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RESEARCH ARTICLE
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FREQUENT PELVIC PATHOLOGIES IN PRIMARY INFERTILITY ON DIAGNOSTIC LAPAROSCOPY

Dr Anam Manan[1], Dr Hira Isfand[2*], Dr Lubna Aslam[3], Dr Amna Mnnan[4], Dr Shazina Sattar[5], Dr Muhammad Haider Ali[6]

[1]3rd Year Resident Gynecology and Obstetrics, Department of Gynecology and Obstetrics, North West General Hospital and Research Centre, Peshawar, Pakistan
[2*]Medical Officer, Gynecology and Obstetrics, Madina Teaching Hospital Faisalabad, Pakistan
[3]Associate Professor, Obstetrics and Gynaecology, PGMI/AMC/LGH Lahore, Pakistan
[4]WMO (Women Medical Officer), PGMI/AMC/LGH Lahore, Pakistan
[5]WMO, Department of Obstetrics and Gynecology, Sindh Government Liyari General Hospital Karachi Sindh, Pakistan
[6] Resident Surgeon, Hayatabad Medical Complex, Peshawar, Pakistan

[*]**Corresponding author:** Dr Hira Isfand
Email: isfandhira@gmail.com

Abstract:
Objectives: To determine the frequent Pelvic Pathologies in primary infertility on diagnostic laparoscopy.
Materials and Methods: This prospective study was conducted at the multiple centers incuding North West General Hospital and Research Centre, Peshawar, Pakistan and Madina Teaching Hospital Faisalabad, Pakistan in the duration from July, 2023 to December, 2023. Total of 102 patients were enrolled. All the patients underwent laparoscopy. A predesign questionere were used to collect data. For statistical analysis we used SPSS Version 25.
Results: The mean age of the participants was 30.91 years with a standard deviation of 6.10. Upon laparoscopic examination, it was determined that endometriosis accounted for the highest proportion of primary infertility cases, affecting 44.1% of patients. Following endometriosis, tubal blockage with adhesions and tubal patency with adhesions were observed in 7.8% of patients each. Conversely, tubal blockage with ovarian cysts and tubal patency with ovarian cysts were the least prevalent conditions, each affecting 3.9% of patients. Stratification of pathologies based on age group and duration of infertility revealed insignificant P-values in both cases.
Conclusion: It was concluded that endometriosis followed by Tubal blockage and Tubal patency are associated with primary infertility in women.

Key words: Infertility, Endometriosis, Laparoscop

INTRODUCTION:

Infertility can indeed lead to significant personal suffering and can disrupt family life in profound ways.(1) The inability to conceive a child can evoke feelings of sadness, frustration, guilt, and inadequacy, affecting both individuals and couples emotionally, mentally, and even socially.(2) The United Nations defines reproductive health as encompassing the entirety of physical, mental, and social well-being, extending beyond the mere absence of disease or infirmity in all aspects concerning

the reproductive system and its functions.(3) Infertility presents a global challenge, affecting over 70 million couples worldwide.(4, 5)

Based on current evidence, there is a reported 9% prevalence of infertility (defined as experiencing difficulty conceiving after 12 months) with 56% of couples seeking medical assistance in more developed countries and 51.2% in less developed nations. In Pakistan, the prevalence of infertility is reported to be 21.9%.(6) The main reasons for infertility in females often include issues like irregular ovulation, problems with the fallopian tubes, endometriosis, and conditions affecting the uterus or cervix.(7) Diagnostic laparoscopy is a procedure used to examine the pelvic area, allowing doctors to directly view and assess the reproductive organs such as the ovaries, uterus, and fallopian tubes for any abnormalities or pathology. (8) Laparoscopy offers insights into the condition of the fallopian tubes and ovaries, the normalcy of the uterus, and serves as a standard method for diagnosing different pelvic pathologies like pelvic inflammatory disease, endometriosis, pelvic congestion, and tuberculosis. The present study was conducted in order to determine the frequent Pelvic Pathologies in primary infertility on diagnostic laparoscopy.

Objective:

To determine the frequent Pelvic Pathologies in primary infertility on diagnostic laparoscopy.

MATERIALS AND METHODS:

Study Design: prospective study.

Study setting: North West General Hospital and Research Centre, Peshawar, Pakistan and Madina Teaching Hospital Faisalabad, Pakistan in the duration from July, 2023 to December, 2023.

Inclusion Criteria:

- Female participants diagnosed with primary infertility.
- Undergoing diagnostic laparoscopy.
- Patients of 18-45 years of age.

Exclusion Criteria:

- Patients who have undergone prior pelvic surgery, especially procedures that could affect the interpretation of laparoscopic findings, such as pelvic adhesions or scarring.
- Patients with a known history of secondary infertility.
- Patients who are unable to undergo laparoscopic examination due to anatomical constraints, medical reasons, or refusal to consent to the procedure.
- Patients with gynecological conditions unrelated to primary infertility, such as cervical or endometrial cancer,

Methods:

This prospective study was conducted North West General Hospital and Research Centre, Peshawar, Pakistan and Madina Teaching Hospital Faisalabad, Pakistan in the duration from July, 2023 to December, 2023 after the approval of hospital's ethical committee. Total of 102 patients fulfill the inclusion criteria were enrolled. an informed consent were obtained from enrolled women which were duly signed by the researcher and the patient/guardian. All the women were clinically examined. All patients underwent laparoscopy during the proliferative phase of their menstrual cycle. A tubal patency test was conducted using 10-15 milliliters of autoclaved methylene blue dye solution at a concentration of 0.5%. A predesign questionere were used to collect data. For statistical analysis we used SPSS Version 25.

RESULTS:

The mean age of the enrolled patients was 30.91±6.10 years (Table 1). The majority of the patients (34.3%) were aged between 26-30 years, followed by 25.5% patients in the age group of 18-25 years.

22.5% were found in the age group of 31-35 years and least (17.6%) of patients were found in the age group of 36-40 years. most of the patients (74.5%) have 1-5 years of duration of infertility. Laparoscopy revealed that endometriosis was the most common cause of primary infertility in 44.1% of patients. Followed by Tubal blockage with adhesions (7.8%) and Tubal patency (7.8%) with adhesions. And the least number of patients had Tubal blockage with ovarian cysts (3.9%) and Tubal patency with ovarian cysts (3.9%) (Table 2 and fig 1). Stratification of pathologies with respect to age group and Duration of infertility was done and noted that there was insignificant P-value in both cases (Table 3).

Table 1: Mean age of all enrolled Patient *(n=102)*

Variables	**Mean±SD**
Age (Years)	30.91±6.10

Table 2: Characteristics and different pathologies of all enrolled patients *(n=102)*

Variables	Frequency	Percentage
Age groups		
18-25 years	26	25.5
26-30 years	35	34.3
31-35 years	23	22.5
36-40 years	18	17.6
Duration of Infertility		
1-5 Years	76	74.5
6-10Years	14	13.7
11-15 years	12	11.8
Pathologies		
Normal pelvic organs	27	26.5
Tubal blockage with ovarian cysts	4	3.9
Tubal blockage with adhesions	8	7.8
Tubal patency with adhesions	8	7.8
Endometriosis with uterine fibroids	45	44.1
Genital tuberculosis	6	5.9
Tubal patency with ovarian cysts	4	3.9

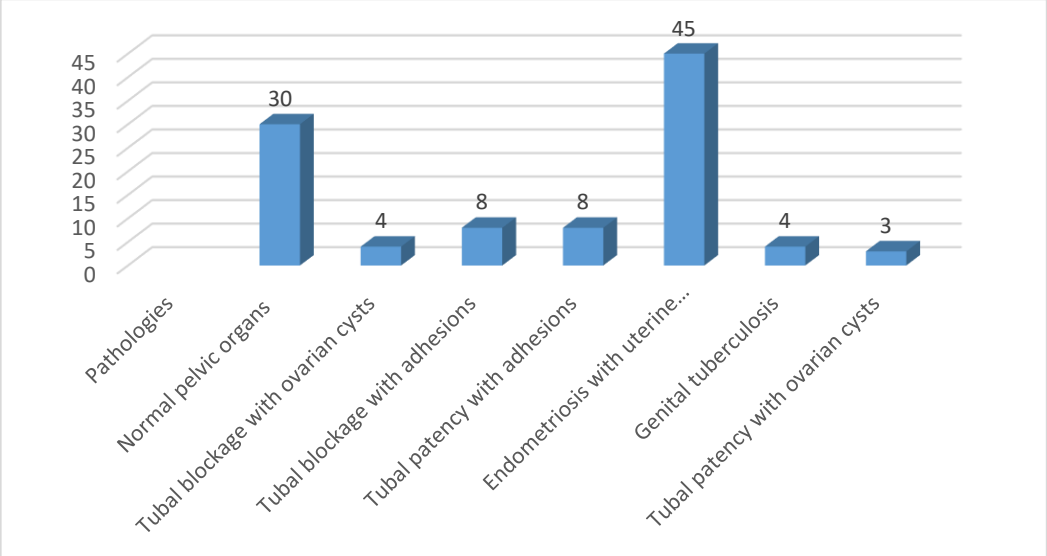

Fig: Frequency of different pathologies

Table 3: Stratification of pathologies with respect to age group and Duration of infertility

Age group	Normal pelvic organs	Tubal blockage with ovarian cysts	Tubal blockage with adhesions	Tubal patency with adhesions	Endometriosis with uterine fibroids	Genital tuberculosis	Tubal patency with ovarian cysts	p-value
18-25 year	6(22.2%)	3(75.0%)	4(50.0%)	1(12.5%)	12(26.7%)	0(0.0%)	0(0.0%)	
26-30 year	9(33.3%)	1(25.0%)	1(12.5%)	2(25.0%)	17(37.8%)	3(50.0%)	2(50.0%)	
31-35 year	10(37.0%)	0(0.0%)	2(25.0%)	1(12.5%)	6(13.3%)	2(33.3%)	2(50.0%)	0.08
36-40 year	2(7.4%)	0(0.0%)	1(12.5%)	4(50.0%)	10(22.2%)	1(16.7%)	0(0.0%)	
Duration of infertility								
	24(88.9%)	4(100.0%)	6(75.0%)	6(75.0%)	38(84.4%)	83(83.3%)	3(75.0%)	0.68
	2(7.4%)	0(0.0%)	2(25.0%)	1(12.5%)	7(15.6%)	1(16.7%)	1(25.0%)	
	1(3.7%)	0(0.0%)	0(0.0%)	1(12.5%)	0(0.0%)	0(0.0%)	0(0.0%)	

Discussion:

In cases of primary infertility, diagnostic laparoscopy can be a valuable tool for identifying pelvic pathologies that may be contributing to the infertility. In the present study we have found a number of Pelvic Pathologies in primary infertility which occur frequently. According to our study Endometriosis is the most frequent pathology responsible to cause primary infertility. In our study it was 45 (44.1%). The occurrence of endometriosis can vary significantly, ranging anywhere from 10% to 90% among different populations or studies.(9-11) Our study was supported by a number of studies.(12-14) in a Pakistani study conducted by Andleeb et al.(12) stated that endometriosis was the most common cause of subfertility, as seen in 40% of patients. Other research studies conducted by Gad et al.(15) and Pande et al.(16) have also confirmed that endometriosis and adnexal adhesions are frequently the main reasons behind primary infertility. endometriosis is the most frequent pathology responsible for primary infertility is significant and provides valuable insight into the factors contributing to infertility. Endometriosis is a condition where tissue similar to the lining inside the uterus grows outside the uterus, which can lead to complications such as inflammation, scarring, and interference with reproductive organs. We have found in the present study the 2nd most frequent pathplogy was Tubal blockage with adhesions and Tubal patency with adhesions which were observed in 8 patients (8%). In the present study 73% patients have abnormal pelvic organ which were responsible for causing primary infertility. We have stratified the pathologies with respect to age group and duration of infertility and it was found that the P-value was insignificant in both cases. It appears that there isn't a significant association between the pathologies and either age group or duration of infertility. This means that the occurrence of pathologies doesn't seem to be influenced by either age or how long a person has been experiencing infertility.

CONCLUSION: It was concluded that endometriosis followed by Tubal blockage and Tubal patency are associated with primary infertility in women. Further research is warranted to explore the optimal treatment approaches and their impact on fertility outcomes in this population.

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