



## EVALUATION OF COMPARATIVE EFFICACY AND ADVERSE EVENTS OF DIAGNOSTIC HYSTEROLAPAROSCOPY WITH HYSTEROSALPINGOGRAPHY FOR DETECTION OF PELVIC, UTERINE AND TUBAL PATHOLOGY IN PRIMARY AND SECONDARY INFERTILITY CASES.

**Dr. Siddharth Srivastava**

Resident, Obstetrics and Gynecology, Geetanjali Medical College

**Dr. Arun Gupta\***

HOD, Obstetrics and Gynecology, Geetanjali Medical College  
\*Corresponding Author

**Dr. Aishwarya Srivastava**

Resident, DY Patil medical college, Pune

### ABSTRACT

**Introduction:** One of the most important and underappreciated reproductive health problems in developing countries is the high rate of infertility and childlessness

#### Objective:

1. To study the diagnostic efficacy of HSG compared to Diagnostic Hysterolaparoscopy for detection of Uterine and Tubal Pathology in Primary and Secondary infertility cases.
2. To assess the utility of diagnostic hysterolaparoscopy as one step procedure for detection of Pelvic, Uterine and Tubal Pathology in female infertility cases.
3. To compare the adverse events/complications of Hysterosalpingography and Diagnostic Hysterolaparoscopy.

**Methodology:** The study began after receiving Ethic Committee approval and by taking informed consent of the participants. We enrolled 140 patients diagnosed with Primary or secondary Infertility and attending Obstetric and Gynaecology department of Geetanjali Medical College and Hospital All the patients were enrolled by checking inclusion and exclusion criteria. Patients with Primary and Secondary infertility were enrolled in the study. Each patient undergone Hysterosalpingography followed by Hysterolaparoscopy procedure. Hysterosalpingography findings was compared with hysterolaparoscopic findings for understanding pelvic, tubal and uterine pathology. P value less than 0.05 was considered as statistically significant.

**Result:** A total of 140 patients recruited in our study. The mean age group in our patient was  $27.93 \pm 4.08$  years. The most common age group was 21-30 years. Primary infertility was most common in our patients. The mean duration of infertility in our patient was 5.49 years and standard deviation was 2.86 years. HSC was 100% sensitive than HSG for uterine pathology. HSG was 60.31% sensitive for tubal patency as compared to laproscopic chromopertbation. HSG is associated with high amount of complications as seen in our study with more chances of intravasation of dye and pain, while in Hysterolaproscopy pain and in only one patient port site infection was seen.

**Conclusion:** Hysterolaparoscopy is far superior to HSG, as it is more accurate and therapeutic intervention is possible at the same time.

**KEYWORDS :** Hysteroscopy, hysterosalpingography, Infertility

### INTRODUCTION

Infertility is defined as 1 year of unprotected intercourse without pregnancy. This condition may be further classified as primary infertility, in which no previous pregnancies have occurred, and secondary infertility, in which a prior pregnancy, although not necessarily a live birth, has occurred. It affects approximately 10-15% of couples. Tuboperitoneal pathology is responsible for infertility in 40-50% of the cases, while uterine pathology accounts for 15-20% of cases. Other factors include ovulatory dysfunction (30-40%) and male factor (30-40%).<sup>1-3</sup>

Pelvic abnormalities causing infertility are not completely appreciated by Pelvic examination. For this direct visualization by laparoscopic examination has been advised as a routine component in infertility evaluation.<sup>4</sup>

In evaluating these factors Hysterosalpingography has for many years been the most common investigation and often the only one used but this does not enjoy the same popularity as a sole investigation and even the investigation of choice because of its own limitations pertaining to complete unequivocal information, complications and dangers of technique and contrast used.<sup>8</sup> However being an out patient investigation the same cannot be replaced or written off from the list of the dominant investigations in infertility because of the information it furnishes about the interior of the cavity, comparatively less hazardous complications and no need of General Anaesthesia. Experience has shown that pelvic

abnormality in the infertile patient is frequently not appreciated By pelvic examination and the usual diagnostic studies. For this reason, direct endoscopic technique has been advanced as a routine component of the complete evaluation of the infertile woman. Hysteroscopy provides a means of direct observation of intra-uterine defects, which can eventually interfere with fertility and as a therapy for intra-uterine lesions, for which hysteroscopy is the method of choice. Laparoscopy is more reliable, informative, less dangerous, easily interpretable in experts hands and a method which provides the direct visualization of the pelvic organs. When performed in combination with Chromoperturbation it furnishes comparatively dependable information about tubal patency.

### OBJECTIVES

1. To study the diagnostic efficacy of HSG compared to Diagnostic Hysterolaparoscopy for detection of Uterine and Tubal Pathology in Primary and Secondary infertility cases.
2. To assess the utility of diagnostic hysterolaparoscopy as one step procedure for detection of Pelvic, Uterine and Tubal Pathology in female infertility cases.
3. To compare the adverse events/complications of Hysterosalpingography and Diagnostic Hysterolaparoscopy.

### METHODOLOGY

The study began after receiving Ethic Committee approval and by taking informed consent of the participants. We enrolled 140 patients diagnosed with Primary or secondary Infertility and attending Obstetric and Gynaecology department of Geetanjali Medical College and Hospital All the patients were enrolled by checking inclusion and exclusion criteria.

**INCLUSION CRITERIA:**

- Primary and Secondary Infertile Couple

**EXCLUSION CRITERIA:**

- Presence of acute pelvic infection
- Patient in menstrual phase
- Pregnant patients
- Patients with severe cardiopulmonary compromise.
- Active genital ulcers.
- Hypersensitivity to radio-opaque dye.

**INTERVENTION :**

Each patient undergone through Hysterosalpingography followed by Hysterolaparoscopy procedure. Patients was assessed on the basis of: Demographic variables, Comorbidities, History and Clinical Examination, Hysterosalpingography findings was compared with hysteron-laparoscopic findings for understanding tubal pathology and pelvic adhesions, endometriosis or any other pathology, Hystero-salpingographic findings was compared with hystero-laparoscopic findings for understanding uterine pathology, Therapeutic interventions are performed during hysterolaparoscopy, Efficacy of pan endoscopy is compared with that of Hysterosalpingography for managing cases of female infertility.

**STATISTICAL ANALYSIS**

The data was entered into the Microsoft excel version 2016 and analyses was done using statistical package for social science version SPSS 25.0. Frequency of demographic variables, clinical variables were calculated and graphical presentation was done. The difference between HSG and HSC was calculated for uterine, ovarian and tubal findings. Sensitivity, Specificity, positive predictive value and negative predictive value was calculated for uterine, ovarian and tubal findings in both HSG and HSC. P value less than 0.05 was considered as statistically significant.

**RESULT**

A total of 140 patients recruited in our study. The mean age group in our patient was 27.93±4.08 years. The most common age group was 21-30 years. Primary infertility was most common in our patients in 114 out of 140 patients. The mean duration of infertility in our patient was 5.49 years and standard deviation was 2.86 years. Most of the 67 patient had normal regular menstrual history. Six patients had past history of tuberculosis. The most common diagnosis is seen in table 1

Diagnosis	frequency
Pcod	31
Unilateral tubal block	30
Normal	10
Endometrial polyp	10
Endometriosis	10
Ovarian cyst	10
Subserosal fibroid	10
Bilateral tubal block	8
Pid	6
Hydrosalpinx	11
Septate uterus	3

USG finding in our patients as seen in table 2

USG findings	Frequency
Normal	85
Pcos	31
Ovarian cyst	10
Hydrosalpinx	6
Septate uterus	2
Endometrial polyp	5

HSG FINDINGS as seen in table 3

HSG FINDINGS UTERINE	FREQUENCY
Septate uterus	2
Filling defect	4
HSG FINDINGSTUBAL	FREQUENCY
Normal	79
Unilateral spillage	32
Negative	29

**PER VAGINA FINDINGS**

Only 2 patient had cystic mass. One patient had in right side adnexa and other patient had in left side adnexa.

LAPROSCOPIC FINDINGS as seen in table 4

laproscopic uterine findings	frequency
NAD	111
Subserosal fibroid	11
Spots of endometrial tissue seen	10
Congestion over uterus	4
Adhesions allover the uterus	2
Endometriotic spots with adhesions	2
Laproscopic tubal findings	Frequency
Normal	113
Adhesion	4
B/lfimbrial block	4
Unilateral tubal block	4
Spots of endometrial tissue seen	3
Congested	2
Hydrosalpinx	10
Laproscopic ovarian findings	Frequency
Normal	92
PCOD	36
Ovarian cyst	10
Adhesion	2

Adhesions were seen in 6 patients out of 140 patients. In Chromopertubation test 131 patients were positive, 6 were negative and was positive in unilateral positive in 3 patients.

Hysteroscopic findings such as endometrial polyp were seen in 12 patients and partial septate uterus was seen in 3 patients.

Endometrial biopsy was done for all the patients and in six tuberculosis patients it was sent for TB-PCR

Operative procedure after hysteroscopy was seen in table 6

Procedures	Frequency
Ovarian driling done	36
Not done	34
Myolysis done	11
Cystectomy done	10
Polypectomy done	12
Endometrial spot ablation	8
Adhesiolysis	10
Septal resection	3
Endometrial spot ablation and adhesiolysis	6

HSC was 100% sensitive than HSG for uterine pathology. HSG was 60.31% sensitive for tubal patency as compared to laproscopic chromopertbaton. HSG is associated with high

amount of complications as seen in our study with more chances of intravasation of dye and pain, while in Hysterolaprosopy pain and in only one patient port site infection was seen.

## DISCUSSION

We conducted this study to evaluate the diagnostic efficacy of Hysterosalpingography compared to Diagnostic Hysterolaparoscopy for detection of Uterine and Tubal Pathology in Primary and Secondary infertility cases. The study was also conducted to assess the utility of diagnostic hysterolaparoscopy as one step procedure for detection of Pelvic, Uterine and Tubal Pathology in female infertility cases as well as to compare the adverse events/complications of Hysterosalpingography and Diagnostic Hysterolaparoscopy.

In our study we recruited total of 140 patients recruited in our study. In another retrospective study done by Chinwe R et.al reported data of 299 patients of HSG on infertility. 5

The most common age group was 21-30 years. This finding was similar to a study of V.Nandhini et. al who reported 21\_30 years. In Boricha K.G et al 43% belongs to the age group of 21-25 years. 6, 7

In our study, primary infertility was most common type of infertility in 81.4% patients. This finding was similar to the finding of study of Chinwe et. al.

In our study the mean duration of infertility in our patient was 5.49 years and standard deviation was 2.86 years, this finding was similar to the finding of V.Nandhini et. al. It is comparable with Brochia et al study group conducted the study of duration of infertility. In this study maximum patients falls in duration of 1-5 years (67.5%).

In our study the most common finding was PCOD i.e. 31 out of 140 patients, followed by Unilateral tubal block and followed by normal. In another study done by V.Nandhini et. al the most common finding after hysterolaprosopy was normal finding, followed by submucus fibroid and adenomyosis.6

In our study the uterine findings were only diagnosed in 6 patients on HSG as compared to 29 in Hysterolaprosopy. This finding was lower as compared to a study reported by Meenakshi et.al had a positive uterine lesion with the 30% in HSG and 20% in Hysterolaprosopy. 8

A similar trend was found in the study by Shakya et al where he detected only 2% abnormal cases on HSG and 12% abnormal cases on HSC. In contrast to this, Ganglione et al in their study had 47.1% patients with pathological findings on HSG and 41.4% patients had pathological findings on hysteroscopy. 9

In our study tubal disease was detected in 61 patient out of 140 patient, this finding was similar to Snowden et.al who reported 42% diagnostic accuracy in tubal disease. 10

In our study the most common laproscopic finding reported was normal pattern in 111 patients out of 140 patient. This finding was same as reported by V.Nandhini et. al. 6

Who also reported 86% normal pattern. The second most common finding reported in our study was subserosal fibroid, again this finding was similar to earlier study of V.Nandhini et. al. In a study conducted by Godinjak Z et al 7.2% patients had endometrial polyp, 5.2% had anomalous uterus, 0.8% had Asherman syndrome. 6, 11

In our study the most common ovarian finding was normal pattern in 92 patient followed by PCOD and ovarian cyst. In a

study done by V.Nandhini et. al reported 60 % of normal pattern followed by PCOD. 6

In our study in tubal patency test, bilateral positive was seen in 131 patients out of 140 patients. This finding was similar to the study of V.Nandhini et. al who reported bilateral positive in 80% of the patient. The patient with bilateral negative was similar to the V.Nandhini et. al study. 6

One of advantage of Hysterolaprosopy was that operative procedures like ovarian drilling ,myolysis, cystectomy, polypectomy, endometrial spot ablation, adhesiolysis, septal resection can be performed.

In our study, sensitivity of Hysterolaprosopy was 100 % and Positive predictive value was 93.28% for uterine findings detection. In our study sensitivity of Hysterolaprosopy was 60.31% and positive predictive value of 100% for tubal finding. HSG is associated with high amount of complications as seen in our study with more chances of intravasation of dye and pain, while in Hysterolaprosopy pain and in only one patient port site infection was seen.

## CONCLUSION

Hysterolaparoscopy is far superior to HSG, as it is more accurate and therapeutic intervention is possible at the same time. In selected infertile women, where other causes are excluded and tuboperitoneal pathology is strongly suspected, hysterolaparoscopy may be recommended as the first and final procedure, rather than subjecting the patients to two procedures. Also, it will be possible to prognosticate and segregate the patients who will need ART and they can be referred at the earliest, thus avoiding further emotional and financial trauma to the couples.

## REFERENCES

1. Jain S. Pan Endoscopic Approach "Hysterolaparoscopy" as an Initial Procedure in Selected Infertile Women. JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH. 2014;.
2. Mohr J, Lindemann H.S., Hysteroscopy in the infertile patients J. Reprod Med 1977 19(3):161
3. RICE J, LONDON S, OLIVE D. Reevaluation of Hysterosalpingography in Infertility Investigation. Obstetrics & Gynecology. 1986; 67(5):718-721.
4. Dugan K. Diagnostic Laparoscopy Under Local Anesthesia for Evaluation of Infertility. Journal of Obstetric, Gynecologic & Neonatal Nursing. 1985; 14(5):363-366.
5. Chinwe R. Onwuchekwa1 and Vaduneme K. Oriji. Hysterosalpingographic (HSG) Pattern of Infertility in Women of Reproductive Age. J Hum Reprod Sci. 2017 Jul-Sep; 10(3): 178-184.
6. V.Nandhini, Murugalakshmi, M.D. Role of Diagnostic Hysterolaparoscopy in Primary Infertility. Volume 15, Issue 8 Ver. VII (August, 2016), PP 25-28
7. YG Boricha, RK Sharma, BG Boricha, S Mhapankar, A Chaterjee, Narshetty J. Laparoscopy in 50 infertile couples: prospective study. Int J Med Clin Res. 2011; 2:63-66.
8. Meenakshi Barsaul Chauhan, Pinkey Lakra, Roopa Sangwan, Smiti Nanda, Vani Malhotra. Hysterosalpingography vs Hysteroscopy: Role in Assessment of Uterine Factor during Infertility Workup. International Journal of Infertility and Fetal Medicine, Vol. 4, No. 3.
9. Ganglione R, Valentini A, Pistilli E. A comparison of hysteroscopy and hysterosalpingography. Int J Gynaecol Obstet 1996; 52: 151-153.
10. Snowden EU, Jarrett JC. Comparison of diagnostic accuracy of laparoscopy, hysteroscopy and hysterosalpingography in evaluation of female infertility. Fertil Steril 1984 may; 41 (5): 709-13
11. Godinjak Z, Idrizbegovic E. Should diagnostic hysteroscopy be a routine procedure during diagnostic laparoscopy in infertile women? .Bosn J Basic Med Sci. 2008; 8:44-47.