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Research Article

To study the role of hysteroscopy and laparoscopy in the evaluation of infertility

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ABSTRACT

Background: Infertility is defined as a lack of conception after at least 12 months of unprotected intercourse. Hysteroscopy and laparoscopy are the two methods widely used in assessing tubal patency, endometriosis, for diagnosis and treatment of polycystic ovaries, tub ovarian mass, peritubal adhesions. This study strives to undertake an in depth analysis of infertility with the help of hysteroscopy and laparoscopy to give a lucid picture to establish a diagnosis and subsequent treatment for the same.
Methods: This is a prospective study carried out in department of obstetrics and gynaecology at Dr. Babasaheb Ambedkar Central Railway Hospital, Mumbai in the year 2008. Women within the age of 20 to 40 with infertility were included in the study.
Results: There were 50 patients in the study out of which 35cases were of primary infertility and 15 cases of secondary infertility. Most common age group was between 26 to 30 years in 42% cases. Hysteroscopy could detect abnormality in 12 cases (24%) and the most common finding being fibroid. Laparoscopy could detect pathology in 74% of cases and the commonest pathology being PCOS (28%).
Conclusions: Hysterolaparoscopy is a very good diagnostic tool for identification of certain problems like endometriosis, adhesions near adnexa etc. which are difficult to diagnose by other imaging modalities and even it can be used as the operative tool in certain situations while undergoing diagnostic test.

Keywords: Infertility, Hysteroscopy, Laparoscopy

INTRODUCTION

At a time when overpopulation is proving to be a crisis all over the world, especially in the developing countries, the age old dilemma of the sterile couple still remains to be completely solved. Infertility is a global conundrum. Approximately 10-15% couples fail to conceive. The definition of infertility varies among clinicians. In 1975, the WHO recommended more than 24 months of unprotected intercourse as the favoured definition. Later WHO changed the definition to "a lack of conception after at least 12 months of unprotected intercourse" (Rowe et al 1993). It is said that the gynaecologists must have eyes at the end of the fingers so that they can delineate the size, shape and position of the uterus and evaluate the adnexae. For this vaginal and bimanual examination is a must. Frequently gynaecologists encounter difficulty in making a diagnosis. But with the advent of sophisticated and newer modalities in diagnosing the cause of infertility, the patients are subjected to lesser trauma and the strain of going through exhaustive investigations. Hysteroscopy and laparoscopy are the two methods widely used in assessing tubal patency, endometriosis, for diagnosis and treatment of polycystic ovaries, tubo ovarian mass, peritubal adhesions. This study strives to undertake an in depth

analysis of infertility with the help of hysteroscopy and laparoscopy to give a lucid picture to establish a diagnosis and subsequent treatment for the same.

METHODS

This retro prospective study was conducted at tertiary care centre at Dr. Babasaheb Ambedkar memorial central railway hospital from January 2008 to December 2008. Patients between the age group of 20 to 40 years were included in the study. The patients with primary as well as secondary infertility was included. Diagnostic Hysterolaparoscopy along with chromopertubation was carried out in infertile patients in early follicular phase from day 5 to day 8. The instruments for Hysterolaparoscopy were of KARL STORZ, Germany.

RESULTS

Out of 50 cases 35 cases were of primary infertility and 15 cases were of secondary infertility. Women who presented with primary infertility were of age groups between 26 to 30 years while that of secondary infertility were between 30 to 35 years. Our study showed that women having various menstrual irregularities were associated with infertility. The most common menstrual abnormality was oligomenorrhea seem in 13 cases, followed by dysmenorrhea (7) and menorrhagia (4) (Table 1).

Table 1: Table of menstrual irregularities.

	No. of cases	Percentage
Regular, (normal)	23	46%
Menorrhagia	4	8%
Dysmenorrhea	7	14%
Oligomenorrhea	13	26%
Hypomenorrhea	3	6%

Study showed that most common hysteroscopic findings were abnormality of the uterine cavity due to fibroid along with septate uterus and polyps being the second common finding (Table 2).

Table 2: Hysteroscopic findings.

Hysteroscopic findings	No. of cases	Percentage
Uterine cavity abnormal (fibroid)	4	8%
Septum	2	4%
Atrophic endometrium	1	2%
Profuse endometrium	2	4%
Intrauterine adhesion	1	2%
Polyp	2	4%

Out of the 50 patients who underwent Laparoscopy with chromopertubation, 13 cases (26%) had no demonstrable pathology on laparoscopy and demonstrable pathology was found on in 37 cases (74%). The abnormal laparoscopic findings are enumerated in Table 4 and Figure 1 and total 74% of abnormalities were found during laparoscopy amongst them the most common finding was PCOS comprising seen in 14 cases (74%).

Table 3: Case distribution according to laparoscopic findings.

Laparoscopic findings	No. of cases	Percentage
No demonstrable pathology	13	26%
Demonstrable pathology	37	74%

Table 4: Distribution of abnormal laparoscopic findings.

Laparoscopic findings	No. of cases	Percentage
Fibroid	5	10%
Endometriosis	6	12%
PCOS	14	28%
Genital kochs	3	6%
Dermoid	1	2%
PID	8	16%
Total	37	74%

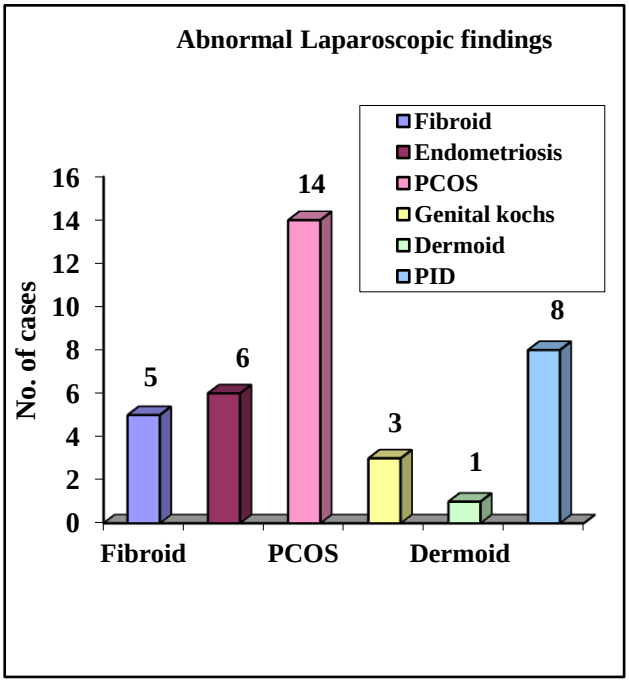

Figure 1: Bar diagram of abnormalities detected on laparoscopy.

Table 5: Table of tubal and peritoneal (32%) pathology diagnosed by laparoscopy.

Pathology	No. of cases	Percentage
Endometriosis	6	12%
Tuberculosis	3	6%
PID	7	14%

The most common etiological factors in our study was found to be tubal and peritoneal factor (32%) followed by ovarian factor (30%) and uterine factor (16%). Unexplained infertility was seen in 8 cases (16%).

Table 6: Percentage of etiological factors in infertility.

Etiological factors	No. of cases	Percentage
Uterine	8	16%
Ovarian	15	30%
Tubal and peritoneal	16	32%
Unexplained	8	16%

Other than mild pain there was no major surgical or anesthetic complication seen in our study. Infertility is not a disease of an individual, rather it is the problem of a couple.

DISCUSSION

Factors from either one or both partners may contribute to difficulties in conceiving; therefore it is important to consider all possible causes in an infertile couple. In some cases, no specific causes are detected despite an extensive and complete evaluation. On the other hand, often more than one cause is identified in a couple. Therefore in the present study, all the couples, after thorough history and physical examination, were subjected to multiple directions of investigation culminating in hystero-laparoscopy. In our study, majority of the patients belonged to the age group of 26-30 years and 2% of patients were between age group of 36-40 years. Majority of the patients presented with primary infertility of less than or equal to 5 years of duration as the couples are very anxious to conceive after marriage.[1,2] The patients in our study, 54% had menstrual complaints whereas 46% had normal menses. Out of 27 patients (54%), 13 patients (26%) had oligomenorrhea and 7 patients (14%) had dysmenorrhea, 4 patients (8%) had menorrhagia and 3 patients (6%) had hypomenorrhea. So in our study population, amongst all menstrual abnormalities, oligomenorrhea and dysmenorrhea were the most common complaints. Out of these, majority of the patients with oligomenorrhea were further diagnosed to have PCOS which keeps in tandem with a study by Hull in 1986, who concluded that overt and occult PCOD accounted for 90% of the patients with oligomenorrhea and 37% with amenorrhea, 73% with oligo and amenorrhea.[3] Oligo and amenorrhea accounted for 21% couples with infertility.

In our study patients having dysmenorrhea when further investigated were found to have endometriosis which keeps in trace with the study by Mahmood TA, Templeton AA et al who reported that dysmenorrhea is the most common reported symptom and severe form is highly suggestive of endometriosis.[4] In our study group of 50 patients hysteroscopy detected abnormalities in 12 patients (24%) and the remaining 38 patients (76%) had no demonstrable pathologies uterine cavity was irregular due to fibroid in 4 patients (8%), septum was detected in 2 patients (4%) and polyps were detected in 2 patients (4%).

Septum causes deficient implantations, both the patients which were detected to have uterine septum on hysteroscopy came with history of abortion in previous pregnancies. Hysteroscopic septum resection was done in both of them under laparoscopic guidance. Laparoscopic guided hysteroscopic metroplasty is safe and allows spontaneous delivery and short term pregnancy planning, in infertile women with history of more than 1 spontaneous abortions.[5,6] Hysteroscopic polypectomy was done in 2 patients in our study. The exact site and location was identified and polyp was removed easily under hysteroscopic guidance with complete stalk removal.

One patient underwent hysteroscopic myomectomy, the fibroid was intra-cavitatory and hence complete excision was possible with hysteroscopic guidance. After myomectomy even the menstrual complaints of this patient decreased.[9] Both these procedures enhanced the fertility of the patients thus showing that operative hysteroscopy helps in treatment of infertility and due to menorrhagia control following myomectomy, hysteroscopy also has therapeutic value.[8]

In the study by Nicole N, Varasteh, et al, concluded that hysteroscopic polypectomy and myomectomy appeared to enhance fertility as compared with women with normal uterine cavities.[7] Persistent functional endometrial polyp, even if small are likely to impair fertility and removal of such lesions may improve subsequent reproductive performance. In my study of 50 patients with infertility, laparoscopy demonstrated pathologies in 37 patients (74%) and 13 patients (26%) had no pathologies. Among the patients with demonstrable pathology, polycystic ovarian disease was diagnosed in 14 patients (28%) which was the most common finding in laparoscopy, endometriosis in 6 pts. (12%), fibroid in 5 pts. (10%), genital Koch's in 3 patients (6%), dermoid cyst of the ovary was diagnosed in 1 patient (2%) and pelvic inflammatory disease diagnosed in 8 patients (16%). The cause of infertility in these patients could be due to anovulation (PCOS), mechanical obstruction, distorted anatomy, destruction of the fallopian tube, affecting fertilization and ovum pick up. Diagnostic laparoscopy should be performed on all women to search for a tubal or pelvic cause of infertility.[10] And also in cases of unexplained infertility or in sub fertile women as many abnormalities were found following laparoscopy.[10,11] Thus from our study, due to laparoscopy, various causes of infertility could be found and further treated. The presence of endometriosis in infertile patients in various studies range from 5-70%, in my study, presence of endometriosis was in 6 pts (12%).

Endometriosis regardless of its severity rarely causes radiographic abnormalities on HSG and therefore can be

diagnosed only by laparoscopy.[12] Definitive diagnosis of endometriosis is made after visualization of endometriotic lesions during laparoscopy and by histological confirmation of laparoscopic impression. Ablation of endometriotic lesions plus adhesiolysis to improve fertility in minimal-mild endometriosis is effective compared to diagnostic laparoscopy alone.[13] Thus laparoscopy is considered a gold standard for the diagnosis of endometriosis.[14] The other most common cause of infertility seen in India is Tuberculosis, and the incidence is almost 3.2 to 6.2% of genital tuberculosis affecting the fertility.[15]

Table 7: Incidence of endometriosis in infertile patients.

Study	Presence of endometrioses infertile women
Multicentric Italian study	30%
Mohmoud and Templeton	20-50%
Caroline Wellbery et all	20%
Robertz et al	15-70%
Present study	12%

4 patients were diagnosed as unexplained infertility; with the basic infertility work up done before hystero-laparoscopy. On hysterolaparoscopy the findings of minimal-mild endometriosis was found in 1 patient, 1 patient with genital Koch's and 2 patients with PID (peritubal adhesion) were diagnosed and treated subsequently. This shows that basic infertility workup is inadequate in diagnosing causes of infertility and needs hystero-laparoscopy for complete infertility workup.

CONCLUSION

Diagnostic hysterolaparoscopy is a very safe and effective tool for the evaluation of infertility. It is a used for the diagnosis and detection of conditions like endometriosis, tubal adhesions, uterine septum etc. and these abnormalities can be corrected which are missed during routine infertility investigations. Hysterolaparoscopy if done with proper selection of cases and in experience hands can be considered as the most effective tool for evaluation of infertility.

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