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Original Article

Laparoscopy In Infertility

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ABSTRACT

AIMS: To have a comprehensive look at the pelvic organs to know their size, shape, structure, relationship with one another or any pathology of pelvic organs. To assess their role in causing infertility. To assess whether the pathology requires medical or surgical treatment i.e. to formulate the further line of management. **METHODS:** All infertile patients (primary and secondary) anxious to conceive and willing to undergo diagnostic laparoscopy for evaluation of the same. **RESULTS:** Our study was conducted in 100 cases of infertility patients out of which 72% were primary infertility and 28% were secondary infertility of the secondary infertility patients, 53.13% had a previous history of abortion, 37.5% had a previous normal delivery and 6.25% had previous intrauterine death. Uterine factors were implicated in 23% of cases, out of which hypoplastic uterus and fibroid uterus contributed 4% and 8% respectively and müllerian anomalies were found in 11% cases. In our study there was no case of Endometrial tuberculosis. Tubal factors were found in 27% of cases, out of which 1% had peritubal adhesions, and on chromopertubation test, bilateral tubal block was found in 3% and bilateral tubal patency in 79% cases. Ovarian factors were implicated in 63% of cases out of which majority (57%) had PCOD. Among the peritoneal factors (20%), endometriosis was seen in 12% and pelvic adhesions were found in 6%. In spite of thorough laparoscopic evaluation no cause (unexplained infertility) was found in 4% of cases and hence overall, the pelvic pathology was found in 96% of cases. So the present study helps to establish beyond doubt that laparoscopy has an important role to play in evaluating infertility.

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1. Introduction

Barren marriage is a problem as old as history of mankind. It ranks high among the causes of deep unhappiness in marriage because a childless union lacks the strong cementing force. In the past it was not only regarded as an illness but as a curse or

disgrace. The desire to reproduce is an intensely motivating human force. It is through our children that we attain a measure of immortality. Because of its personal nature, couples may also experience strong religious, cultural and social pressures to conceive. Infertility is a life crisis. The number of couples seeking medical help for infertility is increasing dramatically.¹ The incidence of infertility in any community varies between 10-15%.²

Laparoscopy is the gold standard for diagnosing tubal and peritoneal disease, endometriosis and adhesions, because no other imaging technique provides the same degree of sensitivity and specificity. It is also helpful in diagnosing uterine and ovarian factors. Hence diagnostic laparoscopy remains an essential part of the full assessment of infertile couple.

In the present study, all infertile women anxious to conceive and admitted to our Government Hospital, and evaluated by diagnostic laparoscopy were taken. 100 cases were considered for the purpose of the study. All patients with infertility, anxious to conceive and admitted for diagnostic scopy were taken.

All infertile patients (primary and secondary) anxious to conceive and willing to undergo diagnostic laparoscopy for evaluation of the same. A class of patients were desirous of taking medical treatment before undergoing laparoscopy. They were given medical treatment in form of folic acid, clomiphene citrate and timed coitus for three cycles. Those who did not conceive where subjected to laparoscopic evaluation. Diagnostic laparoscopy was performed in all the 100 cases. General anaesthesia was employed. A thorough pelvic assessment was made. Chromopertubation was done with methylene blue dye to assess the patency of tubes. Patients were discharged in the evening or next day morning. Any postoperative complications were noted.

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Results

Laparoscopy plays a valuable role in the diagnosis of infertility. It helps to detect various causes of infertility, which were unrevealed by other investigations. Our study was conducted in 100 cases of infertility patients out of which 72% were primary infertility and 28% were secondary infertility. 37.5% of primary infertility patients belonged to the age group of 21-25 years and 52.78% of primary infertility patients belonged to age group 26-30 years. 57.14% of secondary infertility cases belonged to 26-30 years. 71% of total infertility patients had duration of infertility of 1-5 years. Of the secondary infertility patients, 53.13% had a previous history of abortion, 37.5% had a previous normal delivery and 6.25% had previous intrauterine death. Uterine factors were implicated in 23% of cases, out of which hypoplastic uterus and fibroid uterus contributed 4% and 8% respectively and mullerian anomalies were found in 11% cases. In our study there was no case of Endometrial tuberculosis. Tubal factors were found in 27% of cases, out of which 1% had peritubal adhesions, and on chromopertubation test, bilateral tubal block was found in 3% and bilateral tubal patency in 79% cases. Ovarian factors were implicated in 63% of cases out of which majority (57%) had PCOD. Among the peritoneal factors (20%), endometriosis was seen in 12% and pelvic adhesions were found in 6%. In spite of thorough laparoscopic evaluation no cause (unexplained infertility) was found in 4% of cases and hence overall, the pelvic pathology was found in 96% of cases.

So the present study helps to establish beyond doubt that laparoscopy has an important role to play in evaluating infertility.

Table -1

Type	Study conducted by				n	%
	Duignan et al ⁹	Templeton & Keer ¹¹	Sharma et al ¹⁷	Gomel V ³		
Primary	77%	74.9%	67.2%	69.4%	72%	72%
Secondary	23%	25.1%	32.8%	30.6%	28%	28%

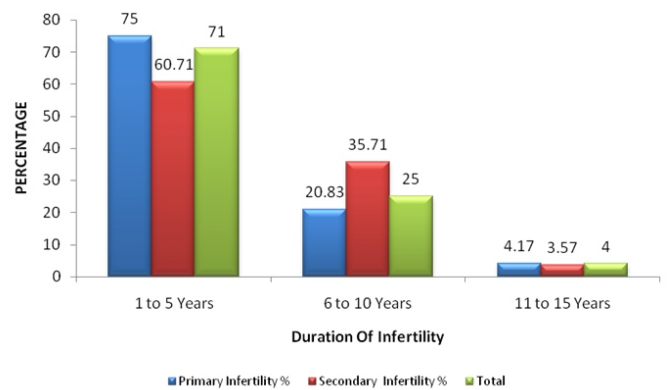
Count of Type of infertility



Duration of infertility

In the present study, majority of patients of primary infertility (75%) and that of secondary infertility (60.7%) had a duration of infertility of 1-5 years. As shown in Table 2, study conducted by Dorr et al²³ also correlated with the present study. Thus, majority of the infertile couple start worrying about their inability to conceive within 5 years of marriage and decide to get themselves investigated.

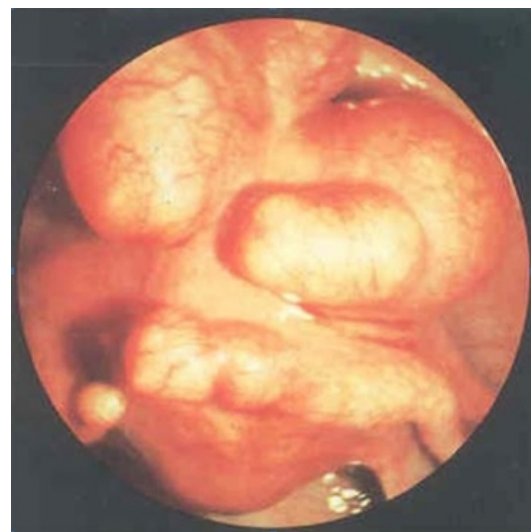
Duration (Years)	Dorr et al ²³		Present study					
	Prim No of cases	Sec %	No of cases	%	Prim No of cases	Sec %		
1-5	262	83.2	154	78.1	72	75	28	60.7



Uterine factors in infertility

In the present study, uterine factors were responsible for infertility in 23% cases. In studies conducted by Chakraborti et al¹⁶, uterine factors were responsible for 14.0%. Hence the results of present study were more as compared to the above- studies.

Fig-1 Multiple fibroids



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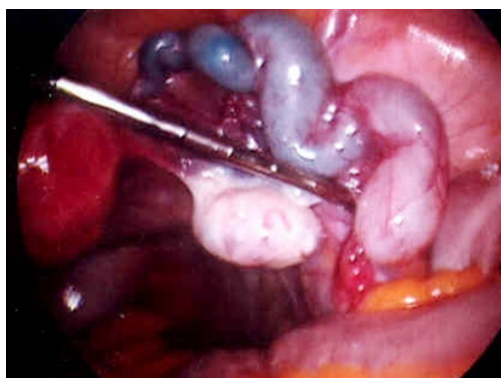
Tubal Factors in Infertility

In our study, tubal factors were responsible for 27% of infertility cases, which correlates with other studies. Similarly the findings of all other tubal parameters correlate with other studies as shown in Table 3. A reduction in incidence is seen because of increased use of antibiotics to treat tubal infections.

Table - 3

Factor	Study conducted by (%)			
	Chakraborti et al ¹⁶	Bhide AG et al ²²	Rubin et a ¹⁶	Present Study
Bilateral tubal block	17.7	12.6	20.5	3.0
Unilateral tubal block	5.0	10.2	8.9	16.0
Peritubal adhesions	-	-	7.6	1.0
Hydrosalpinx	9.2	-	-	4.0
Tuboovarian mass	7.2	14.0	-	1.0
Total	39.0	42.9	37.8	27.0

Fig. 2 : Hydrosalpinx



Ovarian factors in infertility- ovarian factors contribute to 63% of infertility cases in our study. Kliger BE et al¹³ study showed that ovarian factors accounted for 32% out of which 50% were case of pcos. Coltart TM, et al⁸ study contributes (28.7%) but however study conducted by Bhide AG et al²² and Preutthipan S et al²⁰ showed 9.7% and 10.6% respectively. Increase in incidence can be explained by the increasing awareness of people regarding laparoscopic evaluation of infertility.

Table - 4

Factor	Study conducted by					Present study
	Coltart TM Et al ⁸	Preutthipan S et al ²⁰	Bhide AG et al ²²	Chakraborti et al ¹⁶	Kliger BE Et al ¹³	
PCOD	19.7	5.8	3.9	11.4	50	57
Ovarian Cyst	-	-	5.3	8.0	-	6
Streak	-	-	0.8	-	-	0
Total	28.7	10.6	9.7	-	32	63

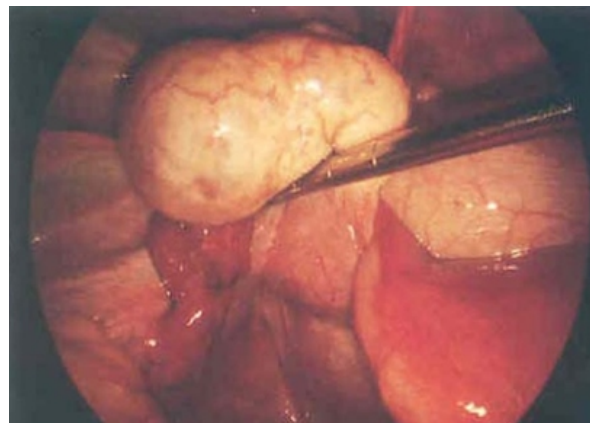


Fig 3: Polycystic ovary

Peritoneal factors

In our study endometriosis was found in 12% cases and was comparable to studies conducted by Sharma et al¹⁷ (6.6%) and Chakraborty et al¹⁶ (4.6%). Genital tuberculosis was found in 1% of cases in our study which was less than that in Sharma et al¹⁷ (10.6%) and Chakraborty et al¹⁶ (8.3%) studies. However, pelvic adhesions were found in 6% of cases in our study which was less than studies conducted by Peterson et al²⁴ (20%) and Fayez JA et al¹⁴ (27.7%).

Table - 4

Factor	Study conducted by					Present study
	Sharma et al ¹⁷	Chakraborty et al ¹⁶	Peterson et al ²⁴	Fayez JA ¹⁴	Bhide et al ²²	
Endometriosis	6.6	4.6	-	-	-	12
Pelvic Tuberculosis	10.6	8.3	-	-	-	1
Pelvic adhesions	-	-	20	27.7	-	6
Total	-	-	-	-	10.9	20



Fig 4: Endometriosis of left tube and ovary

Results of chromopertubation test**Table 6**

Chromopertubation	Study conducted by			
	Rashmi Sharma et al ²¹		Present study	
	No. of cases	%	No. of cases	%
Negative	40	17.7	3	3
Bilateral positive	125	55.5	79	79
Unilateral positive	8	3.5	16	16
Delayed spillage	14	6.2	2	2
Not perceived	38	16.8	0	0
Total	225	100	100	100

Table 6 shows the results of chromopertubation test in our study compared with that of Rashmi Sharma et al²¹. In both the studies, both tubes were patent in majority of patients. However, there were minor differences with the results of other parameters as shown in Table 6.

Unexplained infertility

the incidence of unexplained infertility in our study (4%), which was less than various other studies. In our study we admitted only those patients who did not conceive after their medical treatment and hence the pathology leading to infertility was found on scopy. Rest of the patients who did not have any pathology conceived after the medical treatment.

Causes of infertility at laparoscopy-infertility in our study as compared to Bhide AG et al²² study. In both studies, tubal factors contributed to majority of the patients. However, the ovarian factors were more and unexplained infertility less in our study as compared to Bhide Ag et al²² study. Other factors were comparable in both studies.

Pelvic pathology

Overall pelvic pathology in our study of 100 cases was found to be 96.0%, which was comparable to other studies as shown in Table 24. per 1000 cases in our study (50), which is comparable to various other studies. Hence from present study laparoscopy appears to be a safe procedure.

Conclusion

Laparoscopy affords the clinician the marvellous advantage of making precise diagnostic performance of simple and complex survey without really being there. Direct visualization of the internal genital organs together with ovarian biopsy and chromopertubation, when added onto hysterosalpingography and advanced endocrinological studies, gives the specialist the necessary armamentarium for diagnosis, treatment and prognosis of the infertile couple. In recent years, many clinicians have started using laparoscopy as an integral part of the routine assessment of infertile couple. Laparoscopy is the gold standard for diagnosing tubal and peritoneal disease, endometriosis, adhesions and other

pelvic pathology, because no other imaging technique provides the same degree of sensitivity and specificity. Laparoscopy has proved of great value in the evaluation of infertile couple because of low complication rate, conclusive and easy to interpret findings. Hence, it is an indispensable diagnostic tool in the evaluation of infertile couples.

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