

# International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614  
ISSN (E): 2522-6622  
© Gynaecology Journal  
[www.gynaecologyjournal.com](http://www.gynaecologyjournal.com)  
2021; 5(6): 151-154  
Received: 04-09-2021  
Accepted: 09-10-2021

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## Hysterolaparoscopy in assessment and management of female infertility

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DOI: <https://doi.org/10.33545/gynae.2021.v5.i6c.1073>

### Abstract

**Background:** Female infertility is a growing matter of concern in reproductive age affecting approximately 80 million couples globally. As per WHO, infertility prevalence in India is up to 16.8%.

**Aims:** The present trial was carried out to assess the pathologies in the reproductive tract of females with primary/secondary infertility using hysterolaparoscopy and to narrate the therapies for management used in subjects depending on findings of the hysterolaparoscopy.

**Materials and Methods:** The study included 40 females within reproductive age of 18 years to 49 years diagnosed with either primary or secondary infertility that underwent under general anesthesia, hysterolaparoscopy was done to detect any abnormality, and the subjects were kept under observation post-operatively for 1 day. The collected data were subjected to the evaluation and the results were formulated.

**Results:** Laparoscopic abnormalities were seen in 35% (n = 140) subjects, Hysteroscopic abnormalities in 12.5% (n = 5) subjects, and combined in 15% (n = 6) subjects. Depending upon the underlying pathology detected on hysterolaparoscopy, various interventions were performed in the study subjects (Table 4) including ovarian drilling (25%, n = 10), ovarian cystectomy (25%, n = 10), polypectomy (15%, n = 6), curettage (2.5%, n = 1), adhesiolysis (15%, n = 6), myomectomy (2.5%, n = 1), cannulation (2.5%, n = 1), fulgration (2.5%, n = 1), and salpingectomy (7.5%, n = 3).

**Conclusion:** Within its limitations, the present study concludes that laparoscopy increases the accuracy of abnormality detection. Also, concurrent use of laparoscopy with hysteroscopy leads to better results in terms of cost, post-operative healing, and detection of abnormalities in females with infertility.

**Keywords:** Infertility, laparoscopy, hysterolaparoscopy, hysteroscopy, female infertility

### Introduction

Female infertility is a growing matter of concern in reproductive age affecting approximately 80 million couples globally. However, infertility can affect both males and females with varying prevalence based on geographical distribution. Infertility can be primary or secondary where primary infertility presents inability to conceive after a year of sexual exposure affecting females of 15-49 years of age, whereas, secondary infertility presents inability to conceive after one pregnancy. Idiopathic/unexplained infertility is also seen in females with primary infertility being most prevalent. As per WHO, infertility prevalence in India is up to 16.8% [1].

Diagnostic evaluation of infertility is a standard procedure that aims at evaluating fallopian tubes and ovulation in females affected along with ultrasound and laboratory investigations. However, routine pelvic assessment and diagnostic approaches are not able to well-differentiated pelvic pathology in infertile females [2]. Visualization of the uterine cavity to detect any existing pathology emphasized the importance of hysteroscopy in the diagnostic evaluation of female infertility. Hysteroscopy can help resolve ovary morphology, tubal patency, tubal morphology, disorders of the uterine cavity, and pelvic pathology in a single session [3].

The laparoscopic intervention has added advantages of hemostasis, less pain, precise surgery, less cost, and better tissue handling compared to the conventional approach. Laparoscopy also has further added advantages in treating infertile females including the possibility to avoid treating infertility costs in cases such as multiple pregnancies [4]. Postsurgical management also becomes easy based on intra-operative findings in laparoscopy. Laparoscopic correction of endometrial polyps, polycystic ovaries, and endometriosis helps in correcting infertility and reduce the effect of associated comorbidities like pain in the pelvic region [5].

Along with the examination of the uterine cavity, hysteroscopy in the same session can aid in the

biopsy, septal resection, myomectomy, polypectomy, and/or adheiolysis. Hysteroscopy is carried out under general anesthesia with trochar insertion in the proliferation phase of the menstrual cycle and evaluates Ostia, endometrium, intrauterine lesions, and cervical canal. Hysteroscopy appropriately shows the size, location, and type of lesions. Few studies in the literature have evaluated laparoscopic hysteroscopy in female infertility [6]. Hence, the present trial was carried out to assess the pathologies in the reproductive tract of females with primary/secondary infertility using hysterolaparoscopy and to narrate the therapies for management used in subjects depending on findings of the hysterolaparoscopy.

### Materials and Methods

The present study was a clinical trial that was prospective and was carried out at Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram, Andhra Pradesh, India. The study population comprised of 40 subjects that reported to the Department of Obstetrics and Gynaecology. The inclusion criteria of the study were the females within reproductive age of 18 years to 49 years diagnosed with either primary or secondary infertility, subjects with no other systemic disease, prolonged medication, subjects who were ready to participate in the study, and the subjects who were ready to give informed consent. Following subjects were excluded from the study: subjects who were not medically fit for surgery or anesthesia, subjects with acute infection of pelvis region, subjects who were not ready to participate in the study, and subjects with diagnosed Tuberculosis.

The study was carried out using surgical instruments for grasping, scissors, and biopsy tools, light source, laparoscope, hysteroscope, camera, cannula, veress needle, Trocars, sodium chloride, carbon dioxide, glycine, scalpel, cautery, and tubal catheter. After obtaining consent from subjects and clearance from the concerned ethical committee, the data were prospectively collected from all 40 subjects. Required clinical examination and laboratory investigations were done twice to eliminate bias. Medical history and demographic data were collected for all subjects. The subjects were recalled at 7-11 postmenstrual day for pre-anesthetic evaluation. The next day under general anesthesia, hysterolaparoscopy was done, and the subjects were kept under observation post-operatively for 1 day. After explaining the study design, 200mg misoprostol was orally administered 4 hours before surgery and the patient was positioned in the lithotomy position. Following bimanual examination, after uterine sounding was done using dilators, hysteroscope was introduced and uterine cavity, cervical canal, and Ostia were seen. Veress needles were used to create pneumoperitoneum followed by Trochar insertion and visualization under telescope to detect any tubal, uterine, or oval pathology including peritubal adhesion. Releasing adhesions, cysts, fibroids, and endometriomas were seen using dyes. To remove dyes, thorough lavage was done using saline followed by suturing. The collected data were subjected to the evaluation and the results were formulated.

### Results

The study included 40 females within reproductive age of 18 years to 49 years diagnosed with either primary or secondary infertility that underwent under general anesthesia, hysterolaparoscopy was done to detect any abnormality, and the subjects were kept under observation post-operatively for 1 day. The demographic and study characteristics of the subjects are listed in Table 1. Primary fertility was found in 70% (n = 30)

subjects, whereas, secondary infertility was reported in 30% (n = 10 subjects). Duration of fertility was <10 years in 57.5% (n = 23) subjects and >15 years in 5% (n = 2) subjects. Normal menstrual cycle was reported by 55% (n = 22) subjects, irregular by 40% (n = 16), and heavy bleeding by 7.5% (n = 3) subjects. Concerning past obstetrics history in secondary infertility, previous miscarriage was reported by 50% (n = 5), vaginal delivery by 20% (n = 2), and LSCS by 30% (n = 3) subjects.

**Table 1:** Characteristics of the study subjects.

Characteristics	n	%
<b>Fertility type</b>		
Primary	30	70
Secondary	10	30
Age range (In years)	18-49	
Mean age (In years)	32.4	
<b>Fertility duration</b>		
<10 years	23	57.5
10-15 years	15	37.5
>15 years	2	5
<b>Menstrual status</b>		
Heavy bleeding	3	7.5
Regular	22	55
Irregular	16	40
<b>Previous obstetric history (secondary infertility, n = 10)</b>		
Miscarriage	5	50
Vaginal delivery	2	20
Lower Segment Cesarean Section (LSCS)	3	30

On associating the abnormal findings as detected by laparoscopy and hysteroscopy (Table 2), the present study showed that Laparoscopic abnormalities were seen in 35% (n = 14) subjects, Hysteroscopic abnormalities in 12.5% (n = 5) subjects, and combined in 15% (n = 6) subjects. Laparoscopic abnormalities included Endometriosis (2.5%, n = 1), Unilateral Tubal block (5%, n = 2), Fimbrial cyst (2.5%, n = 1), Pelvic adhesion (7.5%, n = 3), and Hydrosalpinx (5%, n = 2). Hysteroscopy findings in study subjects were Submucos Fibroid (2.5%, n = 1), Complete Septum (2.5%, n = 1), polypoidal endometrium (15%, n = 6), Hypoplastic uterus (2.5%, n = 1), Bald endometrium (5%, n = 2), and Endometrial polyp (5%, n = 2).

**Table 2:** Laparoscopic and hysteroscopy abnormalities the study subjects.

Findings	n	%
Laparoscopic findings	14	35
Hysteroscopy findings	5	12.5
Combined	6	15
<b>Laparoscopy findings</b>		
Endometriosis	1	2.5
Unilateral tubal block	2	5
Fimbrial cyst	1	2.5
Pelvic adhesion	3	7.5
Hydrosalpinx	2	5
Normal	31	77.5
<b>Hysteroscopy findings</b>		
Submucos fibroid	1	2.5
Complete septum	1	2.5
Polypoidal endometrium	6	15
Hypoplastic uterus	1	2.5
Bald endometrium	2	5
Endometrial polyp	2	5
Normal	27	67.5

The present study also evaluated abnormal uterine and ovarian factors in the study subjects (Table 3). The results showed that concerning uterine factors, enlarged uterus was seen in 2.5% (n = 2) subjects and fibroids in 10% (n = 4) subjects. For ovarian factors, endometrioma was found in 2.5% (n = 2) subjects, ovarian cysts in 7.5% (n = 3) subjects, and polycystic ovaries in 15% (n = 6) subjects. Depending upon the underlying pathology detected on hysteroscopy, various interventions were performed in the study subjects (Table 4) including ovarian drilling (25%, n = 10), ovarian cystectomy (25%, n = 10), polypectomy (15%, n = 6), curettage (2.5%, n = 1), adhesiolysis (15%, n = 6), myomectomy (2.5%, n = 1), cannulation (2.5%, n = 1), fulguration (2.5%, n = 1), and salpingectomy (7.5%, n = 3).

**Table 3:** Uterine and ovarian factors in the study subjects.

Factors	n	%
<b>Uterine factors</b>		
Enlarged uterus	2	2.5
Fibroids	4	10
Normal	34	85
<b>Ovarian factors</b>		
Endometrioma	2	2.5
Ovarian cysts	3	7.5
Polycystic ovaries	6	15
Normal	29	72.5

**Table 4:** Hystero-laparoscopic interventions in the study subjects.

Intervention	n	%
Ovarian drilling	10	25
Curettage	1	2.5
Polypectomy	6	15
Adhesiolysis	6	15
Myomectomy	1	2.5
Cannulation	1	2.5
Fulguration	1	2.5
Salpingectomy	3	7.5
Ovarian cystectomy	10	25

## Discussion

In the present study, primary fertility was found in 70% (n = 30) subjects, whereas, secondary infertility was reported in 30% (n = 10 subjects). Duration of fertility was <10 years in 57.5% (n = 23) subjects and >15 years in 5% (n = 2) subjects. Normal menstrual cycle was reported by 55% (n = 22) subjects, irregular by 40% (n = 16), and heavy bleeding by 7.5% (n = 3) subjects. Concerning past obstetrics history in secondary infertility, previous miscarriage was reported by 50% (n = 5), vaginal delivery by 20% (n = 2), and LSCS by 30% (n = 3) subjects. These findings agreed with the studies of Sharma R *et al.* [7] in 2016 and Mehta AV *et al.* [8] in 2016 where 64% of subjects had primary infertility and 36% had secondary fertility.

The present study showed that Laparoscopic abnormalities were seen in 35% (n = 140) subjects, Hysteroscopic abnormalities in 12.5% (n = 5) subjects, and combined in 15% (n = 6) subjects. Laparoscopic abnormalities included Endometriosis (2.5%, n = 1), Unilateral Tubal block (5%, n = 2), Fimbrial cyst (2.5%, n = 1), Pelvic adhesion (7.5%, n = 3), and Hydrosalpinx (5%, n = 2). Hysteroscopy findings in study subjects were Submucos Fibroid (2.5%, n = 1), Complete Septum (2.5%, n = 1), polypoidal endometrium (15%, n = 6), Hypoplastic uterus (2.5%, n = 1), Bald endometrium (5%, n = 2), and Endometrial polyp (5%, n = 2). These findings were contrasting to the findings of Tomar S *et al.* [9] in 2014 and Sharma R *et al.* [7] in 2016 where the most common abnormality detected was endometrial polyp on

hysteroscopy. Also, the study by Dawle S *et al.* [10] in 2014 found a similar prevalence of abnormalities on hysteroscopy.

The results of the present study also showed that concerning uterine factors, an enlarged uterus was seen in 2.5% (n = 2) subjects and fibroids in 10% (n = 4) subjects. For ovarian factors, endometrioma was found in 2.5% (n = 2) subjects, ovarian cysts in 7.5% (n = 3) subjects, and polycystic ovaries in 15% (n = 6) subjects. Depending upon the underlying pathology detected on hysteroscopy, various interventions were performed in the study subjects (Table 4) including ovarian drilling (25%, n = 10), ovarian cystectomy (25%, n = 10), polypectomy (15%, n = 6), curettage (2.5%, n = 1), adhesiolysis (15%, n = 6), myomectomy (2.5%, n = 1), cannulation (2.5%, n = 1), fulguration (2.5%, n = 1), and salpingectomy (7.5%, n = 3). These findings coincided with the results of previous literature work by Puri S *et al.* [11] in 2015 where ovarian drilling was a common procedure on hysteroscopy performed in 11 subjects followed by cystectomy, adhesiolysis, and endometriosis. Similar results were also reported by Dawle S *et al.* [7] in 2014 concerning interventional procedures by hysteroscopy.

## Conclusion

Within its limitations, the present study concludes that laparoscopy increases the accuracy of abnormality detection. Also, concurrent use of laparoscopy with hysteroscopy leads to better results in terms of cost, post-operative healing, and detection of abnormalities in females with infertility. Hence, hysteroscopy is a simple and safe procedure that should be considered in routine obstetric practice for females with infertility. The study had few limitations like geographical area biases, small sample size, and shorter monitoring period. So, more longitudinal studies and a larger sample size will help to get a definitive conclusion.

## References

- Katole A, Saoji AV. Prevalence of Primary Infertility and its Associated Risk Factors in Urban Population of Central India: A Community-Based Cross-Sectional Study. *Indian J Community Med* 2019;44:337-41.
- Singh V, Mishra B, Sinha S, Agrawal S, Thakur P. Role of saline infusion sonohysterography in infertility evaluation. *J Hum Reprod Sci* 2018;11:236-41.
- Ahmed SA, Abo-taleb H. The validity of HSG in infertility works up. *Egyptian Journal of Radiology and Nuclear Medicine* 2019;50:63.
- Mitra S, Nayak PK, Agrawal S. Laparoscopic ovarian drilling: an alternative but not the ultimate in the management of polycystic ovary syndrome. *J Nat Sci Biol Med* 2015;6:40-8.
- Stratton P, Berkley KJ. Chronic pelvic pain and endometriosis: Translational evidence of the relationship and implications. *Hum Reprod Update* 2011;17:327-46.
- Agenor A, Bhattacharya S. Infertility and miscarriage: common pathways in manifestation and management. *Womens Health (Lond)* 2015;11:527-41.
- Sharma R, Pandey VP, Sharma ST, Masand DL. Hysteroscopy- 'See and Treat' Infertility, is a Reality in Modern Gynaecological Practice. *Ann. Int. Med. Den. Res* 2016;2:9-13.
- Mehta AV, Modi AP, Raval BM, Munshi SP, Patel SB, Dedharotiya SM. Role of diagnostic hysteroscopy in the evaluation of infertility. *Int J Reprod Contracept Obstet Gynecol* 2016;5:437-40.

9. Tomar S, Parmar S, Pradhan A. Causes of female infertility by Diagnostic Laparoscopy. *Int J Med Res Rev* 2014;2:561-4.
10. Dawle S, Bhalerao A, Kumare B, Bhalerao K. Role of Hysterolaparoscopy in the Evaluation of Primary Infertility. *Journal of Evolution of Medical and Dental Sciences* 2014;3:5496-500.
11. Puri S, Jain D, Puri S, Kaushal S, Deol SK. Laparohysteroscopy in female infertility: A diagnostic cum therapeutic tool in Indian setting. *Int J App Basic Med Res* 2015;5:46-8.