

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20215081>

Original Research Article

A Retrospective evaluation of hysterolaparoscopy as primary diagnostic tool for female infertility

Shehla Jamal, Mridula Sharma*, Kainat Masroor, Shravi Singh

Department of Obstetrics and Gynaecology, RMRI, Bareilly, Uttar Pradesh, India

Received: 08 November 2021

Revised: 07 December 2021

Accepted: 08 December 2021

***Correspondence:**

Dr. Mridula Sharma,

E-mail: drmrindu@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Infertility has been equally challenging and frustrating to the couple as well as physician. The causative etiology can have multitude of factors. Evaluation of underlying factors and formulating uniform diagnostic protocols is still a challenge for most of the infertility experts. This study was aimed to evaluate hysterolaparoscopy as primary diagnostic tool for female infertility.

Methods: This is a retrospective study conducted in the department of obstetrics and gynecology, SMS and R, Sharda University, Greater Noida, Uttar Pradesh. The data was collected from January 2018 to December 2019. A total of 84 cases were studied. Data were entered into Epi-data version 3.1 and then exported to SPSS version 20 for cleaning and analysis. Chi-square test and logistic regression were done.

Results: Around 86.9% of the patients had abnormal findings. 13% of the patients had no abnormal laparoscopic findings, according to our inclusion criteria. One or the other findings were encountered in 96.4% of the cases. Only 3.5% of the patients had no discernible characteristics as per our inclusion protocol.

Conclusions: Irrespective of the investigations protocols used, hysterolaparoscopy finds its importance in most of the clinical settings. This investigative approach is professed as superior to hysterosalpingogram and Saline Infusion sonography when used alone. In the present study, we propose diagnostic hysterolaparoscopy as first and one step approach, between days 8-11 of the cycle, as an effective diagnostic tool in cases of infertility.

Keywords: Hysterolaparoscopy, Infertility, Diagnostic tool

INTRODUCTION

The occurrence of infertility is about 10%-15% of reproductive age couples.¹ WHO defines infertility as “a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.” According to WHO overall prevalence of primary infertility in India is between 3.9 and 16.8%.² when causative factors are analysed, sexually transmitted infections are amongst the leading cause, especially in developing countries which can lead to pelvic inflammatory disease (PID) and subsequent tubal damage.³ Hysterolaparoscopy has

emerged as an indispensable tool in the evaluation of infertile patient. The endocervical canal, endometrial cavity, endometrium, tubal ostia, tubo-ovarian anatomy, peritoneal factors are visualized in a systematic fashion, and the results are objective. Operative hysterolaparoscopy further aids the management and leads to better treatment outcomes. Exhaustive literature suggests that hysterolaparoscopic investigation of the uterine cavity and external uterine surface along with adnexae improves fertility treatment outcomes. This paper aims at retrospectively evaluating HL as primary investigation approach for patients with infertility, in order to increase therapeutic efficacy offered to such couples.

Aim

Aim of the current study was to diagnose the etiological factors of infertility in the couple attending the infertility clinic, OBG department, SMS and R using diagnostic hysterolaparoscopy and to analyse those etiological factors.

METHODS

This is a retrospective study conducted in the department of obstetrics and gynecology, SMS and R, Sharda University, Greater Noida, Uttar Pradesh. The data was collected from January 2018 to December 2019. All the cases were performed on day 8-11 of the menstrual cycle. Endometrial sampling was performed prior to DHL, to rule out endometrial TB and tissue was examined for histopathological evidence of infection or other lesions.

Inclusion criteria

Inclusion criteria for current study were; Primary/secondary infertility, thyroid disorders, hyperprolactinemia ruled out, AMH in normal range, male factor evaluated, endometrial evaluation to rule out tuberculosis by CBNAAT

Exclusion criteria

Exclusion criteria for current study were; tubal disease already evaluated by HSG, Active tuberculosis, endometritis as diagnosed by endometrial tissue evaluation.

Procedure

For doing hysteroscopy, patient's cervix was prepared using misoprostol 200 microgram vaginally one hour prior to the procedure. We used 5mm 30 degree telescope for hysteroscopy and used normal saline for distention of the cavity. All the findings were recorded in the imbedded video recorder. Hysteroscopy was done using no touch technique and vaginoscopy was performed prior to hysteroscopy in each patients. Endometrial abnormalities were recorded under following categories: structural abnormalities, endometrial abnormalities like paleness, stippling, polypoidal etc, cervical abnormalities as stenosed cervix, growth etc and laparoscopy was performed using pneumoperitonium creation by veress needle followed by trocar entry. We used 30 degree telescope for visualisation of pelvic and peritoneal structures. Results were obtained using percentage method.

RESULTS

A total of 84 cases were studied. Out of them, 69 were of primary infertility and rest were secondary infertility. Majority (45.2%) were in 26-35 age group, followed by age group of 18-25 (38%). More than 35 years age group

constituted 16.6% of the cases. Maximum cases were of primary infertility (82.2%) and majority (63.1%) had infertility of more than one year (Table 1).

Table 1: Demography characteristics.

| Characteristics | N | % |
|-------------------------|----|------|
| Age (years) | | |
| 18-25 | 32 | 38 |
| 26-35 | 38 | 45.2 |
| >35 | 14 | 16.6 |
| Infertility | | |
| Primary | 69 | 82.2 |
| Secondary | 15 | 17.8 |
| Duration (years) | | |
| One | 31 | 36.9 |
| >1 | 53 | 63.1 |

Around 86.9% of the patients had abnormal findings, and 7.1% had unilateral tubal block, and 16.6% had bilateral tubal block. Endometriosis was found in 22.6% cases, filmy adhesions were encountered in 7.1%, whereas dense adhesions were present in 4.7% of the cases. Around 13% of the patients had no abnormal laparoscopic findings, according to our inclusion criteria (Table 2).

Table 2: laparoscopic findings.

| Features | N | % |
|--------------------------|----|------|
| Endometriosis | 19 | 22.6 |
| Distorted anatomy | 9 | 10.7 |
| Filmy adhesion | 6 | 7.1 |
| Dense adhesion | 4 | 4.7 |
| Myoma | 9 | 10.7 |
| Anomalies | 6 | 7.1 |
| U/L blockade | 6 | 7.1 |
| B/L blockade | 14 | 16.6 |
| Normal | 11 | 13 |

Adhesiolysis was performed in 10, tubal cannulation in 4, and lateral metroplasty in 7cases. On follow up, patients in whom tubal cannulation was performed, all conceived. One or the other findings were encountered in 96.4% of the cases. In hysteroscopy stippled endometrium suggestive of endometritis was found in 13% cases, pale endometrium was found in 21.4%, whereas fluffy endometrium was found in 14.2% cases. Corneal puckering/Annular appearance was found in 7.1% cases. Only 3.5% of the patients had no discernible characteristics as per our inclusion protocol.

DISCUSSION

Hysterolaparoscopy (HL) is an extremely important tool for the evaluation of female infertility and is considered as the gold standard investigation for tubal patency.² A detailed and thorough visualization of the uterine cavity,

endometrium, tubal morphology and patency, uterine, ovarian, peritoneal and adnexal pathology can be performed in a single step. These pathology findings are often impossible to ascertain in our clinical examination and even on sonographic evaluation. Moreover, HL also provides the opportunity of therapeutic interventions to be offered in a single setting.

Table 3: Hysteroscopic findings.

| Findings | N | % |
|--------------------------|----|------|
| Myoma (SM) | 11 | 13 |
| Polyps | 6 | 7.1 |
| Malformation | 4 | 4.7 |
| Ashermann's | 3 | 3.5 |
| Stippled endometrium | 21 | 25 |
| Pale endometrium | 18 | 21.4 |
| Fluffy endometrium | 12 | 14.2 |
| Annular/puckered cornuae | 6 | 7.1 |
| Normal | 3 | 3.5 |

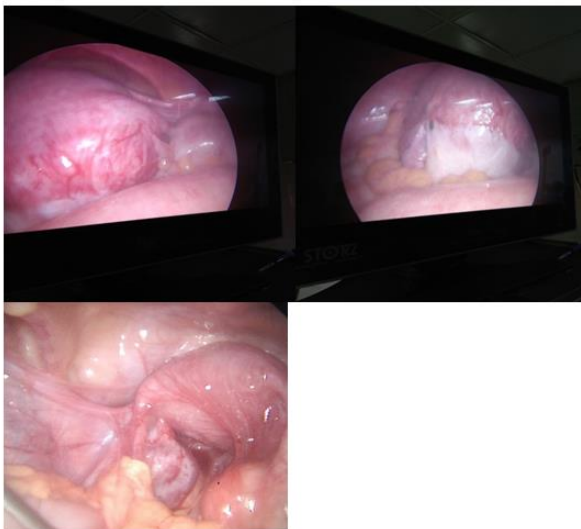


Figure 1: Dense adhesions.

Laparoscopy

Previously, some studies have shown that diagnostic laparoscopy did not reveal any pathology or only minimal and mild endometriosis in 40-70% of all cases, but in our study, no attributable laparoscopic factor was found only in 13 % of the total.¹¹ The difference obtained may be due to the fact that the patients were offered HL in the initial course of infertility evaluation in our set up. In a study done by Godinjak et al in which they performed simultaneous laparoscopy and hysteroscopy in 360 infertile cases and found tubal occlusion in 8%, pelvic adhesion in 11%, myomas 11%, endometrial polyp 7%, Asherman syndrome in 0.8%, uterine anomalies in 5% cases.³ In our analysis, on the contrary, endometriosis was the commonest finding in laparoscopy (22.6%), but this finding is corroborating with the

findings by other authors, in which they detected endometriosis as the major factor.^{4,5} It is estimated that around 30%-50% patients with endometriosis suffer from infertility, and laparoscopic investigation is the gold standard.⁶

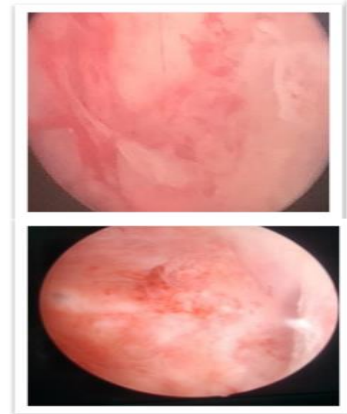


Figure 2: Stippled endometrium.

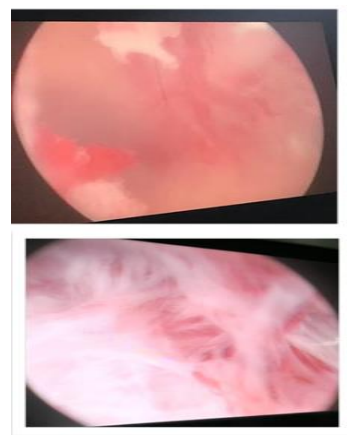


Figure 3: Fluffy endometrium.

Hysteroscopy

Pritts et al concluded that submucosal fibroids (International federation of gynecology and obstetrics (FIGO L0-L2) which cause distortion of the uterine cavity resulted in the decreased rates of clinical pregnancy, implantation, and ongoing pregnancy/live birth, as well as an increased rate of spontaneous miscarriage.⁷ In the analysis, the incidence of myomas on laparoscopy was 10.7%. In the present retrospective, incidence of Asherman's syndrome was 3.5%. Asymptomatic endometrial polyps in women with infertility has been reported to range from 10% to 32%.^{8,9} A prospective study of 224 infertile women on hysteroscopy showed a 50% pregnancy rate after polypectomy.¹⁰ In our study, the incidence of polyps was 7.1%. In other studies incidence as close to 12% has been cited.¹¹ In the present study, unhealthy endometrium exhibited various features such as stippling, patchy appearance, pale and fluffy (Figure 2-3). On further

evaluation, the endometrium of such patients showed features of endometritis on histopathological examination.

Tubal factors

In the present analysis, incidence of bilateral tubal blockade was higher as compared to unilateral tubal blockade. This finding has been similar to the findings by other authors also.¹² Pelvic inflammatory disease is a major risk factor for blocked tubes. Tubal factor infertility is the foremost reason of infertility among female patients, the majority of which is due to PID.¹³ Even subclinical PID is substantially associated with infertility and women with subclinical PID achieved 40% less pregnancies compared to women without the same.¹⁴

CONCLUSION

In our opinion, HL is a good initial diagnostic step, with 360 degree of evaluation of uterine, tubo-peritoneal and endometrial examination. At tertiary care centre it can well be incorporated in the initial evaluation protocol of infertile couples. However, retrospective nature of our study limits the validation of our result. We recommend more prospective studies, especially pertaining to finding out different endometrial features, so that further research generates more evidence. One big advantage of offering HL is delineating the exact etiological factor. In addition to this, surgical procedures like adhesiolysis, ovarian drilling, ovarian cystectomy, salpingostomy, myomectomy, polypectomy and release of uterine synechia can safely be done in a single setting. Such an approach should enhance the outcome in terms of achieving increased pregnancy and live birth rates.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Boivin J, Bunting L, Collins JA, Nygren KG. International estimates of infertility prevalence and treatment-seeking: Potential need and demand for infertility medical care. *Hum Reprod*. 2007;22:1506-12.
2. Mol BW, Collins JA, Burrows EA, van der Veen F, Bossuyt PM. Comparison of hysterosalpingography and laparoscopy in predicting fertility outcome. *Hum Reprod*. 1999;14:1237-42.
3. Godinjak Z, Idrizbegovic E. Should diagnostic hysteroscopy be a routine procedure during diagnostic

- laparoscopy in infertile women? *JBMS*. 8;2008:44-47.
4. Puri S, Jain D. Laparohysteroscopy in female infertility: A diagnostic cum therapeutic tool in Indian setting. *Int J App Basic Med Res*. 2015;5(1):46-8.
5. Tsuji I, Ami K, Miyazaki A, Huzinami N. Benefit of diagnostic laparoscopy for patients with unexplained infertility and normal hysterosalpingography findings. *Tohoku J Exp Med*. 2009;219:39-42.
6. Counsellor VS. Endometriosis. A clinical and surgical review. *Am J Obstet Gynecol*. 1938;36:877.
7. Hinckley MD, Milki AA. 1000 office-based hysteroscopies prior to *in vitro* fertilization: Feasibility and findings. *JSL*. 2004;8:103-7.
8. Shalev J, Meizner I, Bar-Hava I, Dicker D, Mashiach R, Ben-Rafael Z. Predictive value of transvaginal sonography performed before routine diagnostic hysteroscopy for evaluation of infertility. *Fertil Steril*. 2000;73:412-7.
9. Shokeir TA, Shalan HM, El-Shafei MM. Significance of endometrial polyps detected hysteroscopically in eumenorrheic infertile women. *J Obstet Gynaecol Res*. 2004;30:84-9.
10. Bosteels J, Van Herendael B, Weyers S, D'Hooghe T. The position of diagnostic laparoscopy in current fertility practice. *Hum Reprod Update*. 2007;13:477-85.
11. Study of Role of Combined Diagnostic Hysteroscopy and Laparoscopy in Evaluating Factors for Infertility. *JMSCR*. 2018;11(1):19-23.
12. Chanu SM, Rudra Pal GS, Panda S, Santa Singh AS. Diagnostic Hysterolaparoscopy for Evaluation of Infertility: Our Experience in a Tertiary Care Hospital. *J Hum Reprod Sci*. 2018;11(1):19-23.
13. Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports. Available at: <https://www.cdc.gov/art/artdata/index.html>. Accessed on 20 September 2021.
14. Wiesenfeld HC, Hillier SL, Meyn LA, Amortegui AJ, Sweet RL. Subclinical pelvic inflammatory disease and infertility. *Obstet Gynecol*. 2012;120:37-43.

Cite this article as: Jamal S, Sharma M, Masroor K, Singh S. A Retrospective evaluation of hysterolaparoscopy as primary diagnostic tool for female infertility. *Int J Reprod Contracept Obstet Gynecol* 2022;11:91-4.