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Original Research Article

A prospective study to evaluate the role of hysterolaparoscopy in infertility

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ABSTRACT

Background: Infertility is one of the most important and underappreciated reproductive health problems in developing countries. The aim of the present study was to evaluate the role of hysterolaparoscopy in infertility.
Methods: It was observational prospective study. In this study, 50 patients in the age group of 20-40 years who are anxious to conceive formed the study group. All women were subjected to a detailed history taking followed by clinical examination.
Results: Out of 50 cases studied, 30 (60%) were of primary infertility while, 20 (40%) were of secondary infertility. Laparoscopic findings were as follows, 28% had polycystic ovaries, 20% had endometriosis, 18% had tubal factors, 18% had adhesions, and 8% had fibroids while 4% had PID. Hysteroscopic findings were uterine septum in 16%, T shaped cavity in 14%, shaggy-hyperplastic endometrium in 10% while adhesions and polyps in 8% and 4% respectively. 16 women (32%) conceived after the procedure during the study period.
Conclusions: It is concluded that while investigating the causes of female infertility combined simultaneous diagnostic laparoscopy and hysteroscopy with operative interventions wherever indicated should be performed in all infertile patients before treatment, especially in women with age more than 30 years.

Keywords: Hysterolaparoscopy, Infertility, Primary infertility, Secondary infertility

INTRODUCTION

Infertility is one of the most important and underappreciated reproductive health problems in developing countries. In our country there is also a social stigma associated with infertility. As a result, there is an ever-increasing demand for diagnostic and therapeutic intervention for the management of infertile couple. It has been estimated that in India 10-15% of the couples are infertile.

Hysterosalpingography and laparoscopy are the two classic methods for evaluation of tubal factors and are complementary to each other rather than mutually exclusive. Laparoscopy is generally regarded as definitive test for evaluation of tubal factors. It provides both panoramic view of pelvic reproductive anatomy and a magnified view of uterine, ovarian, tubal and peritoneal surfaces and its pathology. It can confirm a clinical impression, establish a definite diagnosis, follow the course of a disease, and modify therapy. Certain operative procedures (ovarian cyst aspiration or biopsy of intraperitoneal structures) can be accomplished through the laparoscope.[1]

Therefore, laparoscopy is an important tool to assess the reproductive pathology including tubal patency (chromopertubation) in infertile women. In the same setting therapeutic interventions like adhesiolysis, PCO drilling, cystectomy etc can be performed in these

patients. Thus, laparoscopy offers both diagnostic and therapeutic advantage to the infertile patients. Since morphological abnormalities of the Fallopian tubes can be visualized directly under laparoscopy, it is generally accepted as the gold standard in diagnosing tubal pathology and other intra-abdominal causes of infertility.

Hysteroscopy provides direct visualisation to the interior of the uterine cavity thus leading to diagnosis of various anomalies, synechiae, and tubal block. It can be used as therapeutic tool as well (procedures like metroplasty, tubal cannulation, adhesiolysis). Thus, combined use of hysterolaparoscopy provides a comprehensive investigative and therapeutic procedure in which various factors causing female infertility can be assessed in a single setting. The study was undertaken to analyse various pathological conditions in the female reproductive tract leading to infertility and to evaluate the role of hysterolaparoscopy in the management of infertility.

METHODS

The study was carried out at the department of Obstetrics and Gynaecology, Holy Family Hospital, Bandra. It was observational prospective study. In this study, 50 patients in the age group of 20-40 years who are anxious to conceive formed the study group. It is an observational prospective study which was carried out over a period of 15 months, from June 2013 to August 2014. All women were subjected to a detailed history taking followed by clinical examination. Those cases where investigations like husband's semen analysis, hysterosalpingogram and ultrasonogram have been done before the surgery were taken for the study.

Inclusion criteria

- Women in the age group of 20 to 40 years
- Primary or secondary infertility
- Normal husband semen analysis.

Exclusion criteria

- Patients not giving consent for study
- Patients with severe medical illness deferring general anesthesia.

Hysterolaparoscopy was performed in the follicular phase of menstrual cycle. Findings of the cases undergoing the hysterolaparoscopy and operative interventions if any were noted. Hysterolaparoscopy was performed under general anesthesia and the patients were kept for a period of 24 hours in the hospital post-operatively. Surgical interventions were carried out whenever required. First, hysteroscopy was performed to visualize panoramic view of the uterine cavity, ostia, endocervical canal and then observations made on laparoscopy were systematically recorded.

The pelvic cavity was visualized for any gross abnormality followed by visualization of pelvic organs namely uterus, fallopian tubes, ovaries, pouch of Douglas (for any endometriotic deposits) and finally tubal patency test with methylene blue was performed. Correction of the abnormalities if any was attempted for example - polycystic ovarian drilling in cases of PCOD, tubal cannulation in cases of proximal tubal occlusion, ovarian cystectomy, metroplasty in cases of hypoplastic uterus or T shaped uterine cavity. Patients were followed up over a period of 15 months to observe the improvement in fertility outcome. The data collected was subjected to appropriate statistical analysis.

RESULTS

Table 1 revealed that 36.7% of the cases had 1° infertility that were among age group 25-29 years and 30-34 years whereas 45.0% of the cases who had 2° infertility were in age group of 30-34 yrs. Average age among the cases that had 1° infertility was 31.17 years which was comparable to 31.55 years among the cases who had 2° infertility.

Table 1: Age wise distribution of infertility among study cases.

Age group (years)	No. of cases	Infertility			
		1° (N=30)		2° (N=20)	
		No	%	No	%
20-24	05	01	03.3	04	20.0
25-29	12	11	36.7	01	05.0
30-34	20	11	36.7	09	45.0
35-40	13	07	23.3	06	30.0
Average age	31.32±04.64	31.17±04.50		31.55±04.97	

Table 2: Duration of infertility with profile of obstetric history among study cases.

Items	No. of cases	%
Duration of infertility (years)		
1-5	32	64
6-10	14	28
11-15	03	6
16-20	01	2
Obstetric history		
Previous abortions	16	80.0
Previous full-term deliveries	07	35.0
Previous IUD	-	-
Previous pre-term deliveries	-	-

For Duration of infertility (years) most of studied cases fall in of 1- 5 years of infertility (32) followed by 6-10 years (14). Lowest number of cases was reported in 11-20 years of infertility.

As per Table 2, 80.0% of the cases had Previous abortions followed by 35.0% of Previous full-term

deliveries. There were few women with both previous abortion as well as previous full-term deliveries.

According to above Table 3, 28.0% of the cases had PCOD followed by 20.0% who had Endometriosis and 18.0% each had Tubal factors and Adhesions on laparoscopy followed fibroids 8% and PID 4%.

Table 3: Profile of laparoscopic findings.

Laparoscopic findings	No. of cases (N=50)	%
PCOD	14	28.0
Endometriosis	10	20.0
Tubal Factors	09	18.0
PID	02	04.0
Fibroids	04	08.0
Adhesions	09	18.0

Table 4 revealed that, 16.0% of the cases had uterine septum followed by 14.0% of the cases who had T shaped cavity. Shaggy endometrium was found in 10% of cases followed by adhesion and polyp in 8 to 4 % of cases.

Table 4: Profile of uterine factors: hysteroscopy.

Hysteroscopy	No. of cases	%
Uterine septum	8	16
T- shaped	7	14
Adhesions	4	8
Polyp	2	4
Shaggy endometrium	5	10

According to the Table 5, 28.0% of the cases had PCOD followed by 6.0% of the cases had Ovarian cyst and sclerotic found in 2 % of cases.

Table 5: Profile of ovarian factors.

Ovarian factors	No of cases (N=50)	%
PCOD	14	28.0
Sclerotic	01	02.0
Ovarian cyst	03	06.0
Absent ovary	01	02.0

Table 6: Causes of infertility at laparoscopic findings.

Causes of infertility	No of cases (N=50)	%
Uterine	19	38.0
Tubal	21	42.0
Ovarian	19	38.0
Peritoneal	20	40.0
Unexplained	07	14.0

As per Table 6, analysis revealed that 42.0% of the cases had Tubal causes followed by 40% of cases & 38.0% of the cases who had peritoneal, Ovarian and uterine causes of infertility respectively in 14% of cases findings were unexplainable for the exact cause.

According to the Table 7, 78.0% of the cases had bilateral spillage followed by 12.0% with unilateral spillage and 10.0% of the cases had no spillage.

Table 7: Profile of chromopertubation.

Chromopertubation	No of cases (N=50)	%
Bilateral Spillage	39	78.0
Unilateral spillage	06	12.0
No spillage	05	10.0

As per above Table 8, 16 cases (32.0%) of the cases were conceived at the end of the study and 34 cases (68%) was not conceived.

Table 8: Profile of total conceived.

Out Come	No of cases	%
Conceived	16	32.0
Not conceived	34	68.0

DISCUSSION

Findings of the procedure and operative intervention if any were noted. Out of the 50 cases, 16 women conceived during the study period of 15 months. The average interval between intervention and conception was 6.3 months.

In the present study, incidence of primary infertility was 60% and that of secondary infertility was 40% which was comparable to other studies.[2,3] The majority of women of primary infertility belonged to age group of 25-29 years (36.7%) and 30-34 years while majority of those with secondary infertility belonged to age group of 30-34 years (45%) as compared to study conducted by Sharma et al, in which majority of women with primary infertility were in age group of 21-25 years (62.2%) while those with secondary were in age group of 26-30 years (47.2%).[3]

Previous abortion was reported in majority of cases (80%) which is comparable with studies by Sharma et al.[3] Uterine factors responsible for infertility were detected in 38% of cases as compared to studies conducted by Chakraborty et al.[4] The high incidence of uterine factors can be attributed to current increased use of hysteroscopy in diagnosis of uterine anomalies and there by their correction as well.

Hysteroscopy, such allowing direct visualization of the uterine cavity and cervical canal, is of help in diagnosis of abnormalities of uterine cavity as polyps, submucous myomas, and endometrial adhesions. Although hysteroscopy is the screening method to be used whenever an intrauterine abnormality is suspected, in the case of infertility HSG becomes the screening procedure, because Hysteroscopy is inadequate to assess the tubal patency. However, Hysteroscopy remains an excellent

additional tool for evaluating the uterine characteristics in infertile women.[5]

Congenital uterine anomalies have been associated with pregnancy loss and obstetric complications. The most common intrauterine pathology was uterine septum (16%). Septate uterus is associated with highest reproductive failure rate, 65% losses occurring in the first trimester.[6] Surgical correction of septum improves the pregnancy outcome uterus with 80% term delivery, 5% preterm delivery, and 15% pregnancy loss.[7] In present study, hysteroscopic abnormalities observed such as Uterine malformations (uterine septum - in this study) contributed to majority of cases followed by T shaped cavity and adhesions which was similar to other studies result.[8,9]

ovarian factors were responsible for 38% of cases as compared to study conducted by Chakraborty et al.[4] The high incidence of PCOD can be attributed to increased awareness and diagnosis of the same. Hysteroscopic abnormalities were found in 52% of cases which is comparable to findings of study conducted by Boudhraa K et al and Corson SL.[10,11] Uterine malformations (uterine septum - in this study) contributed to majority of cases followed by T shaped cavity and adhesions. In the present study, hydrosalpinx is the major cause among the tubal factors, while bilateral tubal block and T-O mass in studies conducted by Chakraborty et al.[4] In this study, tubal factors were responsible for 42% of infertility cases which is comparable to other studies.[12-14]

In the present study, peritoneal factors were responsible for 40% of infertility cases, with endometriosis contributing to 20% which is more than the findings in studies conducted by Sharma et al and Chakraborty et al.[3,4]. Pelvic adhesions were found in 18% of cases, while pelvic inflammatory disease was found in 2% of cases. Results of the present study were comparatively more than the other studies. There were no cases of active Kochs but adhesions and PID can be sequelae to prior infection. In the present study, bilateral spillage (bilaterally patent tubes) was seen in majority of cases (78%) which is comparable to study conducted by Sharma et al.[3] In the present study, tubal factors contributed to majority of cases (42%) followed by peritoneal factors (40%). In this study, many cases had more than one factor responsible.

The total number of women who conceived after the procedure during the study period was 32% which was comparable to study conducted by Boudhraa K et al (34.9%) while it was more as compared to that of Sharma et al (15.83%).[3,9] There were no intra-operative or post-operative complications in the present study.

CONCLUSION

It is concluded that while investigating the causes of female infertility combined simultaneous diagnostic laparoscopy and hysteroscopy with operative interventions wherever indicated should be performed in all infertile patients before treatment, especially in women with age more than 30 years. Many diagnostic tests for female infertility have screening value but the gold standards are laparoscopy and simultaneous hysteroscopy.

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