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ORIGINAL ARTICLE

Role of Laparoscopy in Detecting Pelvic Causes of Female Subfertility in Obstetrics and Gynaecology Department

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ABSTRACT

Background: laparoscopy is one of the diagnostic technique that provides details on the state of the ovaries and fallopian tubes, as well as any abnormalities in the uterus.

Objective: the aim of this study was to determine the Role of laparoscopy in detecting pelvic causes of female subfertility in obstetrics gynaecology

Material and Method: The present cross-sectional descriptive study was carried out at the department of gynaecology Lady Reading hospital Peshawar from January 2023 to June 2023 after taking permission from the research team of the hospital. Volunteers' women of different age groups (ranged 40 -80 years) with trouble to become pregnant or subfertility were included while individuals with heart diseases, stomach problems and those who had not lived together for a minimum of 12 months were excluded. We used consecutive sampling without probability to include people in a sequential fashion without using a random selection process. After being fully informed about the study, the participants voluntarily decided to take part and gave their express consent. We determined the required number of participants using free WHO software. The sample size determines was 191.

Results: A total of 191 women were enrolled in this study. The mean age of the study participants was 29.61± 6.904 years. The mean duration of the marriage was 7.13 ±1.265 years and the length of the subfertility was 5.57± 3.1**.** 96(50.2%) females had primary subfertility and 95(49.7%) had secondary subfertility. The most frequent cause of infertility was polycystic ovarian syndrome in 42 cases (21.9%), followed by PID in 35 cases (18.3%), tubal occlusion in 30 cases (15.7%), endometroitic deposits in 27 cases (14%), ovarian cysts in 25 cases (13%), peritubal and peri-ovarian adhesions in 10 cases (5.2%), and fibroids in 2 cases (1.0%) of females. However, in 20 (10.4%) of the females during laparoscopy showed no cause.

Conclusion: The present study concluded that for women with a history of pelvic inflammatory disease (PID), pelvic surgery, and chronic pelvic pain, early consideration of laparoscopy is recommended in order to make the best treatment choices.

Keywords: Laparoscopy; Pelvic; Female; Subfertility

INTRODUCTION

The inability to conceive after a year of consistent, unprotected sexual activity is known as subfertility, and it affects approximately 10-15% of couples in their reproductive years. There are two types of subfertility: primary subfertility, which refers to people who have never been pregnant, and secondary subfertility, which refers to people who have had at least one pregnancy.[1] Factors including reproductive health, psychological health, economic situation, trauma, and stress are linked to subfertility, especially in societies where having children is highly valued.[2] Subfertility may result from a pathological disorder that affects the reproductive system of either the male or female.[3] The female reproductive process may suffer as a result of female subfertility. There are several reasons why a health problem might occur. The culprit might be the body's endocrine system, which is made up of several organs and glands that create and control hormones. The impacts of hormones on your body are numerous and include changes in how it grows, uses energy, and reproduces. Another aspect might be a disease where the bodies own tissues and cells are mistakenly targeted by the immune system.[4] This condition is known as an autoimmune disease. The lifestyle and environment of the individual, including their food, stress level, exposure to pollutants, and contact with potentially hazardous products, may be a third influence. This health condition, which affects women more often than men, is connected to three additional conditions that affect the female reproductive system.[5] Among these are endometriosis, which is a development of tissue that typically surrounds the uterus within it; polycystic ovarian syndrome (PCOS), which is the ovaries producing too many male hormones and resulting in numerous tiny cysts; and premature ovarian failure (POF), which is the ovaries ceasing to function before the age of 40. These three issues have the potential to cause issues with menstruation, hormones, and fertility. This is a prevalent medical condition that many women experience globally.[4] For treatment to be effective, the disease must be precisely identified. A detailed review of the female partner's medical history and a thorough physical examination serve as the first steps in the evaluation process. It is more important to conduct the right questions than to perform a series of tests. Priorities carrying doing standard, uncomplicated, less invasive, and very predictive investigations first. Diagnostic techniques such as laparoscopy and hysteroscopy (HSG) can be used to determine the underlying cause of infertility. Research has shown that in some individuals who are at risk of pelvic adhesions, HSG is insufficient in accurately predicting tubal patency. In these situations, HSG's sensitivity ranges from 0.0% to 83%, while its specificity ranges from 50% to 90%.[5] Laparoscopy has been a widely used diagnostic technique for visualizing the pelvic organs since it was developed by Kalk in 1929, particularly in situations of subfertility. About 55.5% of instances of diagnostic laparoscopy are performed to explore subfertility, which is the procedure's most common reason.[6] One diagnostic technique that provides details on the state of the ovaries and fallopian tubes, as well as any abnormalities in the uterus, is laparoscopy. For the diagnosis of a variety of pelvic disorders, such as TB, endometriosis, pelvic obstruction, and pelvic inflammatory disease, it is regarded as the gold standard. In addition, it is the single most efficient way to assess the fallopian tubes' openness. In 21.68% of infertile couples, subsequent laparoscopy reveals abnormal results after a routine hysterosalpingography. In developing countries, post abortion, postpartum infection, untreated pelvic inflammatory disease, and TB are common factors that lead to infertility.[7] the aim of this study was to determine the Role of laparoscopy in detecting pelvic causes of female subfertility in obstetrics gynaecology.

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MATERIAL AND METHOD

The present cross-sectional descriptive study was carried out at the department of gynaecology Lady Reading hospital Peshawar from January 2023 to June 2023 after taking permission from the research team of the hospital. Volunteer's women of different age groups (ranged 40 -80 years) with trouble to become pregnant or subfertility were included while individuals with heart diseases, stomach problems and those who had not lived together for a minimum of 12 months were excluded. We used consecutive sampling without probability to include people in a sequential fashion without using a random selection process.

After being fully informed about the study, the participants voluntarily decided to take part and gave their express consent. We determined the required number of participants using free WHO software. They established their objectives with a 10% expected dropout rate, a 95% confidence level, 2.5% accuracy, with 3.1% as the least common cause of infertility. The sample size determines was 191.

RESULTS

A total of 191 women were enrolled in this study. The mean age of the study participants was 29.61± 6.904 years. The mean duration of the marriage was 7.13 ±1.265 years and the length of the subfertility was 5.57± 3.1 as presented in table 1. 96(50.2%) females had primary subfertility and 95(49.7%) had secondary subfertility as presented in table 2. The most frequent cause of infertility was polycystic ovarian syndrome in 42 cases (21.9%), followed by PID in 35 cases (18.3%), tubal occlusion in 30 cases (15.7%), endometroitic deposits in 27 cases (14%), ovarian cysts in 25 cases (13%), peritubal and peri-ovarian adhesions in 10 cases (5.2%), and fibroids in 2 cases (1.0%) of females. However, in 20 (10.4%) of the females during laparoscopy showed no cause as presented in table 3.

Table1: Demographic features of the study participants n=191

Feature	Maximum	Minimum	STD	Mean
Age in years	40	19	6.904	29.61
Marriage duration in years	18	4	1.265	7.13
Sub fertility duration in years	13	2	3.1`	5.57

Table 2: Subfertility types

Types	Frequency /percentage
2ndry	95(49.7%)
Primary	96(50.2%)
Total	191

Table 3: etiology of subfertility

Types	Frequency /percentage
Ovarian cyst	25(13%)
Endometriotic deposits	27(14%)
Tubal occlusion	30(15.7%)
Pelvic inflammatory disease	35(18.3%
Polycystic ovary	42(21.9%)
Fibroids	2(1.0%)
Peri-tubal and per-ovarian Adhesions	10(5.2%)
No cause	20(10.4%)
Total	191(100%)

DISCUSSION

One major issue with global health is subfertility. About 15% of couples trying to conceive their first child have unsatisfactory results, whereas the estimated average incidence of infertility in developing countries is 6.9 to 9.3% .[8] Subfertility rates throughout the world were thoroughly analyzed by the World Fertility Survey, which found that Bangladeshi has a 4 percent rate, Nepal has a 6% rate, Pakistan has a 5% rate, & Sri Lanka has a four per cent rate.[9]A couple who are unable to get pregnant after a year of consistent, unprotected sexual activity is said to be in subfertility. This can be further divided into two categories: primary infertility, which occurs when a couple fails to have a child after several efforts, and secondary infertility, which occurs when a couple has previously become pregnant, even if it failed to end in a live baby. Endometriosis, uterine or cervical factors, ovulatory abnormalities, tubal disease, and male factor subfertility are the main causes of subfertility.[9]In order to examine and assess females who are having infertility, laparoscopy is a necessary and common procedure. The World Health Organization's (WHO) guidelines still recommend diagnostic laparoscopy as a necessary step in evaluating female subfertility.[10]Laparoscopy is a very effective method for assessing infertility that defies logic since it provides direct visibility to uncover hidden issues. In particular, this study looks at how laparoscopy advances our knowledge of female infertility. Of 100 infertile women who underwent laparoscopy as well as had tubal disease (which can be one-sided or both sides obstructed), sixty-two percent had adhesions around their fallopian tubes, and fifteen percent had hydrosalpinx, a fluid-filled fallopian tube, according to a 2020 study. Endometriosis affected 50% of patients, resulting in adhesions, cysts, and blockages in the Pouch of Douglas.[11]

In the present study 191 women were enrolled. The mean age of the study participants was 29.61± 6.904 years. The mean duration of the marriage was 7.13 ±1.265 years and the length of the subfertility was 5.57± 3.1. Similar age and duration of marriage was reported in the previous study.[12] In our study 50.2% of the females had primary subfertility and 49.7% had secondary subfertility. These findings are similar to the study conducted by Ahmed et al**.** 121 women with primary subfertility and 82 with secondary subfertility from lower socioeconomic backgrounds were examined in an Indian study.[13] The most frequent cause of infertility was polycystic ovarian syndrome in 42 cases, followed by PID in 35 cases, tubal occlusion in 30 cases, endometroitic deposits in 27 cases, ovarian cysts in 25 cases, peritubal and peri-ovarian adhesions in 10 cases, and fibroids in 2 cases of females. However, in 20 of the females during laparoscopy showed no cause. The results of our study are comparable with the study conducted by Farhad et al.[12] According to another research, the following disorders were associated with subfertility and could be identified by laparoscopy: endometriosis (2.7%), tubal issues (30%), uterine abnormalities (4%), and polycystic ovarian syndrome (25.1%).[11]

Although earlier research identified several reasons of subfertility, including endometriosis (2.7%), polycystic ovarian disease (25.1%), tubal factors (30%), and uterine causes (4%), laparoscopy failed to identify a single cause.[13] These outcomes are in line with the findings of our investigation.

CONCLUSION

The present study concluded that for women with a history of pelvic inflammatory disease (PID), pelvic surgery, and chronic pelvic pain, early consideration of laparoscopy is recommended in order to make the best treatment choices. Tubal factors were the most common in both types of subfertility in this study, while ovulatory issues were commonly noted in primary subfertility instances.

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