



A STUDY OF OPERATIVE HYSTEROSCOPY IN INFERTILITY PATIENTS : ITS ROLE , COMPLICATIONS AND FERTILITY OUTCOMES

Gynaecology

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ABSTRACT

INTRODUCTION: Hysteroscopy is gold standard in diagnosis of endometrial pathology. This study aims to understand role of operative hysteroscopy and its complications. Also to study the effectiveness of operative hysteroscopic interventions in infertile women with major uterine cavity abnormalities.

MATERIAL AND METHODS: observational cohort study of 75 patients of infertility undergoing operative hysteroscopy at Obstetrics and Gynaecology department in our hospital.

RESULTS: In our study the most common hysteroscopic finding was endometrial polyp and most common procedure being hysteroscopic polypectomy (32%), total complication percentage was 10.66% and most common complication was uterine perforation(4%). Out of 75 patients on 1 year follow up 33 patients (44%) conceived, of which most conception occurred following IVF (26.6%).

CONCLUSION: Uterine abnormalities can be diagnosed and treated by hysteroscopy to improve the cost-effectiveness in infertile women. It is a safe procedure with good conception rates.

KEYWORDS

Operative Hysteroscopy, Infertility

INTRODUCTION

Definition of infertility is the inability to conceive after 1 year of unprotected intercourse of reasonable frequency. In India it estimates around 10-15%.¹ Evaluation of a couple with history and investigation is the foremost step to identify the underlying cause. Ultrasound is used for screening but for evaluation of the uterine endometrium hysteroscopy is the gold standard investigation. It enables direct visualization and simultaneous correction.² Endometrial evaluation is important because implantation of the embryo occurs on the endometrium. Hence abnormalities of endometrium may interfere with implantation and lead to infertility.

A hysteroscope is rigid telescope with lenses. If the procedure is done for evaluation of uterine cavity it is called diagnostic hysteroscopy and further treatment of observed pathology done with aid of scissors, resectoscope etc is called operative hysteroscopy. Complications during this procedure are relatively rare events but may occur due to ignorance, improper surgical techniques or patients not well-chosen. Early recognition can lead to prevention of severe complications. They occur more frequently with operative hysteroscopy than with diagnostic hysteroscopy.³

Hysteroscopy is superior to hystero-graphy and transvaginal sonography in evaluating the endometrial cavity⁴. Various endometrial abnormalities like polyp, fibroid, septum etc can be effectively treated and patients conceive following this procedure. Abnormal findings are significantly higher in patients with previous ART failure. Hysteroscopy could be seen as a positive prognostic factor for conception in subsequent IVF in women with a history of Recurrent IVF Failure⁵. This study aims to understand the role of operative hysteroscopy and complications with the effectiveness of this procedure in infertile women.

MATERIAL AND METHODS:

This study was carried out in the department of Obstetrics and gynaecology, Dr. Babasaheb Ambedkar Memorial Hospital, Central Railway, Byculla, Mumbai. It is an observational cohort study. Patients with infertility undergoing operative hysteroscopy at our hospital from May 2018 to April 2019 are selected.

SAMPLE SIZE: 75 patients.

Formula used: $N = Z^2 \times P(1-P) / d^2$

P= Prevalence of infertility in Indian population (WHO estimates between 3.9 and 16.8%⁶ with average of 10.3%)

Moreover, abnormal uterine findings have been found in 34% to 62% of infertile women requiring operative intervention⁷

Hence the P value 0.049 = around 5% and sample size = 73

METHODOLOGY:

Prior to hysteroscopy detailed evaluation of the couple is done. Basic investigations are done like routine blood investigations, ultrasound etc. Anesthetic fitness obtained. An informed consent was obtained after explaining the procedure, risk and complication to the patient. Patients had overnight fasting, bowel preparation done by enema on day of surgery and PGE1-Misoprostol 400 microgm was kept in posterior fornix 4 hours prior. In a well equipped operation theatre and presence of skilled surgeon hysteroscopy is done and for abnormal findings noticed simultaneous operative procedure was done. Patient was monitored post-operatively and complications noted. Relevant data obtained and tabulated. These patients will be followed up for a period of 12 months and their fertility outcomes will be analysed using spss version 20.0.

Associations will be documented on percentage basis as follows:

1. Prevalence of abnormal hysteroscopic findings and operative procedures done
2. Prevalence of complications in operative hysteroscopy.
3. Fertility outcomes.

OBSERVATIONS

Figure 1. Chart showing Age wise analysis of patients

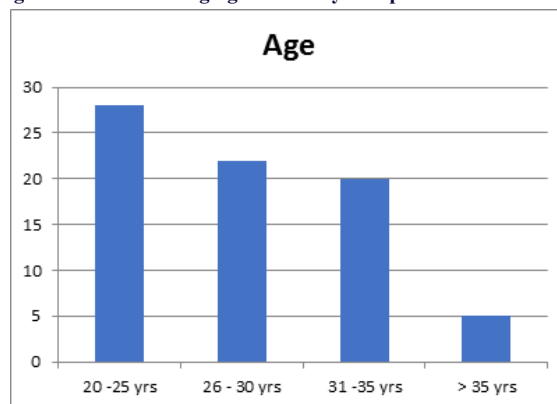


TABLE – 1

Common hysteroscopic procedures and their percentage

HYSTEROSCOPIC PROCEDURE DONE	No. of patients (%) n=75
Polypectomy	24 (32)
Adhesiolysis	7 (9.3)
Metroplasty	7 (9.3)

Septoplasty	16 (21.3)
Tubal cannulation	2 (2.7)
Myomectomy	3(4)
Septo-metroplasty	14(18.7)
Septoplasty with polypectomy	2(2.7)

Table – 2**Complications during operative hysteroscopy**

Complications reported	number	percentages
Total complications	8	10.66%
Fluid overload	2	2.66%
Uterine perforation	3	4%
Bladder injury	Nil	-
Bowel injury	Nil	-
Post op infection	1	1.33%
Post op bleeding pv	2	2.66%

Table -3 Conception percentages

Outcome	Number	PERCENTAGES (n =75)
Conceived	33	44%
Not conceived	42	56%

Table -4. Conception methods and their percentages

Method	Number	Percentages
Spontaneous	10	13.3%
OI and IUI *	3	4.1%
In-vitro fertilisation	20	26.6%

*Ovulation induction and intrauterine insemination

Table 5: Association Of Polypectomy And Conception

TYPE OF CONCEPTION	NUMBER	PERCENTAGES (n=24)
Spontaneous	3	12.5%
Ovulation induction and intrauterine insemination	3	12.5%
In-vitro fertilisation	9	37.5%
Total conception	15	

RESULTS

Age-wise distribution of the sample was studied and majority of the patients (ie) 28 patients (37.3%) were in the age group of 20-25 yrs suggesting recent trend of early evaluation. In our study the most common hysteroscopic finding was endometrial polyp and most common procedure being hysteroscopic polypectomy done in 24 patients (32%) followed by hysteroscopic septal resection in 16 patients (21.3%). In our study the total complication percentage was 10.66%. the most common complication was uterine perforation in 3 patients (4%) followed by fluid overload in 2 patients (2.66%) and post-operative bleeding per vaginum in 2 patients (2.66%).

After 1 year follow up of the patients, 33 patients (44%) conceived and there was no conception in 42 patients (56%). Most conception occurred following in-vitro fertilisation which were 20 patients (26.6%). On applying chi square analysis the p value was highly significant. In further detailed analysis of polypectomies, of the 24 polypectomies done, overall 15 patients conceived. The association of polypectomy with conception was studied with chi square analysis and the association was highly significant. ($p < 0.05$)

DISCUSSION

in this era of endoscopies and minimally invasive surgeries role of hysteroscopy is undebatable. Accuracy and better visualization are few of its benefits. Nevertheless, in infertility, its use was undermined in view of fear of complications and lack of expertise but overtime the consenses is changing. Several studies have shown low complication rates as in study by Pasini et al in 2001, intraoperative complications of 697 patients were studied, total complication rate reported was 13.6% (95 patients)⁸. Also, according to Sandhya Deora et al (2018), complication rate was 0.9% out of 327 patients⁹. Similar complication rates were obtained in our study also.

In terms of outcomes, effectiveness of operative hysteroscopies in infertility are being studied. According to a Cochrane review conducted by Bosteels et al (2015)¹⁰ it was determined that women with otherwise unexplained subfertility and submucous fibroid hysteroscopic myomectomy had no conclusive benefit compared to the control group having regular fertility-oriented intercourse during

12 months. However, A large clinical benefit with hysteroscopic myomectomy cannot be excluded. But for polypectomies, hysteroscopic intervention prior to IUI can increase the chance of a clinical pregnancy. In a study of myomectomy done by Roy et al (2010)¹¹ 58 out of 82 infertile patients (70.7%) conceived after hysteroscopic myomectomy. The take home baby rate was increased from 16.2 to 74%. In a study by Perez Medina et al (2005)¹² on 452 subfertile women with an USG diagnosis of endometrial polyps, planned for IUI. The pregnancy rate after 4 IUI cycles was 63% in the polypectomy group and 28% in the control group (relative risk [RR]: 2.3; 95% confidence interval [CI], 1.6 to 3.2)

In our study also, association of polypectomy with conception was studied with chi square analysis and $p < 0.05$ which was highly significant.

A larger study on individual procedure and its outcome with control group needs to be studied. As indicated by our study outcomes were further increased by IUI and IVF compared to natural cycle. According to Betocchi 2011¹³, patients with multiple ART failures, diagnostic or if necessary, operative hysteroscopy is mandatory to improve reproductive outcome. Further RCTs are needed to provide international guidelines on role of hysteroscopic surgery in infertile women.

CONCLUSIONS

Hence, uterine abnormalities can be diagnosed and treated by hysteroscopy to improve the cost-effectiveness in infertile women. It is a safe procedure with low complication rate. In infertility, conception rates are enhanced after operative hysteroscopies, more so in polypectomies. Nevertheless, need for assisted reproductive techniques cannot be ignored in such couples.

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