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## RESEARCH ARTICLE

### OUR RESULTS OF HYSTEROLAPROSCOPY FOR DIAGNOSIS OF INFERTILITY

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#### ABSTRACT

**Aim:** Aim of the study is to evaluate the role of Laparoscopy with hysterosalpingography in evaluation of patients with infertility. **Materials and Methods:** This prospective clinical study is conducted Maharashtra Institute of Medical Education and Research (MIMER) medical college from Jan 2013 – Dec 2013. **Results:** Out of 50 cases of primary infertility, 38 (76%) were primary infertility and 12 (24%) were secondary infertility. The most common age group of primary infertility is 21-25 years and secondary is 26-30 years, With mean duration of 4.6 years for primary and 4.9 years for secondary infertility. Laparoscopic findings of ovary showed 7 cases (58.33%) of PCOD, 3 cases (25%) of simple ovarian cyst and 2 cases (16.67%) of chocolate cyst in primary infertility, while in secondary infertility PCOD was 1 case (33.34%), Simple ovarian cyst 1 case (33.33%) and chocolate cyst 1 case (33.33%). Laparoscopic examination of tubes in primary infertility showed 5 cases (13.15%) with unilateral block and 1 case (2.63%) with bilateral block, while in secondary infertility 2 cases (16.66%) had unilateral block and 2 cases (16.66%) had bilateral tubal block. On peritoneal examination in primary infertility, 7 cases (18.42%) had endometriosis and 2 cases (5.26%) had peritoneal adhesions, while in secondary infertility 1 case (8.33%) had endometriosis and 4 cases (33.33%) had pelvic adhesions. Laparoscopic examination of uterus in primary infertility showed 2 cases (5.26%) of myoma and 2 cases (5.26%) of uterine anomalies, While in secondary infertility 3 cases (25%) had myomas and 1 case (8.53%) had uterine anomaly. **Conclusion:** Laparoscopy is useful in the diagnosis of pelvic adhesions, endometriosis and external part of tube, fimbriae, Relations of tubes and ovaries. Hysterosalpingography is useful in the evaluation of endometrial and tubal pathology.

## INTRODUCTION

Infertility is defined as a failure to achieve pregnancy within a year of regular unprotected intercourse (Zulfo Godinjak and Edin Idrizbegovic, 2008). Globally the incidence of infertility is increasing (Sajida parveen and Majidah khanam, 2010). Regarding female factor infertility, congenital anomalies of reproductive system are associated with high rate of infertility (Sajida parveen and Majidah khanam, 2010). Intracavitary pathology includes submucous leiomyomas and endometrial polyps. Those pathologies often result in abnormal uterine bleeding, infertility or both. Congenital anomalies of the female reproductive system are associated with higher rate of infertility (Zulfo Godinjak and Edin Idrizbegovic, 2008). Diagnostic laparoscopy is the standard means of diagnosing the tubal pathology, peritoneal factors, endometriosis and intra abdominal causes of infertility. Not only does this help in identification of unsuspected pelvic pathology, but also contributes to decision making of infertility treatment (Kearney et al., 2001). Laparoscopy often reveals pelvic pathology as endometriosis, PCOD, pelvic and periadnexal adhesions that result in change of treatment (Iftikhar, 2008).

Today, laparoscopy still represents the second option after several failure of in vivo attempts and before moving to conceive in vitro (Culetti et al., 2008). Laparoscopy combined with hysterosalpingography (HSG) is more effective method to reveal tubal block (Zulfo Godinjak and Edin Idrizbegovic, 2008). Laparoscopy was superior method for research of tubal and pelvic pathology in the evaluation of infertility. However, HSG is a more economical and elementary method suitable for evaluation of endometrial and tubal pathologies and laparoscopy is an appropriate method for examining the external part of tube, fimbriae, the relation of tubes and ovary, endometriosis adhesions, tuberculosis and other pathologies.

Therefore, these 2 methods are not alternative, but complementary (Sharon et al., 2009). Here in this study, we are evaluating combined use of laparoscopy with hysterosalpingography in the diagnosis of infertility.

## MATERIALS AND METHODS

This prospective clinical study is conducted Maharashtra Institute of Medical Education and Research (MIMER) medical college from Jan 2013 – Dec 2013.

The detailed medical history was taken in all cases. This was followed by a detailed medical examination and relevant examination of the husband. Only cases with no male factor involving infertility were taken for this study. The schedule of investigations consisted of initial routine examinations of blood especially hemoglobin percentage, total WBC count, DC, ESR, urine routine, serological test for Syphilis, HIV, HbsAg, Blood grouping and Rh typing, TVS, hormonal tests such as FSH, LH, prolactin levels and thyroid profile was done. Patient was admitted one day prior to the procedure and pre-anesthetic checkup was done. The laparoscopy with hysterosalpingography was done in the follicular phase. An informed consent was obtained from all the patients participating in study.

Laparoscopy with hysterosalpingography 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 when ever required. First, laparoscopy was performed to visualize peritoneal cavity uterus, tubes, ovaries, pelvic peritoneum including pouch of douglas, uterovesical pouch and later tubal patency is tested by chromopertubation with methylene blue dye, diluted and injected in the uterine cavity through HSG cannula, transcervically.

## RESULTS

### Type of infertility

Type	Patients	Percentage
Primary infertility	38	76
Secondary infertility	12	24
Total	50	100%

In our study, out of the 50 patients of female infertility, 38 (76%) cases of primary infertility and 12 (24%) cases of secondary infertility.

### Distribution of the patients by age

Age in years	Primary infertility		Secondary infertility		Total
	Patient	Percentage	Patient	Percentage	
21-25	18	47.36%	1	8.33	19
26-30	14	36.84	6	50	20
31-35	4	10.53	3	25	7
36-40	2	5.27	2	16.67	4
Total	38	100	12	100	50

In our study, in cases with primary infertility most of the patients is from age group of 21-25 years, 18 cases (47.36%) and in cases of secondary infertility 26-30 years, 6 (50%) cases. The mean age of presentation was 26.008 years and 30.4 years for primary and secondary infertility respectively.

### Duration of infertility

Duration of infertility	Primary infertility		Secondary infertility		Total
	Patients	Percentage	Patients	Percentage	
1-5 years	22	57.89	10	83.33	32
6-10 years	15	39.47	2	16.67	17
11-15 years	1	2.64	0		1
Total	38	100	12	100	50

The duration of infertility ranged from 1 year to 15 years. In primary infertility the maximum number of cases had duration

of infertility between 1-5 years 22 cases (57.89%) and in cases of secondary infertility 10 cases (83.33%). The mean duration of infertility was found to be 4.6 years in primary infertility and 4.9 years in secondary infertility.

### Menstrual history

	Patients	Percentage
Normal	22	44
Infrequent cycles	18	36
Heavy menstrual bleeding	7	14
Frequent cycles	2	4
Scanty flow	1	2
Total	50	100

In the present study, out of 50 cases with infertility, 22 cases(44%) had normal menstrual cycle, followed by 18 cases(36%) had infrequent cycles, 7 cases (14%) had heavy menstrual bleeding, 2 cases had frequent cycles and 1 case had scanty flow.

### Obstetric history in secondary infertility

	Patients	Percentage
Previous LSCS	10	83.34
Vaginal delivery	1	8.33
Previous miscarriage	1	8.33
Total	12	100

In our study, out of 12 cases with secondary infertility 10 cases (83.34%) had previous LSCS, 1 case had vaginal delivery and 1 case had history of previous miscarriage.

### Laparoscopic examination findings of ovary

Findings	Primary infertility		Secondary infertility		Total
	Number	Percentage	Number	Percentage	
PCOD	7	58.33	1	33.34	8
Simple Ovarian cyst	3	25	1	33.33	4
Chocolate cyst	2	16.67	1	33.33	3
Total	12	100	3	100	15

In our study on laparoscopic examination of the ovaries, patients with primary infertility 7 cases (58.33%) had PCOD, 3 cases (25%) had simple ovarian cyst and 2 cases (16.67%) had chocolate cyst. In cases with secondary infertility 1 case had PCOD, 1 case had simple ovarian cyst and 1 case had chocolate cyst.

### Laparoscopic findings of tubes

Findings	Primary infertility		Secondary infertility		Total
	Number	Percentage	Number	Percentage	
Unilateral tube block	5	13.15	2	16.66	7
Bilateral tube block	1	2.63	2	16.66	3
Normal	32	84.22	8	66.67	38
TOTAL	38	100%	12	100%	

In laparoscopic examination of the tubes, in cases with primary infertility 5 cases (13.15%) had unilateral tube block and 1 case (2.63%) had bilateral tube block. In cases with secondary infertility, 2 cases had unilateral tube block and 2 cases had bilateral tube block. In laparoscopic examination of the peritoneal cavity, in cases with primary infertility, 7 cases (18.42%) had endometriosis and 2 cases (5.26%) had omental

adhesions. In cases with secondary infertility 4 cases (33.33%) had omental adhesions and 1 case (8.33%) had endometriosis. In laparoscopic examination of the uterus, in cases with primary infertility 2 cases had myomas and 2 cases had anomalies. In cases with secondary infertility 3 cases (25%) had myomas and 1 case (8.33%) had uterine anomalies.

#### Laparoscopic peritoneal findings

Findings	Primary infertility		Secondary infertility		Total
	Number	Percentage	Number	Percentage	
Endometriosis	7	18.42	1	8.33	8
Pelvic adhesions	2	5.26	4	33.33	6

#### Laparoscopic uterine findings

Findings	Primary infertility		Secondary infertility		Total
	Number	percentage	Number	Percentage	
Myomas	2	5.26	3	25	5
Anomalies	2	5.26	1	8.33	3
TOTAL	4	10.52	4	33.33	8

## DISCUSSION

This prospective clinical study is conducted Maharashtra Institute of Medical Education and Research (MIMER) medical college from Jan 2013 – Dec 2013. Out of total 50 cases of in fertility evaluated, primary infertility were 38 (76%) and secondary infertility were 12 (24%). Which was in comparison with study group of Borchia Y.G *et al.* (2011), where primary infertility were 35 (70%) and secondary infertility were 15 (30%) out of 50 patients studied (Borichia *et al.*, 2011). In the present study the most common age group was between 21 to 25 years 18(47.36%) were with primary infertility and in secondary infertility was between 26 to 30 years 6 (50%) cases. Where as in the comparison study Borchia Y.G *et al.* (2011), primary infertility was prevalent between the age group of 21 to 25 years, 15 cases (42.85%) and secondary infertility between age group of 26 to 35 years, 6 cases (40%) respectively (Borichia *et al.*, 2011). In 32 (64%) cases, the duration of infertility was from 1 to 5 years among 22 (57.89%) were primary infertility and secondary infertility were 10 (83.33%). In 17 cases the duration of infertility 6 to 10 years. Among cases primary infertility were 15 (39.47%) and 2 (16.67%) were with secondary infertility. In one case, the duration of infertility was from 10 to 15 years (2.78%) was with primary infertility. In comparison group Borichia Y.G *et al.* (2011) maximum number of cases had duration of infertility between 4 to 7 years, in both primary infertility 19 cases (54.28%) and secondary infertility group 7 cases (46.66%) respectively (Borichia *et al.*, 2011).

In our study menstrual pattern amongst 50 cases were, 22 (44%) cases had regular cycles followed by 18 (36%) had infrequent cycles, 7 (14%) had Heavy menstrual bleeding and 2 (4%) had frequent cycles and 1 (2%) scanty flow. Which is in accordance with the study Godinjak Z *et al.* (2008) were 18 (36%) had infrequent flow, (18%) had heavy menstrual bleeding and 3 (6%) had scanty flow (Zulfö Godinjak and Edin Idrizbegovic, 2008). In the present study out of 12 cases of secondary infertility, 10 (83.34%) of them had previous cesarean delivery, 1 (8.33%) had previous vaginal delivery and 1 (8.33%) of them had previous miscarriage. In comparison with the study group Marsha. E. Wolf *et al.* (1990) where 4 (6.5%) out of 61 case studied had secondary infertility following cesarean delivery previously (Marsha *et al.*, 1990).

In our study on the laparoscopic examination of the ovaries patients with primary infertility seven cases (58.33%) had PCOD, 3 cases (25%) had simple ovarian 2 cases (16.67%) had chocolate cyst. In cases with secondary infertility 1 case had PCOD, 1 case had simple ovarian cyst and 1 case had chocolate cyst. Boricha *et al.* showed most common finding on laparoscopy was found to be ovarian factor (32% cases) (1), out of 32% cases of ovarian pathology, PCOD was found to be the commonest(50%), followed by simple ovarian cyst and chocolate cyst. It is also reported that most common etiological factor too was ovarian factor (Wasim *et al.*, 2007).

In the laparoscopic examination of tubes, in cases of primary infertility 5 cases (13.15%) had unilateral tubal block and one case (2.63%) had bilateral tube block and 32 cases (84.22%) have shown normal tubal patency. In case of secondary infertility 2 cases (16.66%) had unilateral tubal block. 2 cases (16.66%) had bilateral tube block and 8 case (66.67%) had shown normal tubal patency. Sajida *et al.* results at laparoscopy and dye studies presented bilateral tubal patency in 64.5% cases and bilateral tubal block in 16.2% cases (Sajida parveen and Majidah khanam, 2010). In one study at laparoscopy bilateral tubal patency was demonstrated in 86% but 3% had bilateral blocked tubes and 11% had unilateral tubal occlusion (Kearney *et al.*, 2001). In laparoscopic examination of the peritoneal cavity, in cases with primary infertility, 7 cases (18.42%) had endometriosis and 2 cases (5.26%) had pelvic adhesions. In cases with secondary infertility 4 cases (33.33%) had pelvic adhesions and 1 case (8.33%) had endometriosis. Although exact prevalence of endometriosis in general population of reproductive age is not known. It is believed to be in the range of 3-10% (Itlsa and Rock, 2003). While study conducted by sajida *et al.* showed pelvic adhesions in 11.2% cases (Sajida parveen and Majidah khanam, 2010).

In laparoscopic examination of the uterus, in cases with primary infertility 2 cases had myomas and 2 cases had anomalies. In cases with secondary infertility 3 cases had myomas and 1 case had uterine anomalies. Infertility is estimated to be 1-2.4% (Moody, 2004) Sajida *et al.* study revealed myomas in 4.8% patients on laparoscopy (Sajida parveen and Majidah khanam, 2010). Sajida *et al.* study shows uterine anomalies revealed in 8 (12.9%) patients including arcuate uterus in 4(6.45%) patients, septate uterus in 2 (3.2%) patients, bicornuate uterus in one and uterus diadelphys in one (Sajida parveen and Majidah khanam, 2010).

## Conclusion

Laparoscopy is more effective method for evaluation of Tubal and Pelvic Pathology, However Hysterosalpingography is very effective method to reveal tubal block in patients with infertility. So it is very important modality of evaluation of infertile women by combined use of simultaneous diagnostic Laparoscopy and Hysterosalpingography.

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