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Prevalence of Endometriosis in Women Undergoing Laparoscopic Surgery for Various Gynecological Indications

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Abstract

Background: Endometriosis refers the presence of endometrial tissues both gland and stroma other than the uterine cavity. Endometriosis often presents with nonspecific symptoms like chronic pelvic pain, dysmenorrhea, and infertility, making clinical diagnosis challenging. Laparoscopy, the gold standard for diagnosing endometriosis, allows direct visualization of endometrial implants. Understanding its prevalence can enhance diagnostic and therapeutic approaches. This study aimed to assess the prevalence of endometriosis in women undergoing laparoscopic surgery for various gynecological indications.

Methods: This retrospective study was conducted in the Department of Gynae & Obs, Uttara Adhunik Medical College Hospital, Dhaka, Bangladesh from January 2021 to December 2021. A total of 117 cases undergoing various laparoscopic procedures were enrolled in this study. A random sampling technique was used for sample selection, and data were analyzed using MS Office tools.

Results: The mean age of our participants was 33.08 ± 7.35 years. More than half of them (53%) underwent diagnostic laparoscopy. Additionally, procedures including ovarian cystectomy, salpingectomy, tubal ligation, laparoscopic oophorectomy, and assisted vaginal hysterectomy were performed in 25%, 10%, 9%, 2%, and 1% of cases, respectively. The overall prevalence of endometriosis among all patients was 15%. Subtype analysis indicated that typical endometriosis was present in 44.44% of cases, while subtle, cystic, and deep endometriosis were observed in 27.78%, 22.22%, and 5.56% of cases, respectively.

Conclusion: Endometriosis is frequently identified in women undergoing laparoscopic surgery for diverse gynecological indications. This underscores the importance of recognizing its prevalence across clinical contexts to better inform patient counseling and guide appropriate surgical management.

Keywords: Prevalence; Endometriosis; laparoscopy; Gynecology; Infertility; Miscarriages

Introduction

Endometriosis is a benign gynecological disease characterized by the presence of endometrial tissue outside the uterus, presenting a range of symptoms from asymptomatic cases to severe pelvic pain and infertility issues [1, 2]. The prevalence is hard to determine due to delayed or missed diagnoses [2], but it is estimated to affect up to 10% of women of reproductive age [3]. A cross-sectional survey in the USA estimated the diagnosed prevalence at 6.1% [4]. Endometriosis in Jordan, a middle-income country in the Middle East, is a

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significant public health issue impacting the quality of life of women of reproductive age. A community-based survey of women aged 15–55 years by Al-Jefout et al. found a prevalence of 2.5% [5]. The gold standard for diagnosing endometriosis is direct visualization during laparoscopy [6,7]. During surgery, endometriosis can be classified based on the appearance of lesions into subtle, typical, cystic, or deep types [8]. While endometriosis is commonly diagnosed during laparoscopy in patients with symptoms [9,10], it is also found incidentally in those undergoing laparoscopic surgery for other indications. For instance, a meta-analysis of asymptomatic patients with clomiphene-resistant polycystic ovary syndrome found a prevalence of surgically confirmed endometriosis of 7.7% [11]. Several factors are associated with the presence of endometriosis. A meta-analysis by Yong and Weiyuan suggested that a higher body mass index might be associated with a lower risk of endometriosis [12]. This finding aligns with Ferrero et al., who demonstrated that women with endometriosis tend to have lower body mass indices and are less frequently obese compared to women without endometriosis [13]. Additionally, Matalliotakis et al. found that women with endometriosis had lower body weight and fewer prior pregnancies, elective abortions, and ectopic pregnancies than women seeking care for infertility without endometriosis [14]. The objective of this study was to assess the prevalence of endometriosis in women undergoing laparoscopic surgery for various gynecological indications.

Methodology

This retrospective study was conducted in the Department of Gynae & Obs, Uttara Adhunik Medical College Hospital, Dhaka, Bangladesh from January 23021 to December 2021. A total of 117 cases were enrolled in this study, all of whom underwent various laparoscopic procedures for different indications. A random sampling technique was used for sample selection. The inclusion criteria were female patients of reproductive age undergoing gynecological laparoscopy. Exclusion criteria included patients who were either outside of reproductive age or those already diagnosed or treated for endometriosis before the index surgery. The diagnosis of endometriosis was made by two consultants with extensive experience in laparoscopic surgery and the diagnosis of endometriosis. Positive cases were identified based on the documentation of endometriosis lesions, such as subtle, typical, cystic, or deep, in the electronic operative notes of the laparoscopic surgery. All the demographic and clinical information of the participants was recorded. Data were analyzed by MS Office.

Result

The demographic characteristics of the participants showed a mean age of 33.08 ± 7.35 years, a mean BMI of 27.14 ± 4.55 kg/m², and an average parity of 1.7 ± 1.83. The mean number of miscarriages was 0.61 ± 1.63, ectopic pregnancies averaged 0.09 ± 0.31, and the average number of cesarean sections was 0.52 ± 1.12. Laparoscopic surgeries were performed for various indications: infertility (38.5%), ovarian cyst accidents (27.4%), ectopic pregnancy (10.3%), family planning procedures (8.5%), and suspected uterine perforation (6.8%). It was noted that over half of the cases (53%) underwent diagnostic laparoscopy. Additionally, 25%, 10%, 9%, 2%, and 1% of cases underwent ovarian cystectomy, salpingectomy, tubal ligation, laparoscopic oophorectomy, and assisted vaginal hysterectomy, respectively. In our study, we observed that the overall prevalence of endometriosis among all patients was 15%. Subtype analysis revealed that typical endometriosis was present in 44.44% of cases, while subtle, cystic, and deep endometriosis were observed in 27.78%, 22.22%, and 5.56% of cases, respectively.

Table 1: Demographic characteristics (N=117)

Variables	Mean ±SD
Age (Year)	33.08 ±7.35
BMI kg/m²	27.14±4.55
Parity	1.7±1.83
Miscarriages	0.61±1.63
Ectopic pregnancies	0.09±0.31
Cesarean sections	0.52±1.12

Table 2: Indications for laparoscopic surgeries (N=117)

Indications	n	%
Infertility, primary/secondary	45	38.50%
Ovarian cyst accident	32	27.40%
Ectopic pregnancy	12	10.30%
Family planning	10	8.50%
Suspected uterine perforation	8	6.80%
Chronic pelvic pain	4	3.40%
Recurrent pregnancy loss	1	0.90%
Other	5	4.30%

Table 3: Patients with and without evidence of endometriosis as the type of laparoscopic procedure (N=117)

Procedure	Total	Endometriosis			
		No		Yes	
	117	n	%	n	%
DL	61	52	85%	9	15%
OC	30	24	80%	6	20%
Salpingectomy	12	11	92%	1	8%
Tubal ligation	11	10	91%	1	9%
Oophorectomy	2	1	50%	1	50%
AVH	1	1	100%	0	0%

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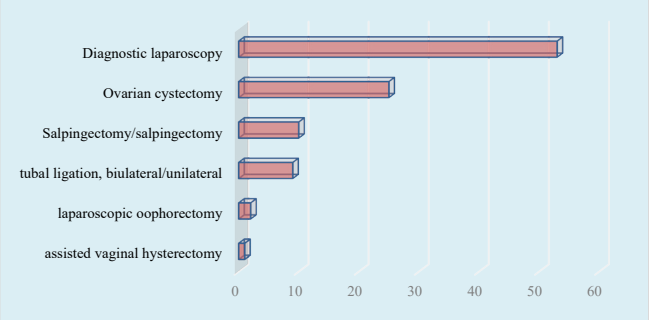

Figure I: Bar chart showed types of laparoscopic surgeries of the patients (N=117)

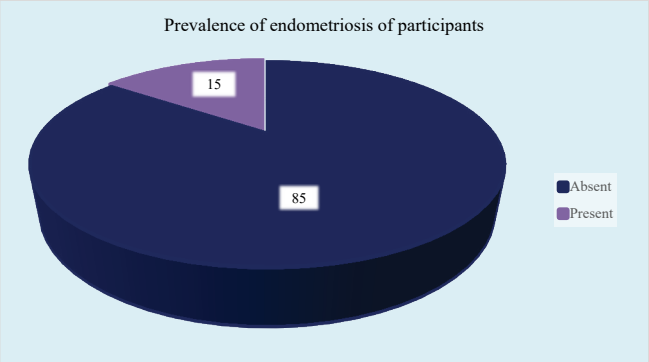

Figure II: Pie chart showed prevalence of endometriosis wise patients (N=117)

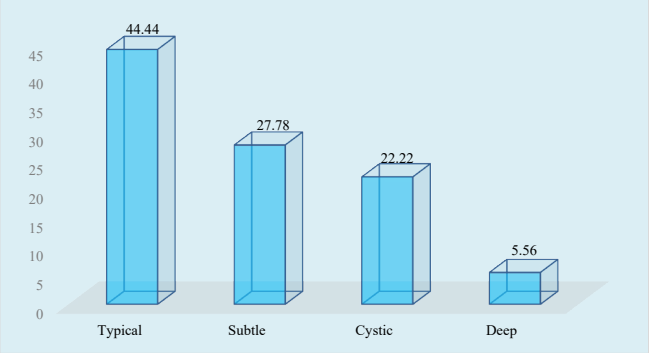

Figure III: Column chart showed subtypes of endometriosis (n=18)

Discussion

The demographic profile of our participants revealed a mean age of 33.08 ± 7.35 years, a mean BMI of 27.14 ± 4.55 kg/m², and an average parity of 1.7 ± 1.83. Similar characteristics were reported by Muhaidat et al. in 2021 [15]. Diagnostic laparoscopy was performed for various indications in our study, including infertility (38.5%), ovarian cyst accidents (27.4%), ectopic pregnancy (10.3%), family planning procedures (8.5%), and suspected uterine perforation (6.8%). These trends are consistent with findings from previous studies [13,15]. Over half of our participants (53%) underwent diagnostic laparoscopy. The overall prevalence of endometriosis among all patients in our study was 15%. Subtype analysis in our study revealed that typical endometriosis was present in 44.44% of cases, while subtle, cystic, and deep endometriosis were observed in 27.78%, 22.22%, and 5.56% of cases, respectively. In a study by Muhaidat et al., evidence of endometriosis was found in 13% of 480 women undergoing gynecological laparoscopic surgery between 2015 and 2020 [15]. Both our findings and those of Muhaidat et al. suggest a higher prevalence of endometriosis compared to the general population (2.5%) [5]. The mean BMI of our participants was 27.14 ± 4.55. This contrasts with previous studies indicating that women with endometriosis typically have a lower body mass index than the general population [16,17]. Noted that Mahmood and Templeton assessed the prevalence of endometriosis in premenopausal Caucasian women undergoing laparoscopy, reporting rates of 21% among those investigated for infertility, 15% in cases of chronic abdominal pain, and 6% in women undergoing laparoscopic sterilization [18]. In our study, we found a significantly higher prevalence of endometriosis in patients with lower parity and fewer numbers of cesarean sections. This association can be attributed to the well-established link between endometriosis and infertility [10,19]. The findings from our study may provide valuable insights for future research in similar contexts.

Limitation of the study

This study was conducted at a single center with a small sample size and within a limited timeframe. Therefore, the findings may not fully represent the broader scenario across the entire country.

Conclusion

Endometriosis is commonly diagnosed in women undergoing laparoscopic surgery for various gynecological indications. This highlights the importance of recognizing its prevalence across different clinical contexts to inform patient counseling effectively and guide appropriate surgical management decisions. Understanding the widespread occurrence of endometriosis underscores the need for clinicians to maintain a high index of suspicion, especially in women presenting with pelvic pain or infertility. By integrating this awareness into clinical practice, healthcare providers can enhance early diagnosis, optimize treatment strategies, and improve outcomes for women affected by this chronic condition.

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