

# Role of Diagnostic Hysteroscopy in Evaluation of Female Infertility- A Retrospective Study

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## Abstract

Infertility affects about 10-15% of reproductive age couples globally. WHO estimates 60-80 million couples worldwide. WHO estimates the overall prevalence of infertility to be between 3.9 to 16.8% (WHO estimate 2004) [2]. Diagnostic hysteroscopy is an effective modality for evaluation of tubal and peritoneal pathologies, endometriosis, pelvic adhesions and intra uterine pathologies, which are not identified with other imaging modalities and routine pelvic examinations. Tubal patency is evaluated simultaneously by direct visualization of spillage of dye through the tubes. This retrospective study is undertaken to evaluate the effectiveness of diagnostic hysteroscopy in infertility workup. Results were analyzed and the abnormal pathologies were categorized. Safety and advantages of Diagnostic hysteroscopy procedure was observed.

**Keywords:** Infertility, hysteroscopy, primary infertility, secondary infertility, poly cystic ovaries, tubal block.

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## INTRODUCTION

Infertility is defined as inability to conceive after one year of unprotected intercourse. This condition is further classified as primary infertility in which no previous pregnancies have occurred and secondary infertility, in which a prior pregnancy has occurred. The main causes of infertility are male factor and female factors. Female factor includes Ovulatory factor 30-40% of cases, tubal factor 25-35% of cases, uterine factors 15% of cases, pelvic factor which includes endometriosis and adhesions 10% of cases [1].

Infertility affects about 10-15% of reproductive age couples globally. WHO estimates 60-80 million couples worldwide. WHO estimates the overall prevalence of infertility to be between 3.9 to 16.8% [2]. Diagnostic hysteroscopy is an effective modality for evaluation of tubal and peritoneal pathologies, endometriosis, pelvic adhesions and intra uterine pathologies, which are not identified with other imaging modalities and routine pelvic examinations. Tubal patency is evaluated simultaneously by direct visualization of spillage of dye through the tubes. In a study by Sandeep *et al.*, [3]. Tubal pathology (43.2%) and pelvic adhesions (40%) were the most common causes [3]. Endometriosis and adnexal adhesions are the common pathologies in a study by Shilpa Bhandari *et*

*al.*, [4]. V. Nandhini *et al.*, study detected tubal factor (34%), uterine factors (18%) and ovarian factor (40%) in laparoscopic evaluation of infertility [5]. 48.38% of patients had laparoscopic evidence of endometriosis in a retrospective study conducted by Vineet Mishra *et al.*, [6]. Jasmina begam *et al.*, study (s4.4%) and uterine pathology (4.4%) in infertile patients [7]. In a retrospective study of 132 patients by Erhong Zhang *et al.*, [8]. Detected endometriosis and pelvic inflammatory disease as the most common laparoscopic findings. Demand for infertility services has increased in recent years because of delayed childbearing, increase in tubal factor infertility and endometriosis, increase in effectiveness of ART techniques. Infertility should be evaluated properly to help the couple achieve a successful pregnancy. Evaluation includes history and physical examination, semen analysis, assessment of ovarian reserve, tests for ovulation, and test for tubal patency. Laparoscopy remains the gold standard for evaluation of structural abnormalities and determination of peritoneal abnormalities and it should be combined with hysteroscopy for evaluation of uterine cavity. This retrospective study is undertaken to evaluate the effectiveness of diagnostic hysteroscopy in infertility workup.

## AIMS AND OBJECTIVES

- To study the effectiveness of Diagnostic hysteroscopy in evaluation of Female infertility.
- To evaluate the pathologies observed.

## MATERIAL AND METHODS

This is a Retrospective study conducted in Annapoorana Medical College and Hospital, Salem and Malar Maternity hospital, Salem based on the clinical records of infertile patients who has undergone Diagnostic hysteroscopy combined with chromopertubation from January 2015 to November 2018.

Sample size: 200

### Inclusion Criteria

- Both primary and secondary infertility cases
- Age-20 -40 years

- Infertility for more than three years,
- Regular cycles,
- Normal hormonal assay including thyroid profile ,serum prolactin, FSH,LH
- Normal seminal fluid analysis of husband

Diagnostic hysteroscopy was done in postmenstrual phase.

Results were analyzed and the abnormal pathologies were categorized. Safety and advantages of Diagnostic hysteroscopy procedure was observed.

## RESULTS AND DISCUSSION

The study included 200 infertility cases of which 60.5% had primary infertility and 39.5% had secondary infertility (Table-1). In Chanu *et al.*, Study the incidence of primary infertility was 58.28% and secondary infertility was 41.72% [9].

**Table-1: Analysis of cases based on type of infertility**

Infertility Type	No. of Cases	Percentage
Primary	121	60.5%
Secondary	79	39.5%

The cases were distributed according to age. Of the primary infertility cases 29.75% were seen age group of 20-25 years, 37.19% were seen in 26-30 years, 23.14% seen in 31-35 years and 9.92% in 36-40 years of age group (Table-2). Dawle *et al.*, study showed

maximum cases of infertility (40%) in the age group of 21-25 years followed by (35%) cases of infertility in the age group of 26-30years. Mean age of women was 24.6 years [10].

**Table-2: Distribution of Primary infertility cases according to age**

Age in years	Number of cases	Percentage
20-25	36	29.75
26-30	45	37.19
31-35	28	23.14
36-40	12	9.92

Of the secondary infertility cases, majority 27.84 % were in the age group of 26-30 years, 16.46% in 20-25 years, 32.92% in age group of 31-35 years and 22.78 % in 36-40 years (Table-3). The patients in

secondary infertility group were slightly elder compared to primary group in Prasanta *et al.*, study [11].

**Table-3: Distribution of Secondary infertility cases according to age**

Age in years	Number of cases	Percentage
20-25	13	16.46
26-30	22	27.84
31-35	26	32.92
36-40	18	22.78

Majority of cases had normal laparoscopic findings in both primary and secondary infertility group. Polycystic ovaries (18.18%), Tubal pathology (14.8%), endometriosis (11.57%) were the common findings in primary infertility group (Table-4). In secondary infertility group endometriosis was the common finding (12.65%) was the common finding followed by tubal pathology and polycystic ovary

(12.65%) both. Fibroids were seen in 10.7% of cases of primary infertility and 12.65% of cases of secondary infertility. Shoba *et al.* study showed polycystic ovaries (18.99%) as common finding followed by fibroids (10.13%) and endometriosis (6.33%) in primary infertility and normal laparoscopy findings in 40.51% and 42.86% of cases of primary and secondary infertility respectively [12]. Sunita *et al.*, detected PCOS in 22%

of cases [13]. Pelvic inflammatory disease (PID) was seen in 7% of cases both in primary and secondary infertility. Erhong *et al.*, showed a higher incidence of PID in 59.5% of cases [8]. Normal laparoscopy findings were seen in 25.6 % and 30.37% cases of primary and secondary infertility. Patients with endometriosis had flimsy to dense adhesions. Grade 4 endometriosis was

seen in 3 (2.47%) cases of primary infertility. Ahmed *et al.*, study showed endometriosis in 4.76 % and 3.33% of primary and secondary infertility cases [14]. Pelvic tuberculosis one of the important causes of infertility in India is seen in 2.47% and 1.2% of primary and secondary infertility cases respectively.

**Table-4: Distribution of Primary and Secondary infertility cases according to laparoscopy findings**

Diagnosis	Primary Infertility (121)		Secondary Infertility (79)	
	No. of cases	Percentage	No. of cases	Percentage
PCO	22	18.18	10	12.65
FIBROIDS	13	10.7	8	10.1
TUBAL PATHOLOGY	18	14.8	10	12.65
ENDOMETRIOSIS	14	11.57	12	15.18
UTERINE ANOMALY	11	9.0	4	5.06
PID	9	7.43	6	7.59
PELVIC TUBERCULOSIS	3	2.47	1	1.2
Normal findings	31	25.6%	24	30.37

The present study showed 9.9 % and 10.1% of unilateral block in primary and secondary infertility cases respectively (Table-5). Bilateral block is seen in

6.6% and 5.06% of primary and secondary infertility cases respectively. Prasanta et al, study showed 10 % of unilateral and bilateral block [11].

**Table-5: Tubal block in chromopertubation**

Tubal block	Primary Infertility (121)		Secondary Infertility (79)	
	No. of cases	Percentage	No. of cases	Percentage
Bilateral	8	6.6	4	5.06
Unilateral	12	9.9	8	10.1

Hysteroscopy finding were seen in 25.63% and 25.39% of primary and secondary infertility cases respectively (Table-6). Submucous fibroid was the commonest hysteroscopic abnormality noted. Uterine septum was seen in 6.6 % and 2.5% of primary and secondary infertility cases respectively. Cervical stenosis was seen in 2 % of cases. Sunita *et al.*, study showed 4.7% of endometrial polyp, 9.4% of septum, 3.12% of submucous myoma and 3.12% of synechiae in

primary infertility cases. 3 patients in secondary infertility group had retained products of conception with history of second trimester abortion [13]. Osteal block was seen in 3.35% and 2.55 % of primary and secondary infertility cases. Ahmed et al. study showed 4.76 % and 22.22% of primary and secondary infertility cases [14]. Operative hysteroscopy was done for patients with fibroids, polyps, septum and synechiae. Abnormalities were corrected.

**Table-6: Hysteroscopy Findings**

Hysteroscopy Findings	Primary Infertility (121)		Secondary Infertility (79)	
	No. of Cases	Percentage	No. of Cases	Percentage
SUBMUCOUS FIBROID	10	8.26	5	6.3
ENDOMETRIAL POLYP	3	2.57	2	2.5
CERVICAL STENOSIS	2	1.65	0	0
UTERINE SYNECHIAE	2	1.65	3	3.7
UTERINE SEPTUM	8	6.6	2	2.5
RETAINED PRODUCTS	0	0	3	3.7
OSTIUM BLOCK	4	3.3	2	2.5
NORMAL	90	74.38	59	74.61

None of the patient had hemorrhage or infection. Very few patients reported pain. The patients were discharged on the first postoperative day.

## CONCLUSION

Diagnostic hysterolaparoscopy is considered as the gold standard investigation of diagnostic

laparoscopy. Abnormalities which cannot be detected by routine investigation can be detected with hysterolaparoscopy. Considering the low complication rate, shorter duration of the procedure and hospital stay, direct visualization and simultaneous correction of abnormal findings, Diagnostic hysterolaparoscopy

should be considered as a definitive procedure in the infertility workup.

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