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Role of Hysterolaparoscopy in the management of infertility: A clinical analysis

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Abstract

Background and Aim: Diagnosis and treatment of infertility is an elaborate process. The goal of treating clinician is to decide upon the plan of management best suited to the couple by selecting relevant investigations and procedures from available options. The aim of this study was to assess the efficacy and safety of combined hysterolapascopy in the evaluation and treatment of female infertility.

Material and Methods: The research was conducted at the obstetrics and gynecology department of the medical college and the associated hospital in this observational study. The research for the study took a full year to complete. There were 116 women who took part in the research study, all of whom were unable to conceive. Using laparoscopy, we assessed various factors included adhesions, the condition of the pouch of Douglas, and the mobility of the tubal passages in relation to the ovary.

Results: Of the 116 women who took part in the study, 84 experienced primary infertility, while the remaining 32 women dealt with secondary infertility. Most of the patients fell within the younger age range of 25 to 30 years due to the age groups. Abnormalities were found in 80 of the women through laparoscopic examinations, and in 44 of the women through hysteroscopic examinations. Tubal blockage and endometriosis were particularly common in these cases.

Conclusion: Direct visualization makes hysterolaparoscopy a highly effective diagnostic procedure. During one session, it offers a unique chance to address the medical condition, restore the body's structure, and collect samples for further examination, as needed based on the situation.

Keywords: Endometriosis, hysterolaparoscopy, infertility, tubal blockage

Introduction

If a person is unable to conceive after one year of unprotected frequent sexual activity, they are considered to be infertile. Approximately 10 to 15 percent of couples experience this condition. There are several factors that can contribute to infertility, including tuboperitoneal disease, ovulatory disorders, uterine factor, and male factor ineffectiveness [1,2].

Around ten to fifteen percent of couples in their reproductive years' experience infertility. This disorder is currently experiencing significant advancements in diagnosis and treatment within the field of medicine. Experience has shown that routine pelvic examinations and typical diagnostic procedures often fail to fully understand and identify the majority of pelvic pathology in infertile women. Due to its ability to visualize and manipulate the uterus, fallopian tubes, and ovaries, laparoscopy has become an essential tool in evaluating infertility [3-5].

When evaluating infertility, the goal is to thoroughly examine and test each component to the best of our ability. This helps us identify any abnormalities that could potentially interfere with or prevent conception. Using a laparoscope provides a wealth of information as it enables the visualization of the pelvic cavity, identification of peritoneal factors, assessment of tubal morphology and patency, evaluation of ovarian size and morphology, and measurement of uterine size, shape, and clinical pathology [6, 7].

Hysterolaparoscopy is a valuable diagnostic tool that can uncover hidden health issues in patients who may not show any obvious symptoms. In some instances, even if the HSG results are normal, laparoscopy can uncover peritubal adhesions, periadnexal adhesions, tubal pathology, and endometriosis in a significant percentage of cases (35-68%) [7, 8]. Diagnostic hysteroscopy is a crucial tool for identifying uterine abnormalities and other intrauterine pathologies.

Although hysterolaparoscopy may initially seem invasive, it can actually be quite beneficial as it enables both diagnosis and therapeutic interventions to be carried out in one place. As a result, the entire process transitions from a purely diagnostic approach to one that emphasizes prognostic and therapeutic aspects. The aim of this study was to assess the efficacy and safety of combined hysterolapascopy in the evaluation and treatment of female infertility.

Material and Methods

The research was conducted at the obstetrics and gynecology department of the medical college and the associated hospital in this observational study. The research for the study took a full year to complete. There were 116 women who took part in the research study, all of whom were unable to conceive. The patients included in the study ranged in age from 22 to 38 years. Here are the criteria that were utilized to determine the inclusion and exclusion of participants in the study:

We strongly encourage women aged 18 to 42 years to participate in the study. Having a normal hormone profile and no male factor infertility are both factors that can contribute to primary or secondary infertility.

Exclusion criteria: There may be a potential pregnancy. It is important for women with severe cardiac and respiratory illnesses, acute generalized peritonitis, problems with anesthesia, diabetes mellitus, severe anemia, sexually transmitted diseases, and severe urinary tract infections to seek medical attention. Women who were undergoing hysterolaparoscopy for reasons unrelated to infertility were offered the chance to take part in the study.

Patients who have never conceived are classified as having primary infertility, while those who have had at least one previous conception, regardless of the pregnancy outcome, are considered secondary infertile.

Prior to the participant's involvement in the study, a thorough pre-anesthesia checkup was conducted and the necessary consent form was signed. During the early follicular phase of their menstrual cycles, the patients received general anesthesia and underwent the Hysteroscopy procedure. Thanks to the hysteroscopy that was performed, the entire endometrial cavity and tubal ostia were visible Using laparoscopy, we assessed various factors related to the fallopian tubes and the surrounding areas. These factors included adhesions, the condition of the pouch of Douglas, and the mobility of the tubal passages in relation to the ovary. Thanks to this, the endometriosis was detected at an earlier stage. To perform laparoscopic chromopertubation, a solution of autoclaved methylene blue with a concentration of 0.5% was inserted into the uterus using a specially designed cannula.

Version 25 of the SPSS software was used for statistical analysis. Proportions will be used to express quantitative variables, while mean plus standard deviation will be used to express continuous variables. Continuous variables will be compared using the Student's t-test, while proportions will be analyzed using the Chi-square test.

Results

Of the 116 women who took part in the study, 84 experienced primary infertility, while the remaining 32 women dealt with secondary infertility. Most of the patients fell within the younger age range of 25 to 30 years due to the age groups. The smallest percentage of the total was comprised of patients over the age of 30. Abnormalities were found in 80 of the women through laparoscopic examinations, and in 44 of the women through hysteroscopic examinations. The two groups with the highest prevalence of abnormalities were primary infertility and secondary infertility. Tubal blockage and endometriosis were particularly common in these cases. The most common intrauterine pathology in both groups was deep-seated ostium, with polyps being the most common pathology in primary infertility and synechiae being the most common pathology in secondary infertility. According to the demographic findings, a significant number of women who experienced primary infertility fell within the 25 to 30 age range.

The analysis of hysteroscopic findings revealed that both endometritis and pale endometrium were frequently observed in the uterus. Polyps were frequently observed in patients with synechiae and cervical stenosis. These findings indicate a possible case of tuberculosis. During the laparoscopic examination, the doctor discovered congestion of tubes, hydrosalpinx, adhesions, and a tubo-ovarian mass. These findings indicate a possible presence of polycystic ovary syndrome (PID). The most common findings in the uterus were caseous tubercles. Two different women were found to have the subseptate uterus, which is a type of uterine abnormality. Following peritoneal adhesions, a common observation is the presence of enlarged ovaries, which may indicate PCOS as a possible cause. Patients also underwent various therapeutic procedures during the same medical appointment.

Table 1: Status of infertility

Status of infertility	Number of women
Primary	84
Secondary	32
Grand total	116

Table 2: Endometrial status/uterine findings on hysteroscopy

Uterine findings on hysteroscopy	No. of women
Normal Endometrium	100
Congested/endometritis	6
Pale	6
Hyperplastic endometrium	2
Submucous myoma	2
Grand total	116

Table 3: Status of uterus on laparoscopy

Uterine findings on laparoscopy	No. of women
Normal Endometrium	98
Endometriotic patches	2
Myoma	4
Caseous tubercle	6
Broad fundus	4
Congested	2
Grand total	116

Discussion

Although hysterolaproscopy may initially seem invasive, it offers the advantage of allowing for both diagnosis and therapeutic interventions to be performed at the same time. After the hysterolaparoscopy evaluation is finished, the decisions about the artificial reproductive technique can be made when the time is right. According to Mettler, the reported rate of complications during the hysteroscopy procedure was 1.65%. Monitoring hysteroscopy with laparoscopy led to a significant decrease in the rate of complications. The hysterolaparoscopy procedure is extremely safe. All of our patients underwent surgical and anesthetic procedures without any significant complications, except for experiencing mild abdominal pain [9, 10].

Approximately thirty to thirty-five percent of couples who are unable to conceive receive a primary diagnosis of tubal and peritoneal pathology. Laparoscopy is widely regarded as the most effective method for diagnosing these disorders. This factor provides a more precise indication of the likelihood of future spontaneous pregnancy in infertile couples with unexplained infertility. A group of researchers from India, Jayakrishnan *et al*., discovered pelvic pathology in 26.8% of infertile patients by utilizing laparoscopic examination [11, 12].

All 194 female patients had fallopian tubes that appeared to be normal on both sides. Peritubal adhesions were observed in some patients, likely resulting from conditions such as PID or abdominal tuberculosis. Additionally, four patients exhibited congested and hyperemic tubes, while others presented with hydrosalpinx, tubo-ovarian masses, or a beaded appearance of the tubes. These findings were included in the pathologic findings. Ten patients were prescribed ATT based on the laparoscopic examination results. A study conducted by Madhuri and colleagues found that 12 patients had tubal pathology. According to a study conducted by Saumya, nearly 20% of patients were discovered to have tubal pathology. In our study, a significant proportion of patients (19%) were found to have tubal pathology, which aligns with the findings of similar studies on this topic [13].

During laparoscopy, it was discovered that four female patients had a broad fundus. Out of the total number of patients, 82 had normal ovaries, while 14 exhibited larger and bulkier ovaries, which could be indicative of polycystic ovary syndrome (PCOS). 10 patients underwent ovarian drilling during a single session. Out of the total number of patients, eight had endometriotic cysts, with four of them having cysts smaller than three centimeters. Four patients underwent endometrioma drainage with fulguration of the cyst wall. Ovaries were not visible in eight of the female patients. Both of the women who had cystectomy had a basic ovarian cyst discovered in their ovaries. In the current study on laparoscopy, twenty-four patients were identified with tubal pathology, while fourteen patients had ovarian pathology. There were 18 patients diagnosed with endometriosis, six patients with polycystic ovary syndrome (PID), and ten patients with findings suggestive of genital tuberculosis. These findings were confirmed by an endometrial biopsy that was sent to a specialist in genetic analysis. For the remaining 36 patients, the study yielded normal results. In a separate study conducted by Agrawal and colleagues, 42 women had normal findings, 22 women had tubal blocks, and 12 women had simple or complex laparoscopy [14].

Conclusion

Direct visualization makes hysterolaparoscopy a highly effective diagnostic procedure. During one session, it offers a unique chance to address the medical condition, restore the body's structure, and collect samples for further examination, as needed based on the situation.

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