



FREQUENCY OF ENDOMETRIOSIS IN FEMALES WITH INFERTILITY UNDERGOING DIAGNOSTIC LAPAROSCOPY

Shahida Hashim Marwat^{1*}, Dr Humeera Naz², Dr Bakth Ranra³, Dr Parveen Shafi⁴, Dr Zul-E-Huma⁵, Dr Aneesa Sadiq⁶

^{1*}Consultant Obstetrician and Gynaecologist, Garrison Medical Center Sargodha.
^{2,5,6}Assistant Professor Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi
³Medical Officer Gynae Department, Batcha Khan Medical Complex Shamansoor Swabi
⁴HOD Gynae Department, Assistant Prof, Gajjukhan Medical College Shamansoor Swabi

***Corresponding author:** Dr Humeera Naz
*Email: Humeeragkmc@gmail.com

Abstract:

Objectives: To determine the frequency of endometriosis on laparoscopy in females with infertility.

Materials and Methods: This retrospective study was conducted at Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi in the duration from January, 2023 to December, 2023. Medical records of 150 females meeting the inclusion criteria underwent diagnostic laparoscopy and were included in the analysis. During diagnostic laparoscopy, representative samples were collected and sent to the hospital's histopathology department for evaluation to confirm the presence of endometriosis. A predesign questionnaire were used to collect data. For statistical analysis we used SPSS Version 25.

Results: In the enrolled patients, the mean age was 30.38 ± 6.36 years, with a mean duration of marriage of 8.30 ± 5.15 years and a mean duration of infertility of 1.98 ± 1.38 years. Among them, 33 patients (22.0%) were diagnosed with endometriosis. Additionally, 102 women (68.0%) experienced primary infertility, while 48 women (32.0%) had secondary infertility. There was no significant statistical association found between endometriosis and age, type of infertility, or duration of infertility in our study.

Conclusion: Our study concludes that endometriosis is linked to infertility in women. Despite the invasiveness of laparoscopy, proper training can mitigate associated complications, offering benefits to patients and enhancing our comprehension of the disease's pathology.

Key words: Infertility, Endometriosis, Laparoscop

INTRODUCTION:

Endometriosis is indeed defined as a chronic and recurrent condition characterized by the presence and growth of endometrial-like tissue (endometrial glands and stroma) outside the uterus.(1) This tissue can be found on various pelvic organs such as the ovaries, fallopian tubes, and the lining of the pelvic cavity. It responds to hormonal changes during the menstrual cycle, leading to inflammation, scarring, and the formation of adhesions, which can cause pain and infertility in affected individuals.(2) Endometriosis affects about 10% to 20% of reproductive-aged women, although the exact prevalence can vary depending on the population studied and diagnostic criteria used.(3)

Regarding infertility, endometriosis is indeed a significant factor.(4, 5) It's estimated to be the cause of infertility in approximately 30% to 70% of patients undergoing infertility investigations.(5) However, it's essential to recognize that infertility can have multiple causes, and endometriosis is just one potential factor among many that can contribute to difficulties with conception.

Infertility is typically defined as the inability to achieve pregnancy or carry a pregnancy to term after 12 months or more of regular, unprotected sexual intercourse (or after 6 months if the woman is over the age of 35).(6) This definition encompasses both primary infertility, which refers to couples who have never been able to conceive, and secondary infertility, which refers to couples who have previously conceived but are now unable to do so again. Untreated infections, anovulation (lack of ovulation), and endometriosis are indeed significant factors contributing to female infertility.(7) Laparoscopy is a valuable diagnostic tool in assessing various aspects of pelvic health beyond just uterine, tubal, and ovarian status.(8) It allows for direct visualization of pelvic structures, enabling the identification of abnormalities such as pelvic inflammatory disease (PID), endometriosis, tuberculosis affecting the pelvis, and pelvic congestion syndrome. Laparoscopy plays a crucial role in the diagnosis and staging of endometriosis, facilitating appropriate management and treatment decisions for affected individuals.(9) In a study conducted in Pakistan by Khawaja UB et al., it was observed that 16.8% of 796 infertile women were diagnosed with endometriosis.(10) Conversely, a separate study reported a lower prevalence, with only 6.5% of females experiencing infertility found to have endometriosis.(11) This current study aims to evaluate the frequency of endometriosis detected during laparoscopy among infertile women. This research study is valuable for enhancing our understanding of the relationship between endometriosis and infertility and informing clinical decision-making regarding the management of these conditions.

Objective:To determine the frequency of endometriosis on laparoscopy in females with infertility.

MATERIALS AND METHODS:

Study Design: retrospective study.

Study setting: Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi Pakistan.

Inclusion Criteria:

- Female participants diagnosed with infertility.
- Undergoing diagnostic laparoscopy.
- Individuals who were the offspring of consanguineous marriage.
- Patients of 18-40 years of age.

Exclusion Criteria:

- Females without infertility
- Females undergoing laparoscopy for reasons other than diagnostic purposes related to infertility.
- Individuals with a history of pelvic surgery that could confound the results
- Presence of contraindications to undergoing laparoscopy (e.g., severe cardiopulmonary disease).

Methods:

This retrospective study was conducted Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi in the duration from January, 2023 to December, 2023 after the approval of hospital's ethical committee. The medical records of 150 eligible females who underwent diagnostic laparoscopy between 2020 and 2023 and met the inclusion criteria were evaluated. During the diagnostic laparoscopy, a small portion of tissue was taken from the patients and sent to the hospital's histopathology department. There, it was examined to see if there was any presence of endometriosis. 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 30.38±6.36 years. Mean duration of Marriage and mean duration of infertility was 8.30±5.15 years and 1.98±1.38 years (Table 1). In this we have found 33(22.0%) patients with endometriosis (Fig 1). In our study, there were 102(68.0%) women who had primary and 48(32.0%) had secondary infertility (Table 2). Stratification of endometriosis with respect to age group, types of infertility and duration of infertility was done with significant P-value in all cases (Table 3)

Table 1: Mean age of all enrolled Patient (n=150)

Variables	Mean±SD
Age (Years)	30.38±6.36
Mean Duration of Marriage (Years)	8.30±5.15
Mean Duration of Infertility (Years)	1.98±1.38

Table 2: Frequency of Endometriosis and type of infertility (n=150)

Variables	Frequency	Percentage
Endometriosis		
Yes	33	22.0
No	117	78.0
Infertility		
Primary	102	68.0
Secondary	48	32.0

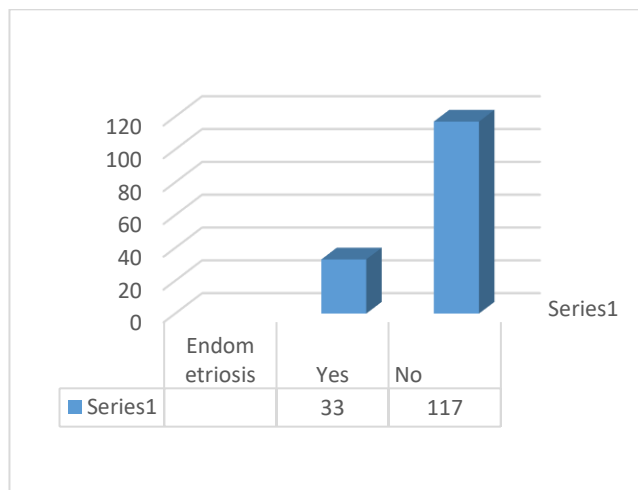


Fig 1: Frequency of Endometriosis

Table 3: Stratification of endometriosis with respect to age group, types of infertility and duration of infertility (n=150)

Age group	Endometriosis		P-value
	Yes	No	
19-25 years	12(36.4%)	32(27.4%)	0.52
26-35 years	12(36.4%)	43(36.8%)	
36-40 years	9(27.3%)	42(35.9%)	
Types of infertility			
Primary infertility	24(72.7%)	78(66.7%)	0.51

Secondary infertility	9(27.3%)	39(33.3%)	
Duration of Infertility			
1-3 Years	30(90.9%)	102(87.2%)	0.70
4-6 Years	3(9.1%)	13(11.1%)	
>6 years	0(0.0%)	2(1.7%)	

Discussion:

The main aim of the present study was to determine the frequency of endometriosis on laparoscopy in females with infertility. Endometriosis has been identified as a potential factor contributing to infertility in women. By employing laparoscopy, a minimally invasive surgical procedure allowing for direct visualization of pelvic organs, researchers sought to precisely determine the frequency of endometriosis in this specific population. Understanding the prevalence of endometriosis in women facing infertility is crucial for improving diagnostic accuracy and tailoring treatment strategies to enhance their reproductive outcomes. In the present study it was stated that 33(22.0%) patients were suffering from endometriosis. As stated in the earlier studies.(12, 13) In a study conducted in Pakistan, findings revealed that endometriosis affects approximately 55% of women.(13) Another study conducted by Tahira Tabbsum et al.(12) that align our finding stated that there were 80(37.21%) women in which endometriosis was diagnosed. An Indian study conducted by Amogh Chimote support our finding showed 32% prevalence of endometriosis.(14) According to Sebastio F. de Medeiros (15) from Brazil, endometriosis was found to be most prevalent among women undergoing laparoscopic infertility treatment, with a frequency of 73.6%. In the present study, it was observed that out of the total participants, 102 women, constituting 68.0%, experienced primary infertility, while 48 women, making up 32.0%, had secondary infertility. This distribution underscores the significance of addressing both primary and secondary infertility in the context of endometriosis research. Primary infertility refers to the inability to conceive after a year of regular, unprotected intercourse, whereas secondary infertility pertains to difficulty conceiving after having previously conceived at least once. Understanding the distribution of infertility types among women with endometriosis provides valuable insights into the diverse reproductive challenges faced by this population and underscores the importance of tailored approaches to diagnosis and treatment. Our study findings align with previous research (12) indicating 69.77% of females diagnosed with primary infertility and 30.23% with secondary infertility. In the present study we have found that same number of patients (36.4%) with endometriosis fall in the age groups of 19-25 years and 26-35 years. And the remaining 27.3% were fall in the age group of 36-40 years with insignificant P-value of 0.52. This parity suggests a notable occurrence of endometriosis among women in their late teens to early thirties, a critical reproductive age range. Interestingly, a smaller but still substantial portion, 27.3%, fell within the 36-40 years age group. Despite this variation, statistical analysis yielded an insignificant P-value of 0.52, indicating that the differences in distribution across age groups were not statistically significant. In normal couples, fecundity typically ranges from 0.15 to 0.20 each month, gradually declining with age. However, for patients with endometriosis, monthly fecundity is significantly reduced to approximately 0.02 to 0.1 per month.(16) This notable decrease in fecundity underscores the impact of endometriosis on fertility and highlights the challenges faced by individuals with this condition in achieving pregnancy. In the present study, the highest frequency of primary infertility, comprising 24 cases (72.7%), was observed among females diagnosed with endometriosis. This finding underscores the significant association between endometriosis and primary infertility, indicating that a considerable proportion of women with endometriosis experience challenges in conceiving without prior successful pregnancies. Another study (12) indicates that a substantial proportion of women with endometriosis, up to 68.8%, experience infertility.

CONCLUSION: It was concluded that endometriosis is associated with infertility in women. While laparoscopy is an invasive method, with proper training, the associated issues and complications can

be minimized, ultimately benefiting patients and providing a clearer understanding of the pathology of the disease.

References:

1. Ahmadi F, Eshrati B, Hassani F, Hosseini R, Pooransari P, Ramazanali F, et al. INTERNATIONAL JOURNAL OF FERTILITY AND STERILITY (Int J Fertil Steril). Int J Fertil Steril. 2024;18(1).
2. Peate I. Reproductive disorders. Learning to Care: The Nursing Associate. 2019:429.
3. Gupta D, Hull ML, Fraser I, Miller L, Bossuyt PM, Johnson N, et al. Endometrial biomarkers for the non-invasive diagnosis of endometriosis. Cochrane Database of Systematic Reviews. 1996;2016(4).
4. Giannini A, Palla G, Goglia L, Genazzani AR, Genazzani A, Simoncini T. Effects of preoperative and perioperative administration of wobenzym vital on minimal-mild endometriosis. Journal of Endometriosis and Pelvic Pain Disorders. 2015;7(2):71-7.
5. Eskenazi B, Warner ML. Epidemiology of endometriosis. Obstetrics and gynecology clinics of North America. 1997;24(2):235-58.
6. Vander Borgh M, Wyns C. Fertility and infertility: Definition and epidemiology. Clinical biochemistry. 2018;62:2-10.
7. Judith Mary J. To Identify the risk factors associated with infertility among women attending Infertility Clinic at Institute of Obstetrics and Gynecology, Egmore, Chennai: College of Nursing, Madras Medical College, Chennai; 2011.
8. Jogi P. Diagnostic Laparoscopy in the Evaluation of Female Factor Infertility: Rajiv Gandhi University of Health Sciences (India); 2016.
9. Pašalić E, Tambuwala MM, Hromić-Jahjefendić A. Endometriosis: Classification, pathophysiology, and treatment options. Pathology-Research and Practice. 2023:154847.
10. Khawaja UB, Khawaja AA, Gowani SA, Shoukat S, Ejaz S, Ali FN, et al. Frequency of endometriosis among infertile women and association of clinical signs and symptoms with the laparoscopic staging of endometriosis. Journal of the Pakistan Medical Association. 2009;59(1):30.
11. Shaheen R, Subhan F, Sultan S, Subhan K, Tahir F. Prevalence of infertility in a cross section of Pakistani population. Pakistan Journal of Zoology. 2010;42(4).
12. Tabbsum T, Nafees S, Hayes T, ul Hassan SM, Sattar A. Frequency Of Endometriosis in Females with Infertility Undergoing Diagnostic Laparoscopy: Endometriosis in Females with Infertility. Pakistan Journal of Health Sciences. 2022:13-6.
13. Haider G, Rani S, Talpur S, Zehra N, Munir A. Laparoscopic evaluation of female infertility. Journal of Ayub Medical College Abbottabad. 2010;22(1):136-8.
14. Chimote A, Samal S, Hariharan C, Angik R. Laparoscopy and hysteroscopy in patients of infertility in a rural set up. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2015;4(2):322-9.
15. de Medeiros SF, Yamamoto MM, Galera BB, de Medeiros MA, Barbosa JS. Reassessment of the laparoscopy role in the investigation of infertility and treatment plan determination. Asian Pacific Journal of Reproduction. 2012;1(2):93-7.
16. Hughes EG, Fedorkow DM, Collins JA. A quantitative overview of controlled trials in endometriosis-associated infertility. Fertility and sterility. 1993;59(5):963-70.