometrial defects. The following pie diagram1 represents these findings in pictorial form.

Table 2: Findings of uterine cavity on hysteroscopy

Normal findings	**13**	**21.6%**
Intrauterine adhesions	**13**	**21.6%**
Intrauterine septa	**5**	**8.3%**
Intrauterine fibrosis	**7**	**11.6%**
Intrauterine polyp	**4**	**6.6%**
Intrauterine foreign body	**1**	**1.6%**
Chronic endometritis	**7**	**11.6%**
Subtle findings	**10**	**16.6%**



Pie Diagram 1: Distribution of various hysteroscopic findings of the study patients

DISCUSSION:

Despite recent advances in the field of Assisted Reproductive Technologies (ART) in the modern era, implantation rate is still on the lower side, i.e around 15 to 20 %.[2] It is a well understood fact that uterine receptivity has a key role in the successful implantation and clinical pregnancy rates. From time immemorial several studies and attempts of utilising various diagnostic modalities to accurately assess the uterine receptivity and factors have been tested and tried. Some uterine factors that can be measured by transvaginal sonography are endometrial thickness, pattern, and blood flow in the uterine and subendometrial arteries.[3]

Structural uterine abnormalities may lead to failure of implantation and thus failed cycles of ART. The incidence of uterine abnormalities in patients undergoing hysteroscopy has been reported to be between 19 and 50%.[4] It has also been reported in the past by several researchers that uterine anomalies like polyps, septa etc are more commonly found in infertile patients as compared to fertile ones.[5,6] There are different mechanisms which are hypothesised to cause infertility by the intrauterine abnormalities. Polyps may cause infertility by virtue of their location, thereby causing mechanical block (e.g., tubocornual polyp) by their association with endometriosis, or by expression of the enzyme aromatase. Myomas that protrude into the cavity may decrease vascular supply to the trophoblastic tissue when implantation takes place on the overlying endometrium. Most septa are relatively avascular and hence result in implantation failure when implantation takes place over them. Other pathologies like synechiae, endometritis, cervical stenosis, and chronic cervicitis can be causes of subfertility.

Debates still exist on the role of hysteroscopy in the management of infertile women without other diagnosed or doubtful intrauterine pathologies.[5] Currently, the European Society of Human Reproduction and Embryology (ESHRE) guidelines indicate hysteroscopy to be unnecessary, unless it is for the con rmation and treatment of doubtful intrauterine pathology.[6]Points raised against it are that it is an invasive procedure and that the real significance of the intrauterine pathologies on infertility is yet to be proven.[7] But in their study Shoker et al showed that 26% of the patients with normal hysterosalpingography had abnormal hysteroscopic findings.

Roma et al stated that even if HSG shows no abnormality the role of hysteroscopy must not be neglected as it adds to significant informations regarding hormonal, inflammatory, infectious, atrophic abnormalities that may lead to poor reproductive outcomes in as high as 25 % cases.[8] EL Mazny et al performed office hysteroscopy in 148 infertile patients. Out of these 48 (33.1%) patients had abnormal findings. Patients with previous ART failures have significantly higher percentage of abnormal findings in hysteroscopy. So they concluded that hysteroscopy should be considered as an essential part of work up before ART even if TVS and HSG come out to be normal.[9]

The role of hysteroscopy in patients with previously failed IVF cycles has also been studied. A systematic review and meta analysis of two randomized and three nonrandomized control trials on 1691 patients in 2008 concluded that hysteroscopy before a subsequent IVF attempt significantly increases the odds for conception in patients with at least two failed IVF attempts.[10]

Hysteroscopy so far is constantly being done for 2 main indications: to verify suspected intrauterine lesions and to assess the cavity in cases of recurrent IVF failures. Previous randomised trials have clearly shown that performing hysteroscopy can lead to encouraging results in recurrent implantation failure.[11-13]

In this study, hysteroscopy was done to assess uterine cavity in patients with 3 or more IUI failures and in whom HSG was normal.Significant uterine pathology was found in 78.3% infertile women in spite of normal HSG results.

CONCLUSION:

Both HSG and hysteroscopy are complementary to each other in diagnosing uterine abnormalities. Hysteroscopy is an accurate and less invasive method for the evaluation of uterine cavity. It is dynamic test and allows a direct visualization of the endometrium, revealing the nature of the pathology with a high diagnostic accuracy. So, hysteroscopy has a role in evaluation of infertile women with no obvious abnormality on HSG before they proceed to more aggressive treatment options.

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