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Original Research Article

FREQUENCY OF PELVIC PATHOLOGIES IN PRIMARY SUBFERTILITY ON DIAGNOSTIC LAPAROSCOPY

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Abstract: *This study aimed to determine the frequency of pelvic pathologies in female primary subfertility by using diagnostic laparoscopy. A prospective study was conducted in the Department of Gynecology and Obstetrics of Nishtar Hospital, Multan, from April 2022- April 2023. A total of 100 women aged 20-40 years who were unable to get pregnant after unprotected sex for one year and had a normal pelvic examination and semen analysis of the husband were selected for the study. All the patients underwent laparoscopy. A tubal patency test was performed by using methylene blue dye. 50 patients (50%) had been subfertile for 1-5 years. Laparoscopy revealed that endometriosis was the most common cause of subfertility, as seen in 40% of patients. Tubal blockage was also observed in 8 patients (8%). Based on the results, it can be concluded that endometriosis followed and tubal occlusions are the most common causes of subfertility in women.*

Keywords: Subfertility, Laparoscopy, Pelvic Abnormalities, Hysterosalpingography

Introduction

On average, 5% of couples suffer from subfertility with little to no chance of conceiving a child naturally (Tamrakar and Bastakoti, 2019). Globally, 8-12% of couples experience subfertility, with this range varying in various regions(Starc et al., 2019). Most couples face emotional and financial breakdowns while accepting subfertility and struggling with its treatment.

Individually, 3-17% of people are diagnosed with subfertility in developed countries and 7-10% in developing countries (Hazlina et al., 2022). In Pakistan, 1/5th of couples are subfertile. Up to 55% of the female factors, 40% of male factors, 10% of partners, and 10% of unknown factors contribute to infertility cases (Khalid et al., 2018). In women, endometriosis is the main reason for subfertility, mainly caused by retrograde menstrual flow and genetics. Till now, there isn't any cure for endometriosis but medication and surgery can help reduce symptoms. Various procedures and tests are performed in clinical practice to assess endometriosis to determine subfertility.

Diagnostic laparoscopy is a tool to examine the pelvis so that reproductive organs, i.e., ovaries, uterus, and fallopian tubes, can be seen, and their pathology can be evaluated. We conducted this study to determine the frequency of pelvic pathologies in female subfertility using diagnostic laparoscopy.

Methodology

A prospective study was conducted in the Department of Gynecology and Obstetrics of Nishtar Hospital, Multan, from April 2022- April 2023. A total of 100 women aged 20-40 years who were unable to get pregnant after unprotected sex for one year and had a normal pelvic examination and semen analysis of the husband were selected for the study. All the subjects provided their informed consent to participate in the study. The women who had contraindications for laparoscopy or whose husbands had an abnormal semen analysis were excluded from the study. The ethical board of the hospital approved the study design.

Patients were thoroughly examined physically and endocrinologically. All baseline and hormonal tests were performed along with ECG, chest X-ray, endometrial biopsy, ultrasonography, and Hysterosalpingography. All the patients underwent laparoscopy in the proliferative phase of the menstrual cycle. A tubal patency test was performed using 10-15 ml of 0.5% autoclaved methylene blue dye.

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Results

The majority of the patients (50%) were aged between 26-30 years (Table I). 50 patients (50%) had been subfertile for 1-5 years. Only 20 patients (20%) were subfertile for more than 11 years (Table II). Laparoscopy revealed that endometriosis was the most common cause of infertility in 40% of patients. Tubal blockage was also observed in 8 patients (8%) (Table III). Tubal patency was best diagnosed with laparoscopy in 60 patients (60%). Laparoscopy with HSG could best find a unilateral block in 40 patients (40%) (Table IV).

Table I: Age groups of participants

Age group (years)	N (%)
20-25	30 (30%)
26-30	50 (50%)
31-35	20 (20%)

Table II: Duration of infertility

Duration (years)	N (%)
1-5	50 (50%)
6-10	30 (30%)
11-15	10 (10%)
16-20	10 (10%)

Table III: Laparoscopic Findings

Findings	N (%)
Normal pelvic organs	25 (25%)
Tubal blockage with ovarian cysts	8 (8%)
Tubal blockage with adhesions	5 (5%)
Tubal patency with adhesions	5 (5%)
Endometriosis with uterine fibroids	40 (40%)
Genital tuberculosis	5 (5%)
Tubal patency with ovarian cysts	5 (5%)
Uterine hypoplasia	5 (5%)
Tubal blockage without adhesions	5 (5%)

Table IV: Tubal patency findings

Fallopian tube patency	Laparoscopy combined with Hysterosalpingography	Laparoscopy
Both tubes patent	45 (45%)	60 (60%)
Bilateral block	15 (15%)	12 (12%)
Unilateral block	40 (40%)	28 (28%)

Discussion

We found out in our study that endometriosis is the most frequent cause of subfertility in females. In another study by Ramesh & Kurkuri, most patients out of 250 subjects presented endometriosis as the primary cause of subfertility (Ramesh and Kurkuri, 2016). Similar to our study, subfertile women had tubal blockage, cystic ovaries, adnexal adhesions, genital tuberculosis, and uterine hypoplasia. Endometriosis was the most common infertility in Shanmugham (Shanmugham et al., 2019) and Reyes et al. (Reyes-Muñoz et al., 2019). Periovarian adhesions and endometriosis were also leading causes of infertility in our study. To Dawood et al. and Pande et al., endometriosis and adnexal adhesions were the most common etiologies for primary infertility as seen in hysterolaparoscopy (Gad et al., 2019; Pande et al., 2017).

Javaid et al. and Saif et al. conducted in Pakistan also report similar results. Laparoscopic and HSG findings revealed endometriosis and tubal blockage as leading etiologies of subfertility(Javaid et al., 2022; Saif et al., 2022).

70 patients (70%) had primary subfertility, and pelvic abnormalities were more common in these patients. Bhattarai et al. reported that primary subfertility was 3 folds more common, and ovulatory dysfunction was more common in these patients than in patients with secondary infertility(Bhattarai and Ghimire, 2017).

In our study, 75% of patients had abnormal pelvic organs, which caused primary subfertility. 50 patients (50%) experienced subfertility for 1-5 years.

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Dhananjay also observed the same results. The majority of the subjects had subfertility for 4-6 years, with a mean subfertile period of 4.62 years. (Shobha et al., 2014)

In our study, laparoscopy could best find the tubal blockage, while combining laparoscopy and HSG could best diagnose unilateral block. Tan et al., Sharma et al., and Begum also reported these findings and recommended combining these two procedures to diagnose fallopian tube abnormalities (Begum, 2020; Sharma et al., 2023; Tan et al., 2021). However, laparoscopy was also a gold standard for diagnosing endometriosis in our study. Similarly, in Rathore et al., laparoscopy was to diagnose endometriosis as a leading cause of subfertility (Rathore et al., 2019).

Our study has some limitations. The sample size was limited and was only selected from a single center. Larger study groups with various study groups can better assess the etiologies of subfertility.

Conclusion

Endometriosis followed, and tubal occlusions are women's most common causes of subfertility.

Conflict of interest

The authors declared absence of conflict of interest.

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