



Study of Role of Combined Diagnostic Hysteroscopy and Laparoscopy in Evaluating Factors for Infertility

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Abstract

Background: Infertility tends to be one of emerging health concern with modern world. Ten to fifteen percent of the marriages prove to be childless.

Objective: To evaluate the role of diagnostic hysteroscopy and laparoscopy in the assessment of infertility and to help in planning appropriate treatment.

Materials and Methods: Data was obtained from the patients who have visited outdoor of department of obstetrics and gynaecology and admitted in a tertiary care hospital New Delhi, India for a duration of six months from July 2017 to December 2017.

Results: Among 205 infertile women showed that most common pathology was PID (16.8 %) followed by Fibriod (8.29%), endometriosis (7.8%), PCOD (7.31%), uterine septum, polyp/myoma and hydrosalpnix (6.34%), fibrosedostea and TO mass (5.36%).

Conclusion: In order to reduce the burden of primary and secondary infertility proper counselling, guidance and appropriate management plays a important role.

Keywords: Hysteroscopy, Laparoscopy.

Introduction

Infertility is defined as the inability of a couple to achieve conception after one year of unprotected coitus.

Sterility is an absolute state of inability to conceive.

Secondary infertility or sterility are the same states developing after an initial phase of fertility. All these conditions can affect either the male or female partner of a marriage.

The proportion of cases of unexplained infertility seen in any clinic depends on the facilities

available varying from 6 to 60 per cent but is usually seen in about 10-20 per cent. In any series of infertility marriages the main aetiological factor is found in the female in about 40 per cent of cases; about 35 per cent of the husbands concerned have some degree of infertility in 10-20 per cent of cases, a combination of factors operates and the rest have unexplained infertility. In females causes include ovarian, peritoneal, tubal, uterine, cervical, vaginal, coital errors, anxiety, apprehension, familial disposition, etc.

Aims and Objectives

- 1) To evaluate the role of diagnostic hysteroscopy and laparoscopy in the assessment of primary and secondary infertility and to help in planning appropriate treatment.
- 2) To study the frequency of various pathological conditions in female reproductive tract leading to infertility.

Materials and Methods

Study Setting: A prospective study was conducted in a tertiary care hospital in New Delhi, India for a duration of six months from July 2017 to December 2017. All infertile women with age group of 18-44 years who have visited outdoor of department of obstetrics and gynaecology and admitted in a tertiary care hospital were included in the study.

Inclusion Criteria: Primary infertile women, secondary infertile women, age group ≥ 18 and < 45 years, normal husband semen analysis, females with normal thyroid profile and normal serum prolactin, FSH and LSH.

Exclusion Criteria: Females with altered prolactin levels, hyper or hypothyroid women, females with abnormal husband semen analysis, infertile women with age less than 18 years or more than 44 years women with severe cardiac/respiratory illness, acute generalized

peritonitis, anesthetic problems, diabetes mellitus, severe anemia, sexually transmitted diseases, severe urinary tract infection and patients refusing consent for surgery.

Sample Size: 205 infertile women (Primary or Secondary)

Statistical formula with 95% confidence interval and Statistical formula formula for 80% power of study is:

$$n = Z^2P(1-P) / E^2$$

Where

Z (Standard Normal Variate at Confidence level of 95%) = 1.96

P(Prevalence of Infertility)= 2.4% and

E(Absolute Error) = 0.021

$$n = (1.96)^2 \cdot 0.024(1 - 0.024) / (0.024)^2$$

$$n = 205$$

Method and Collection of Data

Informed written consent was obtained by explaining to the subjects about the method of study, outcomes and possible intervention. Diagnostic hysteroscopy and laparoscopy was done under general anesthesia after being completely investigated. The findings of the procedure was recorded on predesigned and pretested proforma. The results were tabulated and analyzed using SPSS 16 software. Various suitable tests were applied as Mean, Standard Deviation and Chi - Square Test.

Observation and Results

Table 1: Showing distribution of Infertility according to age

Age group (years)	Primary infertility		Secondary infertility		Total	
	No.	%	No.	%	No.	%
18-20	9	7.09%	1	1.28%	10	4.88%
21-25	45	35.43%	6	7.69%	51	24.88%
26-30	53	41.73%	16	20.51%	69	33.66%
31-35	19	14.96%	33	42.31%	52	25.37%
>-36	1	0.79%	22	28.21%	23	11.22%
Total	127	61.95%	78	38.05%	205	100%

Above table shows that there were more number of cases (127,61.69%) with primary infertility than those of secondary infertility (78,38.05%) which indicates more awareness in younger generation towards infertility. Majority (41.73%) of the patients in the primary group were between

26-30 years of age whereas the majority 42.31% of patients in secondary infertility group were in 31-35 years of age group.

Table 2: Hysteroscopic Findings

Hysteroscopic Anomaly	Primary infertility		Secondary infertility	
	No.	%	No.	%
Uterine Septum	8	6.29%	5	6.41%
Fibrosed Ostea	8	6.29%	3	3.84%
Polyp/Myoma	6	4.72%	7	8.97%
Synechia	1	0.78%	5	6.41%
Total	23	18.11%	20	25.64%

Above table shows that uterine septum (6.29 %) and fibrosed Ostea (6.29 %) were leading findings in primary infertility whereas uterine polyp/fibroid was the major finding followed by uterine septum(6.41%) and Synechia (6.41%) in secondary infertility group.

Table 3 : Laparoscopic and Hysteroscopic Findings

Findings	No.	%
PID	33	16.08%
Fibroid	17	8.29%
Endometriosis/ Endometrioma	16	7.8%
PCOD	15	7.31%
Uterine septum	13	6.34%
Intrauterine polyp/myoma	13	6.34%
Hydrosalpinx	13	6.34%
Fibrosed Ostea	11	5.36%
TO mass	11	5.36%

Above table shows that most common pathology noted in our study was PID(16.8 %) followed by Fibroid (8.29%), endometriosis (7.8%), PCOD (7.31%), uterine septum, polyp/myoma and hydrosalpinx (6.34%), fibrosed ostea and TO mass (5.36%).

Discussion

Infertile women with normal ovulation, normal pelvic ultrasound finding, normal hormonal profile and normal husband semen analysis have higher possibility of having tubo-peritoneal and subtle endometrial pathologies. The subtle changes are better picked up on magnification with hystero- laparoscopy. These women have a lot of emotional and financial trauma on undergoing series of procedures like HSG (hysterosalpingography), laparoscopy and hysteroscopy over a period of time , before being referred for ART (Assisted Reproductive

technique). Performing hysterolaparoscopy as “one step procedure” in these women will be more beneficial. Intracavitary pathology includes submucous leiomyomas and endometrial polyps, uterine septum, bicornuate uterus.

In the present study shows that there were more number of cases (127,61.95%) with primary infertility than those of secondary infertility (78,38.05%) which indicates more awareness in younger generation towards infertility.

In a study by Chimote et al ¹¹(2015) which included 63 cases of both primary and secondary infertility showed similar results to our findings. Mohapatra P et al¹² (2015) also observed similar findings.

In our study the majority (41.73%) of the patients in the primary infertility group were between 26-36 years of age whereas the majority (42.31%) of patients in secondary infertility group were in 31-35 years of age group. In a study by Chimote et al ¹¹(2015) observed age group of 20-25 years has maximum number of patients (42%) which was quite similar to our study.

Shah SJ et al ¹⁰(2014) observed 63% patients of age 20-30 years with mean age of 26.5 years. A study by Sajeda Praveen et al ⁹(2013) showed the mean age of infertility was 28.4 years.

In our study abnormal hystero-laparoscopic findings were seen in 71.65 % of primary infertility group (91 out of 127 patients) and 83 % of secondary infertility (65 out of 78 patients). Ramesh B¹⁵ (2016) showed abnormal hystero-laparoscopic findings were seen in 75.6 % of primary infertility group (125 out of 165 patients) and 76.5 % of secondary infertility (65 out of 85 patients) which were quite similar to our findings.

In our study the hysteroscopic findings showed that uterine septum (6.29%) and fibrosed ostea (6.29%) were leading findings in primary infertility whereas uterine polyp/fibroid was the major hysteroscopic findings followed by uterine septum (6.41%) and synechia (6.41%) in the secondary infertility group. Ramesh B¹⁵ (2016) showed similar findings. Dawle S et al¹⁶ (2014)

observed on hysteroscopy, synechie was the most common pathology.

Mehta Av et al¹⁴ (2016) stated that the most common intrauterine pathology in primary and secondary infertility group was uterine septum. The findings were quite similar to that of our study.

Another study by Mishra S et al¹³ (2016) and Sharma et al¹⁷(2017) reported similar findings as our results.

In our study uterine fibroid was the only uterine pathology noted on laparoscopy which was 7.87 % of total of primary patients and 8.97% in the secondary infertility group .

Mohapatra et al¹² (2015) observed PCOD, endometriosis and congenital defects of the uterus(septum) were more common in primary than secondary infertility cases (15 out of 60 cases or 25% ,8 out of 60 in 13% ,6 out of 60 in 10 % in comparison to 8 out of 40 or 20% , 3 out of 40 or 7.5%, nil out of 40 respectively).Whereas in our study PCOD was more common in primary infertility group(7.87%) , but endometriosis and uterine septum was almost equal in both groups.

In our study, Hydrosalpinx, endometrial polyps and synechiae were common pathology in secondary infertility group 6.41%,8.97% and 6.41% respectively Which were similar to the findings observed by Mohapatra et al¹²(2015). Only tubal blockage was seen more common in the primary infertility group in our study (36,28.34%).

Godinjak Z et al¹⁸(2008) did simultaneous laparoscopy and hysteroscopy in 360 infertile cases and found tubal occlusion in 8%, pelvic adhesion in 11% ,myomas in 11%,Endometrial polyp in 7%, Asherman syndrome in 0.8 % ,uterine anomalies in 5% cases which are comparable to our study except tubal occlusion which was found to 26.3 % .

Ovarian factors contributed to 16.09% of total (n=205) in our study. This correlates with the study done by Aziz N et al²⁰ (21%) and Chakraboti et al¹⁹ (19.4%).Of the total ovarian causes, PCOS was seen in 19 % in the study done

by Chimote et al¹¹ and 7.31% in our study which suggest that laparoscopy should be done for these patients as PCOS can be diagnosed as well as treated by laparoscopy .

In our study the incidence of endometriosis was 7.8 %, which is in corroboration by the earlier studies done by Godinjak Z et al¹⁸(14%) and Parveen S et al⁹ 13(8%).

Conclusion

The procedure along with chromopertubation should be offered in all tertiary health care centres for effective management of female infertility cases especially in whom all other tests like hormonal assays, routine tests including ESR, Mx, TVS and SIS, HSG, and endometrial study has been already done. Endometrial study helps to reduce the unexplained etiological factors in infertility and to know the ovulatory factor.

Though laparoscopy and hysteroscopy are invasive procedure the complications associated with them can be minimized with proper training and hence benefit the patients and gives us a direct view of pathology.

Limitations

The study was conducted for a duration of 6 months to evaluate role of various factors for infertility, since the number of study subjects was small, so it is possible that the results may not be extremely precise.

Conflict of interest: The authors declare no conflict of interest.

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