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Research Article

Hysteroscopic Evaluation in Infertile Females: Hospital Based Prospective Study

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Abstract A couple is generally considered infertile if they are unable to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. Hysteroscopy is a valuable diagnostic and therapeutic modality in the management of infertility. Today, it is considered the gold standard for evaluating the uterine cavity. The aim of our study is to describe hysteroscopy findings in 200 infertile females and to compare its use in primary versus secondary infertility. A hospital based prospective cross-sectional study, was conducted in the department of Obstetrics and Gynaecology, Mahatma Gandhi Medical College and Hospital, Jaipur, Rajasthan, from Jan 2019 to Nov 2019, which included 200 infertile females undergoing diagnostic hysteroscopy. Hysteroscopic abnormalities were noted and analysed using appropriate statistical test and if needed endometrial biopsy were send along with any operative procedure was done. Mostly no abnormality was detected on hysteroscopy in uterine cavity, internal os and endometrium in both patients of primary and secondary infertility. Most common uterine cavity abnormality in both groups was intrauterine adhesion along with congested endometrium. Most of the uterine abnormalities were treated either in the same or subsequent operating setting. Hysteroscopy is cost-effective, comprehensive and gold standard for evaluation of uterine cavity in infertility patients since it aids not only in diagnosing the pathology but also its simultaneous management.
Keywords *Infertility, Hysteroscopy*

1. Introduction

A couple is generally considered infertile if they are unable to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse (WHO, 1994). Advent of minimal access procedures has redefined the evaluation and treatment of infertile couple. The various forms of endoscopic procedures have been shown to demystify and redefine the bounds of infertility by producing new diagnostic evidence. One of the basic steps of infertility workup is to evaluate the shape and regularity of the uterine cavity. Hysteroscopy is a valuable diagnostic and therapeutic modality in the management of infertility. Today, it is considered the gold standard for evaluating the uterine cavity, and due to improved endoscopic developments, can be performed reliably and safely as an office procedure (Gordts et al., 2002).

It is used in intervention for endometrial polyps, submucous and pedunculated myomas, intrauterine adhesions, and uterine septa. It is also useful for the diagnosis of congenital anomalies and evaluating endocervical anatomy. In fact, infertility related to uterine cavity abnormalities has been estimated to be a causal factor in around 10% to 15% of couples seeking treatment. Moreover, abnormal uterine findings have been found in 34% to 62% of infertile women (Brown et al., 2000)

WHO recommends office hysteroscopy in females who are suspected to have intrauterine abnormality on clinical basis or complementary exams (ultrasound, HSG) or after in vitro fertilization (IVF) failure. But many gynaecologists feel that direct view of the uterine cavity offers a significant advantage over other indirect or blind diagnostic methods. Therefore, even when no abnormality is found with these tools, hysteroscopy should be considered. Thus, this study is being done to determine role of hysteroscopy for evaluation of uterine cavity abnormalities in an infertile couple. The aim of our study is to describe hysteroscopy findings in 200 infertile females and to compare its use in primary versus secondary infertility.

2. Methodology

A hospital based prospective cross-sectional study, was conducted in the department of Obstetrics and Gynaecology, Mahatma Gandhi Medical College and Hospital, Jaipur, Rajasthan, from Jan 2019 to Nov 2019, which included 200 infertile females undergoing diagnostic hysteroscopy.

INCLUSION CRITERIA-

- Married women of reproductive age group with primary/secondary infertility willing for infertility workup.

EXCLUSION CRITERIA-

- Contraindications to hysteroscopy and/or general anaesthesia
- Who didn't give consent.

A detailed history that included history of present illness, menstrual, obstetric, past (medical and surgical), family and personal history was taken followed by general, systemic and gynaecological examination and were posted for hysteroscopy.

The procedure was explained in details to the patient and a written consent was obtained. In all cases patient was counselled regarding the guarded success of the procedure and the outcome. This was further followed by giving them possible treatment options.

It was performed in operation theatre, using a 3 mm hysteroscope, under short general anaesthesia. Distention of the cavity was done using normal saline solution. In the end of the procedure, an endometrial biopsy sample was obtained for histologic examination when indicated. The procedure was considered to be complete only when the entire uterine cavity and both tubal ostia were visualized. Data was entered in micro soft excel worksheet and appropriate test were used to find the significant association. P value <0.05 was considered statistically significant.

3. Results and Observation

A total of 200 hysteroscopies were done. All patients were divided in to two groups:

Group I – 150 patients with primary infertility
Group II –50 patients with secondary infertility

For infertility work up hysteroscopy was done along with contemporaneous laparoscopy. But the laparoscopy findings have not taken in the evaluation for this study.

Table 1: *Various hysteroscopic abnormalities of infertile females*

HYSTEROSCOPIC ABNORMALITIES	INFERTILITY		TOTAL	X^2	d.f	P-value	SIGNIFICANCE
	PRIMARY	SECONDARY					
No Abnormalities	76 (50.67)	24 (48.00)	100 (50.00)	0.107	1	>0.5	NS
Intrauterine adhesions	44 (29.33)	16 (32.00)	60 (30.00)	0.127	1	>0.5	NS
Submucous myoma	20 (13.33)	10 (20.00)	30 (15.00)	1.307	1	>0.5	NS
Congestion	22 (14.67)	6 (12.00)	28 (14.00)	0.221	1	>0.5	NS
Tubercles	16 (10.67)	4 (8.00)	22 (11.00)	0.074	1	>0.5	NS
Polyp	10 (6.67)	2 (4.00)	12 (6.00)	0.118	1	>0.5	NS
Left Ostia fibrosed	2 (1.33)	4 (8.00)	6 (3.00)	0.009	1	>0.5	NS
Right Ostia fibrosed	6 (4.00)	2 (4.00)	8 (4.00)	0.000	1	>0.5	NS
B/L ostia not seen	6 (4.00)	4 (8.00)	10 (5.00)	0.561	1	>0.5	NS
Incomplete septum	2 (1.33)	0	2 (1.00)	-	-	-	-

No abnormality was detected in 50.6% of group I and 48% of group II. Most common finding in both groups was intrauterine adhesion, 29.33% in group I and 32% in group II. The p-values for various abnormalities were >0.05, which is not significant. (Table 1) No significant difference in the rate of uterine pathology was found between women with primary and secondary infertility.

Table 2: *Distribution according to status of Internal OS*

INTERNAL OS	TYPE OF INFERTILITY		TOTAL
	PRIMARY (n=150)	SECONDARY (n=50)	
Normal	130 (86.67)	40 (80.00)	170 (85.00)
Stenosed	20 (13.33)	10 (20.00)	30 (15.00)
Total	150 (100.00)	50 (100.00)	200 (100.00)
X^2 = 1.307	**d.f. =1**	**P >0.05**	**NS**

Normal internal os was seen in 86.67% of patient belonging to group I while 20% had stenosed os. Group II had 80% patients with normal internal os and 20% were stenosed. (Table 2)

Table 3: *Distribution according to Endometrium Status*

ENDOMETRIUM	TYPE OF INFERTILITY		TOTAL
	PRIMARY (n=150)	SECONDARY (n=50)	
Normal	100 (66.67)	30 (60.00)	130 (65.00)
Congestion	22 (14.67)	6 (12.00)	28 (14.00)
Scanty	12 (8.00)	10 (20.00)	22 (11.00)
Polyp	10 (6.67)	2 (4.00)	12 (6.00)
Tubercles	16 (10.67)	4 (8.00)	22 (11.00)

Normal endometrium was seen in 66.67% of patients in group I and 60% in group II. Congested endometrium (14.67%) was most commonly seen abnormality in females with primary infertility whereas, scanty endometrium (20%) was most common abnormality seen in females with secondary infertility.

Table 4: *Distribution according to tubal ostia*

OSTIA	TYPE OF INFERTILITY		TOTAL
	PRIMARY	SECONDARY	
B/L seen	128 (85.33)	38 (76.00)	166 (83.00)
Right fibrosed	6 (4.00)	2 (4.00)	8 (4.00)
Left fibrosed	2 (1.33)	4 (8.00)	6 (3.00)
Right not seen	6 (4.00)	4 (8.00)	10 (5.00)
Left not seen	4 (2.67)	6 (12.00)	10 (5.00)
B/L not seen	6 (4.00)	0	3 (3.00)

Bilateral ostia was visualized in 85.33% cases of group I and 76% in group II while it wasn't visualized unilaterally of bilaterally 10.66% cases of group I and 20% of group II. (Table 4)

Table 5: *Hysteroscopic Procedures performed*

PROCEDURE	TYPE OF INFERTILITY		TOTAL
	PRIMARY	SECONDARY	
Intrauterine adhesiolysis	36 (24.00)	14 (28.00)	50 (25.00)
Myomectomy	8 (5.33)	2 (4.00)	10 (5.00)
Polypectomy	8 (5.33)	2 (4.00)	10 (5.00)
Excision of septa	2 (1.33)	0 (0.00)	2 (1.00)

Most of the uterine abnormalities were treated either in the same or subsequent operating setting. Adhesiolysis was done in a total of 50 patients of infertility, myomectomy in 10 patients and polypectomy in 10 patients and septa resection in 2 cases (Table 5). All cases were followed up till today.

4. Discussion

Evaluation of uterine cavity is one of the most important steps in the work up of infertile couple. Congenital and acquired disorders of uterine cavity can lead to impairment of endometrium and thus interfering in embryo implantation and growth of fetus.

In the present study out of 200 hysteroscopy performed, 150 were performed for evaluation of women with primary infertility, while 50 women had secondary infertility. It was comparable with studies conducted by Nayak et al. (2013). Abnormal uterine findings included cervical polyp, cervical growth, intrauterine adhesions, endometrial polyp, submucous myoma, ostial fibrosis, septate uterus and unicornuate uterus.

In our study 50% patients had no abnormality in both the groups. These results are comparable to those of the other studies reporting that only 43% to 69% of infertile patients have a normal uterine cavity (Brown et al., 2000; Nagele et al., 1996; Pansky et al., 2006) whereas; there was no significant difference in the rate of uterine pathology between females with primary and secondary infertility.

Out of the 100 women who had abnormal intrauterine finding on hysteroscopy, the most common pathology found in the present study was intrauterine adhesions, seen in around 30% women. However, various studies have shown a comparatively lower incidence of intrauterine adhesions

ranging from 3-10% (Martin et al., 2010; Seyam et al., 2015; Oliveira et al., 2003). Risk of adhesions is positively correlated with uterine curettage done for missed abortion, incomplete abortion or postpartum bleeding, thus more commonly seen in women with secondary infertility. However, No significant difference was found in incidence of intrauterine adhesions between women with primary and secondary infertility in our study.

Abraham Golan et al. concluded that hysteroscopy was a safe and rapid procedure for direct visualization of the uterine cavity and is superior to HSG in the identification of intrauterine pathology (Abraham et al., 1996). Compared to hysteroscopy the sensitivity of HSG was 98%, but its specificity only 15%, the positive predictive value 45%, and negative predictive value 95%. On hysteroscopy a normal uterine cavity was found in 53% of the cases with a filling defect and in 56% of those with uterine wall irregularity on HSG.

In our study, uterine myoma was another common abnormality seen on hysteroscopy (primary infertility- 13.33% and secondary infertility- 20%). Myomas were also observed in various other studies: Puri et al. (2015) (8%) and Bhat et al. (2012) (7.05%) thereby depicting that myomas influence infertility. Myomas distort uterine cavity, impairing implantation and pregnancy rates in women.

5. Conclusion

Hysteroscopy is cost-effective, comprehensive and gold standard for evaluation of uterine cavity in infertility patients since it aids not only in diagnosing the pathology but also its simultaneous management. It provides direct visualization of the diseased condition and also an opportunity to treat the same if surgical intervention is required. It also contributes to the treatment plan in the infertile patients. Based on the severity of endoscopic findings, the initial treatment decision can be changed to one giving better chances of success.

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