

# Frequency of Endometriosis among Infertile Women on Diagnostic Laparoscopy

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## Abstract

**Introduction:** A condition in which there is failure of conceiving child after frequent sexual intercourse that is unprotected for 12 months or more is known as infertility. A variety in clinical presentation, difficult diagnosis and management makes endometriosis a challenging medical problem. Clinical information related to ovarian and tubal status, normality of uterine and some proper procedure for diagnosis of many pelvic pathological conditions such as pelvic inflammation, pelvic congestion, endometriosis and tuberculosis can be obtained by laparoscopy.

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

**Material & Methods:** This cross-sectional study was done at the department of Obstetrics & Gynecology Combined Military Hospital (CMH) Muzaffarabad, Azad Kashmir to determine the frequency of endometriosis on diagnostics laparoscopy in infertile women. The duration of the study was 6 months (from October 30, 2016 to April 30, 2017). The participants were taken had age 18-45 years with primary complain of primary or secondary infertility were subjected to diagnostic laparoscopy and were diagnosed to have endometriosis as the cause of infertility were included in the study. Sample size for the study was taken by non-probability, consecutive sampling of 170 females. Data from 82 female undergoing diagnostic Laparoscopy meeting inclusion criteria was taken from department of Obstetrics & Gynecology. After taking informed written consent basic demographical details like age, name and contact details were taken. A clinical examination was carried out during patient's inclusion. The quantitative data like age and duration of infertility were reported in Mean  $\pm$  S.D while the categorical data like type of infertility and endometriosis were reported in Frequency (%). To address effect modifiers data was stratified for female's age, duration of infertility and types of infertility (primary or secondary). Post stratification Chi-square test was used considering, p-value  $\leq$  0.05 as significant.

**Results:** The mean age of cases in this study was  $31.56 \pm 8.19$  years with mean duration of infertility was  $10.16 \pm 5.05$  months. There were 36(21.18%) who had  $< 6$  months and 134(78.82%) cases had  $\geq 6$  months of duration of disease. There were 76(44.71%) cases that had primary and 94(55.29%) cases had secondary infertility. According to operational definition a total of 23(13.53%) cases had endometriosis.

**Conclusion:** The frequency of endometriosis in females with infertility is considerably higher. In future these females can be prevented from endometriosis by early screening and with appropriate medication.

**Keywords:** Pregnancy, Infertility, Laparoscopy, Endometriosis

## Introduction

Infertility in females can be defined as a condition in which females are unable to conceive child after about a year of having unprotected and healthy sexual intercourse. Infertility can be categorized into two classes as primary infertility and secondary infertility.

Primary infertility can be regarded as inability of contraception for five or more years in women that have healthy and unprotected sexual intercourse on a regular basis and did not have any live birth.<sup>1, 2</sup> Secondary infertility can be defined as a condition in which there is inability of contraception in women who have had a live birth over a time period of five years or more.<sup>2</sup> As there is advancement in medicine diagnosis and effective treatment are of major interest in clinical practice. It has been noted that pelvic pathologies in infertile women are not analyzed in an appreciable manner during usual diagnosis and by routine pelvic examinations. Laparoscopic

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examination reveals pathological changes of uterus, ovaries and fallopian tubes and is an important step in evaluation of infertility.<sup>3</sup>

Infertile women have endometriosis that can be characterized by endometrial-like tissue present on outer lining of uterus causing an inflammatory reaction of chronic nature.<sup>4</sup> The women with endometriosis may or may not show symptoms of painful nature symptoms. Prevalence is estimated to be 2-10% in women in reproductive age range and may rise up to 50% in infertile women.<sup>4</sup> Etiology and methodologies employed in endometriosis impart a challenge in understanding of this condition clinically at population level.<sup>5,6</sup> A study by Jain G et al, reported the frequency of endometriosis in infertile females as 8.37% undergoing laparoscopy.<sup>1</sup> 12% was reported in another research study.<sup>6</sup> Main causes leading to infertility are tubal disease, uterine or cervical factors, ovulatory disorders, endometriosis, and male infertility.<sup>7,8</sup> Pelvic tuberculosis, malnutrition and puerperal infections cause tubal blockage as per WHO estimation on a global level.<sup>9</sup> A variety in clinical presentation, difficult diagnosis and management makes endometriosis a challenging medical problem. This includes pelvic pain, dyspareunia, dysmenorrhea and subfertility.<sup>10</sup> Prevalence estimation of endometriosis in women undergoing chronic pelvic pain in general population is approximately 33% and in case of young adults and adolescents it is 10% accompanied with dysmenorrhea of severe nature, as estimated during laparoscopic visualization in pelvic organs<sup>11, 12</sup>. Infertile women have frequency of 20-50% according to an estimation.<sup>13,14</sup> Endometriosis can cause discomfort and many problems that becomes an economical burden as surgically diagnosed and variety of complications need costly management<sup>15</sup>. It can lead to psychological and mental stress in infertile woman of poor health and lifestyle as well as in male partners<sup>16, 17</sup>. Laparoscopic diagnosis is definitive for endometriosis and is gold standard in its management<sup>18</sup>. In Pakistan epidemiological data of endometriosis is less and underreported<sup>19</sup>. A recent tertiary care hospital audit report of endometriosis shows morbidities in infertile women<sup>20</sup>. Endometriosis frequency is reported as 24% for infertile women in local tertiary care center according to a research on 50 patients in two years. Laparoscopic evaluation showed strong relation of dyspareunia and pelvic pain<sup>21</sup>. We designed this study to find burden of endometriosis in females with infertility. In our population the infertility is very high and we must evaluate these females for endometriosis on laparoscopy the

frequency in infertile female can be prevented from endometriosis by early screening and appropriate medication.

## **Patients & Methods**

A Cross-sectional study was carried out to determine the frequency of endometriosis on diagnostics laparoscopy in infertile women. The patients who reported at department of Obstetrics & Gynecology Combined Military Hospital (CMH) Muzaffarabad, Azad Kashmir having age 18-45 years with primary complain of primary or secondary infertility and were subjected to diagnostic laparoscopy and were diagnosed to have endometriosis as the cause of infertility were included in the study. The male factor of infertility (was assessed on available medical record), Already diagnosed females of endometriosis (on their medical record), Females with Pelvic inflammatory disease (was examined on USG) and Generalized peritonitis, obstruction, abdominal hernia or intestinal ileus (on medical record) were excluded from the study. Sample size for the study was taken by non-probability, consecutive sampling from a total of 170 females were taken the sample is calculated by using prevalence of endometriosis was 8.37% using 4.18% absolute precision and 95% confidence level. The study was carried out for a period of 6 months (from October 30, 2016 to April 30, 2017).<sup>1</sup>

Data from 82 female undergoing diagnostic Laparoscopy meeting inclusion criteria was taken from department of Obstetrics & Gynecology, Azad Kashmir CMH Muzaffarabad. After taking informed written consent basic demographical details like age, name and contact details were taken. A clinical examination was carried out during patient's inclusion. A consultant of senior level having experience of more than five years post-graduation did diagnostic laparoscopy. Laparoscopic representative sample was sent to histopathology lab in a single hospital according to operational definition. Laparoscopic evaluation of endometriosis was made first. Researcher collected all the data by a designed and approved Proforma by himself. SPSS version 20 was used for data entry and analysis. The quantitative data like age and duration of infertility were reported in Mean  $\pm$  S.D while the categorical data like type of infertility and endometriosis were reported in Frequency (%). To address effect modifiers data was stratified for female's age, duration of infertility and types of infertility (primary or secondary). Post

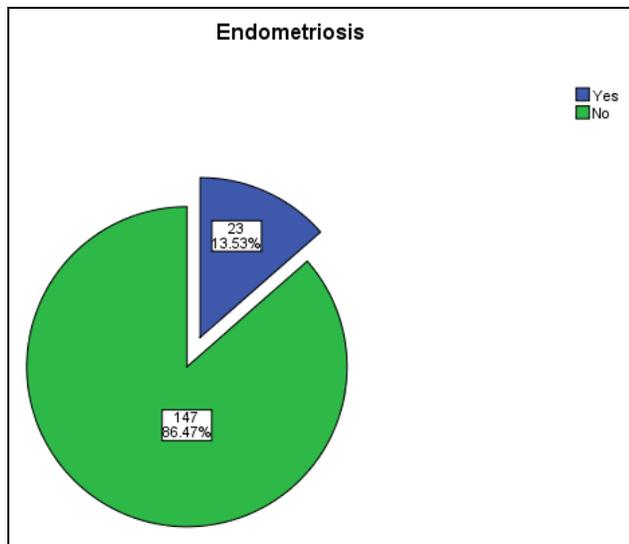
stratification Chi-square test was used considering, p-value ≤ 0.05 as significant.

### Results

The mean age of the participants in this study was calculated as 31.56±8.19 years. A total of 64(37.65%) were 18-30 years old and 106(62.35%) were 31-45 years of age. The mean duration of infertility was 10.16±5.05 months with minimum and maximum duration was 2 and 18 months. The 36(21.18%) participants reported that they had < 6 months and 134(78.82%) had reported ≥ 6 months of duration of disease. There were 76(44.71%) participants who had primary and 94(55.29%) had secondary infertility. A total of 23(13.53%) participants were found endometriosis while the remaining 147(86.47%) were not. When data was stratified for age, duration of disease and type of infertility the results showed that there was no significant association of endometriosis with age group, duration of infertility and types of infertility, p-value > 0.05.

**Table-1: Descriptive statistics of age (years) and duration of infertility**

	Age (years)	Duration of infertility (months)
Mean	31.56	10.16
S.D	8.19	5.05
Range	27.00	16.00
Minimum	18.00	2.00
Maximum	45.00	18.00



**Fig-1: Frequency distribution of Endometriosis**

**Table-2: Comparison of endometriosis with different variables**

		Endometriosis		p-value
		Yes	No	
Age groups (years)	18-30	7 30.4%	57 38.8%	0.443
	31-45	16 69.6%	90 61.2%	
Duration of infertility (months)	< 6	6 26.1%	30 20.4%	0.535
	6 or more	17 73.9%	117 79.6%	
Types of infertility	Primary	8 34.8%	68 46.3%	0.30
	Secondary	15 65.2%	79 53.7%	

### Discussion

Endometriosis remains a complicated clinical problem due to its inconsistent presentation, costly diagnosis and management. The true prevalence of endometriosis in the general population cannot be determined as it is impractical to subject asymptomatic general population to a surgical procedure.

The present study found the frequency of endometriosis in infertile patients to be 13.5% which is consistent with findings of various other studies done all over the globe.

As reported by Khawaja et al. mean age of participants of infertility was reported as 29 ± 5.3 years while in present study the mean age was 31.56±8.19 years so patients who are aware of their condition are ready and show consent for their treatment.<sup>22,23</sup> In present study there were 76 (44.71%) participants that had primary and 94 (55.29%) had secondary infertility. As reported by Shetty et al. 50 women went through diagnostic laparoscopy, 34 or 68% were classified as having primary infertility and 16 or 32% classified as secondary infertility.<sup>24</sup> These findings are in contrast with present results.

In this study the incidence of endometriosis was 13.58%, which is in corroboration with a study by Godinjak Z et al. i.e. 14% but it is higher than that of reported by Parveen S et al. i.e. 8%.<sup>25,26</sup> The high rate of endometriosis in present study may indicate an increase rise in the rate of detection of endometriosis which is basically a laparoscopic diagnosis, and hence there is requirement of laparohysteroscopic evaluation

as well as treatment if required in cases of infertility. 30-50% women with condition of endometriosis may have infertility.<sup>25</sup> In the present study, endometriosis was found in 8 (34.8%) with primary infertility and 15 (65.2%) in secondary infertility. As reported by A Göçmen and T Atak endometriosis is present as primary endometriosis in 15% and 11.5% as secondary infertility.<sup>27</sup> Endometriosis can reduce probability of women to be pregnant to about half to that of normal women. But there is no documentation of true reason and relationship of endometriosis with these factors.<sup>28</sup> In this study the mean duration of infertility was 10.16±5.05 months. There were 36(21.18%) who had < 6 months and 134(78.82%) cases had ≥ 6 months of duration of disease. Previously a study reported Maximum number of cases had duration of infertility between 2 to 4 years in both, primary infertility group 16 (47.1%) and secondary infertility group 7 (43.7%). Also it is reported that 4.8 years of time is classified to be mean age of primary infertility and 4.2 years is mean age for secondary infertility The findings of the above cited study are very large than present study the reason may be the larger sample size and the duration of infertility which ranged from 1.5 to 12 years in their study whereas the minimum and maximum duration in this study was 2 and 18 months respectively. Conception rate can be severely reduced even after treatment if time period of infertility increases more than 10 years if less than it can be treated and conception rate is not reduced as reported by Dechanetet et al.<sup>29</sup> Similar findings were reported in a study by Wilkes et al.<sup>30</sup>

## Conclusion

The frequency of endometriosis in females with infertility is considerably higher. The ultrasound remains a sound screening modality but cannot be used for definitive diagnosis and laparoscopy remains the preferred technique for diagnosis as well as staging of endometriosis because the Findings on laparoscopy as well as ultrasound have a significant association with the stage of disease. In future these females can be prevented from endometriosis by early screening and with appropriate medication

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