



ORIGINAL RESEARCH PAPER

Obstetrics And Gynecology

COMPARATIVE STUDY OF LAPAROHYSTEROSCOPY FINDINGS IN PRIMARY INFERTILITY PATIENTS AND SECONDARY INFERTILITY PATIENTS

KEY WORDS: Infertility, Laparohysteroscopy, Chromoperturbation

Dr Vruti Sheth

Dr Prerak Modi

ABSTRACT

Background: Infertility is a common reproductive health problem with significant social and psychological impact. Laparohysteroscopy has emerged as a comprehensive diagnostic modality for evaluating uterine, tubal, ovarian, and peritoneal causes of infertility. **Objective:** To evaluate and compare laparohysteroscopic findings in women with primary and secondary infertility and to assess its role in identifying underlying etiological factors. **Methods:** This prospective observational study included 60 infertile women (30 primary and 30 secondary infertility) who underwent diagnostic laparohysteroscopy with chromoperturbation at a tertiary care center over a two-year period. **Results:** Laparohysteroscopy revealed a high incidence of pelvic pathology in both groups. Ovarian factors such as polycystic ovarian disease were more common in primary infertility, whereas tubal pathology, endometriosis, and pelvic adhesions were more frequent in secondary infertility. Hysteroscopy identified intrauterine abnormalities that were missed on routine imaging in a significant proportion of cases. **Conclusion:** Diagnostic laparohysteroscopy is a safe and effective gold-standard tool for comprehensive evaluation of infertility, enabling detection of subtle pelvic and intrauterine pathologies and guiding appropriate management.

INTRODUCTION

Infertility affects approximately 10–15% of married couples worldwide and poses substantial emotional, social, and psychological challenges, particularly in developing countries. It has been found that females are responsible in 40% cases, males in 30-35% cases, where in combination of both in 10- 20% cases of infertility.[1,2]

Female factors contribute to infertility in nearly half of all cases, with tubal, ovarian, uterine, and peritoneal causes being predominant.

Conventional diagnostic modalities such as ultrasonography and hysterosalpingography have limitations in detecting subtle pelvic pathologies like early endometriosis, peritubal adhesions, and minimal tubal disease. Laparohysteroscopy allows direct visualization of pelvic and uterine anatomy and enables accurate diagnosis in cases where non-invasive investigations are inconclusive.[3,4,5]

This study was undertaken to compare laparohysteroscopic findings in primary and secondary infertility and to establish its role as a comprehensive diagnostic modality in infertility workup.

Study Method

This was a prospective observational study conducted in the Department of Obstetrics and Gynaecology at a tertiary care hospital from March 2022 to March 2024. Sixty women diagnosed with infertility (30 primary and 30 secondary) were included.

All patients underwent detailed clinical evaluation followed by diagnostic hysteroscopy and laparoscopy with chromoperturbation under general anesthesia. Findings related to uterine cavity, ovaries, fallopian tubes, peritoneum, and pelvic adhesions were recorded and analyzed comparatively between the two groups.

RESULTS

A total of 60 infertile women were included, comprising 30 cases of primary infertility and 30 cases of secondary infertility.

Age Distribution:

Most patients belonged to the 23–32 year age group (71.66%).
 23–27 years: 36.66%
 28–32 years: 35%

Body Mass Index (BMI):

Normal BMI: 71.67%
 Overweight: 18.34%
 Obese: 6.67%

Obstetric History In Secondary Infertility:

Among women with secondary infertility-
 Previous abortion only: 43.43%
 Previous normal vaginal delivery: 26.67%
 Cesarean section: 6.67%
 Ectopic pregnancy: 6.67%
 Abortions constituted the most common adverse obstetric outcome preceding secondary infertility.

Laparoscopic Findings:

Laparoscopy revealed pelvic pathology in a significant proportion of patients.

1. Ovarian Factors

Ovarian cysts (endometrioma, dermoid cyst): Seen predominantly in secondary infertility

Table 1: Comparison Of Ovarian Findings On Laparoscopy With Primary And Secondary Infertility

Ovaries In Laparoscopy	Primary Infertility	Secondary Infertility	Total
B/L TUBO OVARIAN MASS	1(3.33%)	0(0%)	1(1.66%)
DERMOID CYST	1(3.33%)	0(0%)	1(1.66%)
ENDOMETROTIC CHOCOLATE CYST	2(6.66%)	6(20%)	8(13.33%)
PCOS	2(6.66%)	3(10%)	5(8.33%)
SIMPLE OVARIAN CYST	2(6.66%)	1(3.33%)	3(5%)
NO ABNORMALITY DETECTED	22(73.33%)	20(66.66%)	42(70%)
Total	30(100%)	30(100%)	60(100%)

2. Tubal Factors

Tubal block (unilateral/bilateral): Unilateral tubal block seen more frequent in secondary infertility

Hydrosalpinx: Seen mainly in secondary infertility

Bilateral tubal patency: Seen equal in both groups

Table 2: Comparison Of Tubal Findings On Laparoscopy With Primary And Secondary Infertility

Site Of Tubal Block	Primary Infertility	Secondary Infertility	Total
BILATERAL BLOCK	3(10%)	1(3.33%)	4(6.66%)
UNILATERAL BLOCK	3(10%)	5(16.66%)	8(13.33%)
BOTH PATENT	24(80%)	24(80%)	48(80%)
Total	30(100%)	30(100%)	60(100%)

3. Peritoneal Factors

Pelvic adhesions: More frequent in primary infertility
 Endometriosis: Predominantly noted in secondary infertility, including severe forms such as kissing ovaries
 Chromopertubation helped identify both tubal patency and functional abnormalities.

Table 3: Comparison Of Peritoneal Findings On Laparoscopy With Primary And Secondary Infertility

Peritoneal Finding In Laparoscopy	Primary Infertility	Secondary Infertility	Total
One Tube Proximal Adhesions Block	5(16.66%)	3(10%)	8(13.33%)
Endometriotic Patch	1(3.33%)	3(10%)	4(33.34%)
Isthmocele	0(0%)	1(3.33%)	1(1.66%)
No Abnormality Detected	24(80%)	23(76.66%)	47(78.33%)
Total	30(100%)	30(100%)	60(100%)

Hysteroscopic Findings:

Hysteroscopy detected intrauterine abnormalities in a substantial number of patients, including:

- Endometrial polyps
- Uterine septum
- Intrauterine adhesions
- Distorted uterine cavity
- Submucous fibroids

Table 4: Comparison Of Hysteroscopic Findings In Primary And Secondary Infertility

Hysteroscopic Findings	Primary Infertility	Secondary Infertility	Total
POLYP	1(3.33%)	1(3.33%)	2(3.33%)
INTRAUTERINE ADHESIONS	1(3.33%)	2(6.66%)	3(5%)
MULLERIAN ANOMALY	1(3.33%)	3(10%)	4(6.66%)
FIBROID	0(0%)	1(3.33%)	1(1.66%)
COURNAL BLOCK	0(0%)	1(3.33%)	1(1.66%)
FOREIGN BODY	0(0%)	1(3.33%)	1(1.66%)
NO ABNORMALITY DETECTED	27(90%)	21(70%)	48(68.33%)
Total	30(100%)	30(100%)	60(40%)

Several of these abnormalities were not detected on preoperative ultrasonography or HSG, highlighting the diagnostic superiority of hysteroscopy.

Abnormal laparohysteroscopic findings were detected in a majority of patients in both groups.

Primary infertility: Ovarian pathology, particularly polycystic ovarian disease, was the most common finding. Tubal patency was largely preserved, though functional abnormalities were noted in some cases.

Secondary infertility: Tubal pathology, pelvic adhesions, and endometriosis were more prevalent. Unilateral or bilateral tubal block was observed more frequently in this group.

Hysteroscopy revealed intrauterine abnormalities such as septate uterus, endometrial polyps, synechiae, and distorted cavities in a significant number of patients, many of which were not detected on prior imaging.

CONCLUSION

Infertility is a multifactorial condition requiring comprehensive evaluation of uterine, ovarian, tubal, and peritoneal factors. In the present study, diagnostic laparohysteroscopy demonstrated a high diagnostic yield in both primary and secondary infertility, reinforcing its role as a gold-standard investigation.

The majority of patients were in the reproductive age group of 23-32 years, consistent with other Indian studies. Normal menstrual cycles in most patients emphasize that regular menstruation does not exclude underlying pelvic pathology,

supporting the need for invasive evaluation when infertility persists.

Etiological Differences Between Primary and Secondary Infertility

A key observation of this study is the difference in etiological patterns:

Primary infertility:

Ovarian factors, particularly PCOD, were the predominant cause. This aligns with endocrine dysfunction being a major contributor to failure of conception without prior pregnancy.

Secondary infertility:

Tuboperitoneal factors such as pelvic adhesions, endometriosis, and tubal block were more common. Prior obstetric events such as abortions, ectopic pregnancies, pelvic infections, and surgeries likely contribute to acquired pelvic pathology.

These findings are consistent with published literature, which reports higher rates of tubal damage and endometriosis in secondary infertility.[6,7,8]

Role of Laparohysteroscopy

- Direct visualization of pelvic anatomy
- Accurate diagnosis of endometriosis and adhesions
- Assessment of tubal patency and motility via chromopertubation
- Detection of intrauterine abnormalities missed by imaging

The combined approach of hysteroscopy and laparoscopy in a single sitting reduces diagnostic delay, avoids repeated procedures, and facilitates early therapeutic planning.

Clinical Implications

The high prevalence of correctable pathologies detected in this study suggests that early use of diagnostic laparohysteroscopy-especially in unexplained infertility and long-standing cases-can significantly alter management strategies and potentially improve reproductive outcomes.[9,10]

REFERENCES:

1. World Health Organization. Infertility definitions and terminology. WHO Technical Report Series. Geneva:World Health Organization;2014.
2. Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. PLoS Medicine. 2012;9(12):e1001356.
3. Berek JS. Berek & Novak's Gynecology. 16th ed. Philadelphia: Lippincott Williams & Wilkins;2020.
4. Fritz MA, Speroff L. Clinical Gynecologic Endocrinology and Infertility. 9th ed. Philadelphia:Wolters Kluwer;2019.
5. Practice Committee of the American Society for Reproductive Medicine. Diagnostic evaluation of infertile female: a committee opinion. Fertility and Sterility.2021;116(5):1255-1265.
6. Swart P, Mol BW, van der Veen F, van Beurden M, Redekop WK, Bossuyt PM. The accuracy of hysterosalpingography in the diagnosis of tubal pathology: a meta-analysis. Fertility and Sterility. 1995;64(3):486-491.
7. Siegler AM. Hysteroscopy in infertility. Fertility and Sterility. 1983;40(3):337-348.
8. Corson SL, Cheng A, Gutmann JN. Laparoscopy in the normal infertile patient: a question revisited. Journal of the American Association of Gynecologic Laparoscopists. 2000;7(3):317-324.
9. Meuleman C, Vandenabeele B, Fieuws S, Spiessens C, Timmerman D, D'Hooghe T. High prevalence of endometriosis in infertile women with normal ovulation and normospermic partners. Fertility and Sterility. 2009;92(1):68-74.
10. Tsuji I, Ami K, Fujinami N, Hoshiai H. The significance of laparoscopy in unexplained infertility. Gynecologic and Obstetric Investigation. 2002;54(2):80-83.