



LAPROSCOPIC EVALUATION OF UNEXPLAINED INFERTILITY: A PROSPECTIVE ANALYSIS.

Dr. Kanchan¹, Dr. Kanti Yadav^{2*}, Dr. Meenakshi Samaria³, Dr. Devendra Kumar Benwal⁴

Abstract

Introduction: Infertility causes family and personal suffering. The UN defines reproductive health as "a condition of entire physical, mental, and social well-being, not merely the absence of sickness or infirmity" in all reproductive system activities and processes. Infertility affects the world. The WHO estimates 60–80 million couples are infertile (WHO). 2 Infertility affects 8–12% of couples worldwide, however rates vary.

Method: Jawaharlal Nehru Medical College, Ajmer, did the prospective study. Infertility patients attending data Department of Obstetrics & Gynecology, Jawaharlal Nehru Medical College, Ajmer, meeting inclusion and exclusion criteria during study period after ICE approval. Infertile OBG patients who meet the inclusion and exclusion criteria were selected and informed about the trial. The study excluded participants with anaesthetic or laparoscopy contraindications.

Results: Eight women with secondary infertility were evaluated; 50% reported a smooth birth, 37.7% had previously abortion, and 13.3% had previously IUD. Endometriotic patches were the most frequent laparoscopic finding (13%) followed by weak adhesions (12%), a large ovary (8%), tortuous tubes (5%) and ovarian cysts (5%) whereas tubercles were only detected in 2 percent of patients. 82 percent of the patients had dye leakage that was positive on both sides, 12 percent had dye spillage that was positive on just one side, and 6 percent experienced delayed dye spillage. Eight patients were diagnosed with second infertility; three of them had weak adhesions, one had an ovarian cyst, and four had normal findings.

Conclusion: Laparoscopy evaluates infertility. Laparoscopy diagnosed 45% of infertile patients in our study. Due to the high prevalence of infertility and illiteracy in our region, laparoscopic evaluation and care of these infertile women is very successful.

Keyword: Infertility, Laparoscopic, ASRM

¹PG resident, Department of Obstetrics & Gynecology, JLN Medical College, Ajmer

^{2*}Senior Professor and Head, Department of Obstetrics & Gynecology, JLN Medical, College, Ajmer

³Associate Professor, Department of Obstetrics and Gynecology, JLN Medical, College, Ajmer

⁴Associate professor department of Obstetrics and Gynecology, SMS Medical College, Jaipur

***Corresponding Author:** Dr. Kanti Yadav

*Senior Professor and Head, Department of Obstetrics & Gynecology, JLN Medical, College, Ajmer

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Introduction

Infertility results in significant human anguish and damage to families. Reproductive health is described by the United Nations as "a condition of total physical, mental, and social well-being, not only the absence of disease or infirmity" in all areas relating to the reproductive system and its functions and processes.¹ Infertility is a serious issue on a global scale. Between 60 and 80 million couples worldwide are believed to be infertile, according to the World Health Organization (WHO).² Infertility is estimated to affect 8–12% of couples globally, though rates vary by area.

Infertility comes in two flavors: main and secondary. There have been no prior pregnancies in cases of primary infertility, however, there have been previous pregnancies in situations of secondary infertility, even if they may not have given birth to live children.³ The majority of infertile couples globally are primary infertile couples.⁴

Over the past ten years, the role of laparoscopy in the investigation of infertility has altered. Laparoscopy is no longer a standard component of infertility workup but is now reserved for specific situations. Due to its direct visual assessment of the pelvic reproductive architecture, it is the recommended test for identifying previously undetected peritoneal factors that influence fertility, notably endometriosis and pelvic adhesions. The ASRM recommends laparoscopy for women with reversible adhesive tubal disease, endometriosis symptoms, or unexplained infertility.⁵

The present study was aimed to evaluate the laparoscopic analysis of unexplained infertility.

Methods

The prospective study was conducted in Department of Obstetrics & Gynecology, Jawaharlal Nehru Medical College, Ajmer. Infertility patients attending data Department of Obstetrics & Gynecology, Jawaharlal Nehru Medical College, Ajmer, meeting the inclusion and exclusion criterion during study period after ICE approval.

All infertility women, attending Department of OBG, meeting the inclusion and exclusion criteria were selected and explained about the study. Those patients who have absolute or relative contraindications for anaesthesia or laparoscopy were excluded from the study. Proper informed consent was taken from every patient. All the patients were admitted in the ward one day prior to procedure. Laparoscopy was done in proliferative phase of menstrual cycle. To test the patency of tubes, chromopertubation was done in all cases under laparoscopic vision by using 10-15 ml of methylene blue dye. Then, laparoscopic procedure findings were documented. Patients were then discharged after 48 hours of surgery.

Data Analysis

For statistical analysis, data were entered into a Microsoft® Excel workbook and exported into SPSS v21.0 (IBM, USA). The Chi square test was used to compare frequency and percentage expressions of categorical data. The student t-test was used to compare quantitative data that was presented as mean and standard deviation. Statistics were considered significant if P 0.05.

Results

Baseline Characteristics

Table 1 shows that the, 40% of the subjects aged between 18 and 25 years were followed by 32% aged 26-30 years, 20% aged 31-35 years, and 8% aged 36-40 years. out of 100 number of cases, 70 (70%) cases had normal BMI, 25 (25%) cases were overweight and only 5(5%) cases were obese. Out of 100 patients 5 were in upper socioeconomic class, 11 in upper middle, 34% in lower middle class while 32% cases were from upper lower class, remaining 18% were from lower class. out of 100 cases, 62% women had regular menstrual cycle, 19% had oligomenorrhea, 14% had menorrhagia, and 5% had polymenorrhagia. out of total 100 cases of unexplained infertility evaluated, Patients with primary infertility were 92 (92%) and secondary infertility was seen in 8(8%). 72% of women had duration ≤5 years followed by 24% women of 6-10 years, and 4% of >10 years.

Table 1: Baseline Characteristics

| Baseline Characteristics | Frequency (n=100) | Percentage (%) |
|--------------------------|-------------------|----------------|
| Age (Years) | | |
| 18-25 | 40 | 40% |
| 26-30 | 32 | 32% |
| 31-35 | 20 | 20% |
| 36-40 | 8 | 8% |
| BMI | | |
| Normal | 25 | 25% |
| Overweight | 75 | 75% |

| | | |
|--------------------------------|----|-----|
| Obese | 5 | 5% |
| Socio Economic Status | | |
| Upper Class | 5 | 5% |
| Upper Middle Class | 11 | 11% |
| Lower middle Class | 34 | 34% |
| Upper lower | 32 | 32% |
| Lower Class | 18 | 18% |
| Menstrual history | | |
| Regular | 62 | 62% |
| Oligomenorrhea | 19 | 19% |
| Menorrhagia | 14 | 14% |
| Polymenorrhea | 5 | 5% |
| Type of Infertility | | |
| Primary Infertility | 92 | 92% |
| Secondary Infertility | 8 | 8% |
| Duration of Infertility | | |
| ≤5 years | 72 | 72% |
| 6-10 years | 24 | 24% |
| >10 years | 4 | 4% |

Obstetric history in secondary infertility

Table 2 Shows that the, out of 8 women with secondary infertility, 50% women reported

uneventful delivery, 37.7% had previous abortion, and one woman had previous IUD.

Table 2: Obstetric history in secondary infertility

| Obstetric history in secondary infertility | Frequency (n=100) | Percentage (%) |
|--|-------------------|----------------|
| Previous uneventful delivery | 4 | 50% |
| Previous abortion | 3 | 37.7% |
| Previous IUD | 1 | 13.3% |

Laparoscopic Finding

Table 3 shows that the most common laparoscopic findings were endometriotic spots (13%) followed

by flimsy adhesions (12%), bulky ovary (8%), tortuous tubes (5%), and ovarian cysts (5%) while tubercles were seen in (2%) cases.

Table 3: Laparoscopic Finding

| Laparoscopic Finding | Frequency (n=100) | Percentage (%) |
|----------------------|-------------------|----------------|
| Endometriotic Spots | 13 | 13% |
| Flimsy Adhesion | 12 | 12% |
| Bulky Ovary | 8 | 8% |
| Tortuous tubes | 5 | 5% |
| Ovarian cyst | 5 | 5% |
| Tubercles | 2 | 2% |
| Normal | 55 | 55% |

Dye Spillage

Table 4 shows the results of chromopertubation test. Most of the patients (82%) showed positive

dye spillage on both sides, 12% patients chromopertubation test was positive on only one side while 6% patients had delayed dye spillage.

Table 4: Dye Spillage

| Dye Spillage | Frequency (n=100) | Percentage (%) |
|------------------|-------------------|----------------|
| B/L Spillage | 82 | 82% |
| U/L Spillage | 12 | 12% |
| Delayed Spillage | 6 | 6% |

Laparoscopic Finding in infertility

Table 5 shows that distribution of laparoscopic findings according to type of infertility. Among 8

patients had second infertility, 3 patients had Flimsy Adhesions, 1 patient had Ovarian Cyst while 4 patients had normal finding.

Table 5: Laparoscopic Finding in infertility

| Laparoscopic Finding | Primary Infertility (n=92) | Secondary Infertility (n=8) |
|----------------------|----------------------------|-----------------------------|
| Endometriotic Spots | 13 | 0 |
| Flimsy Adhesions | 9 | 3 |
| Bulky Ovary | 8 | 0 |
| Tortuous Tubes | 5 | 0 |
| Ovarian Cyst | 4 | 1 |
| Tubercles | 2 | 0 |
| Normal | 51 | 4 |

Discussion

Laparoscopy is typically regarded as the standard procedure used as the final test in an infertility workup before proceeding to further infertility treatment. Laparoscopy is widely regarded as the gold standard for diagnosing tubal pathology and other intra-abdominal causes of infertility. Even after a hysterosalpingogram (HSG) has confirmed tubal patency, laparoscopy has been recommended as a mandatory step to rule out the presence of peritubal adhesions and endometriosis as a cause of infertility.⁶

40 percent of the individuals were between the ages of 18 and 25, 32 percent were between the ages of 26 and 30, 20 percent were between the ages of 31 and 35, and 8 percent were between the ages of 36 and 40. Seventy (70%) of the 100 cases had normal BMIs, twenty-five (25%), were overweight, and only five (5%) were obese. Out of 100 patients, 5 belonged to the upper socioeconomic class, 11 to the middle class, 34% to the lower middle class, 32% to the upper lower class, and the remaining 18% to the lower socioeconomic class. On average, women had a regular menstrual cycle in 62 out of 100 instances, oligomenorrhea in 19 percent, menorrhagia in 14 percent, and polymenorrhagia in 5 percent. Primary infertility affected 92 (92%) of the 100 cases of unexplained infertility that were evaluated, and secondary infertility affected 8 patients (8 percent). Women with durations of under five years made up 72% of the population, followed by those with durations of 6–10 years and >10 years at 4% each. In a study by **Nahar et al.**,⁷ there were 39 cases (63.9%) of primary infertility and 22 cases (36.1%) of secondary infertility. Out of 39 instances of primary infertility, the age group 26–30 years had the highest percentage of cases (58.9%), followed by the age group 21–25 years. **Rizvi et al.**,⁸ found that 41 (68.3 percent) of 60 infertile patients studied over an 18-month period had primary infertility and 19 (31.7 percent) had secondary infertility. 5 (12.2%) of the women in

the primary infertility group and 5 (26.3%) of the secondary infertility group were beyond the age of 35. In the **Naz et al.**⁹ investigation, diagnostic laparoscopy was performed on 136 (70.46 percent) patients with main infertility and (29.54 percent) patients with secondary infertility.⁵⁴ **Shetty and Shetty's**,¹⁰ study included fifty women, of which 34 (64%) had primary infertility and 16 (36%) had secondary infertility. In a study by **Rich-Edwards et al.**,¹¹ obese women have a threefold increased risk of infertility compared to non-obese women, and both their natural and aided conception cycles appear to be affected by their fertility.

The most common laparoscopic findings were endometriotic spots (13%) followed by flimsy adhesions (12%), bulky ovary (8%), tortuous tubes (5%), and ovarian cysts (5%) while tubercles were seen in (2%) cases. In the study by **Rizvi et al.**,⁸ anovulation, which causes bald ovaries, was the most prevalent ovarian cause (10%) in both primary (9.7%) and secondary infertility (10.5 percent). Two of the six patients with bald ovaries had atrophic ovaries, which were indicative of early ovarian failure due to excessive FSH and LH and low AMH and AFC. There was evidence of polycystic ovary syndrome (PCOD).

Conclusion

An important part of evaluating infertility is laparoscopy. In our study, 45% of the patients who were infertile had a cause discovered thanks to laparoscopy. Laparoscopy is a very effective procedure in evaluating these infertile women and helping to plan appropriate management due to the high rates of infertility and illiteracy in our region and the large number of patients with tub peritoneal factor for infertility, for which laparoscopy is the gold standard.

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