Section: Obstetrics and Gynaecology

Original Research Article

STUDY ON PREVALENCE OF ENDOMETRIOSIS IN PATIENTS PRESENTING WITH INFERTILITY TO THE TERTIARY HEALTH CENTER

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ABSTRACT

Background: Endometriosis is a chronic estrogen dependent condition involving deposition of ectopic endometrial-like tissue, typically on the ovaries, pelvic peritoneum, and sometimes extra-pelvic regions. Despite being one of the common causes of infertility, endometriosis often remains underdiagnosed and imposes considerable emotional and financial burdens on those affected.

Materials and Methods: 80 patients presented to the OPD of Department of Obstetrics and Gynaecology of Shadan Institute of Medical Science, over 12 months period, i.e., from January 2023 to December 2023.

Results: The prevalence of endometriosis in present study was 35%. Most of the patients with endometriosis belonged to the age group of 31-40 years. Ovaries, followed by Pouch of Douglas were the most common sites of endometrial implants. Most of the patients had Stage III (moderate) endometriosis. Out of 28 patients, 26 patients underwent laparoscopic ablation and 2 were on conservative treatment. 16 patients reported successful pregnancies after treatment (20%).

Conclusion: The study concludes that early detection and management of endometriosis is associated with higher rates of successful conceptions.

Keywords: Endometriosis, infertility, adhesions, tubal blocks.

INTRODUCTION

Endometriosis is a chronic gynecological disorder characterized by the ectopic presence of endometrial-like tissue outside the uterus, typically found on the ovaries, broad ligaments, cul-de sac and occasionally in extra-pelvic regions such as the pleura, central nervous system previous abdominal scars and umbilicus, resulting in significant pelvic pain and fertility issues.[1,2]

The etiology of endometriosis encompasses theories such as Sampson's retrograde menstruation and coelomic metaplasia, with inflammation, oxidative stress, and genetic predispositions contributing to its pathogenesis.[3] These ectopic lesions induce local inflammation, characterized by elevated cytokines that decrease post-surgical removal, while estrogen significantly promotes the disease's progression.[4,5]

Affecting 10-20% of women of reproductive age, the prevalence of endometriosis rises to 70% among those with chronic pelvic pain, often resulting in delayed diagnosis. It is implicated in 30-70% of infertility cases among women undergoing infertility evaluation Risk factors include early menarche, menorrhagia, and nulliparity, whereas parity and contraceptive use are protective.[6,7]

The varied clinical presentations of endometriosis include pelvic pain, dysmenorrhea, dyspareunia, dysuria, and dyschezia, with ovarian endometriomas identified in up to 44% of cases and subfertility.[8] Symptoms do not consistently correlate with the stages of endometriosis, and the mean duration from symptom onset to surgical diagnosis is approximately 12 years.[9]

Diagnosis relies on detailed patient history and meticulous clinical examination. Laparoscopy is considered the gold standard diagnostic test, although non-invasive methods such as MRI and ultrasound are also utilized.[10]

Given the substantial burden of endometriosis, the diagnostic challenges faced by gynecologists, and the paucity of local data, studies aim to determine

the frequency of endometriosis in women undergoing diagnostic laparoscopy for primary or secondary infertility evaluation.

MATERIAL AND METHODS

This hospital-based prospective study was conducted in the Department of Obstetrics and Gynaecology at Shadan Institute of Medical Sciences over 12-month study period, i.e., from January 2023 to December 2023.

All women presenting with infertility who were scheduled for hystero-laparoscopy and consented to participate in the study were included. Patients with medical conditions contraindicating laparoscopic procedures such as heart diseases classified as NYHA grade III and IV, blood coagulation disorders, uncontrolled hypertension, presence of any concurrent infections and uncontrolled diabetes were excluded from the study.

A detailed history of patients was taken with special emphasis on the demographic data, duration of symptoms, duration of infertility, menstrual history, any significant family history and treatment history. A thorough general and systemic examination was done to rule out any co-morbid conditions evident on clinical examination. Gynecological examination was done on all patients to rule out any local lesions. All patients were subjected to all infertility panel related investigations such as complete blood picture, renal and liver function tests, hormone profile, urine examination. Ultrasound examination of abdomen and pelvis (transabdominal and Transvaginal) was done to assess pelvic anatomy and presence of any endometriomas. Diagnostic laparoscopy was done by inserting the laparoscope through the umbilical port and other 2 ports in the lower abdomen.

The Revised American Fertility Society (r-AFS) classification system for endometriosis stages the disease based on the extent, location, and depth of endometrial implants, as well as the presence and severity of adhesions in the pelvic region. This staging system is divided into four stages: minimal (Stage I), mild (Stage II), moderate (Stage III), and severe (Stage IV). The rAFS system assigns points to various findings during a laparoscopy, with higher scores indicating more extensive disease. This classification aids in the standardized assessment and comparison of disease severity, facilitating treatment planning and prognostication.

All collected data were systematically entered into SPSS software (version 20). Categorical data were expressed as percentages, means, and standard deviations. For quantitative data, the unpaired t-test was employed, whereas the Chi-square test was utilized for qualitative data. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 80 patients presented over 12 months to the OPD of Department of Obstetrics and Gynaecology with infertility. Out of these 80 patients, 28 patients had endometriosis (35%).

The mean age of study patients was 25.4 years, with most of the patients belonging to 21-30 years of age (65%). The prevalence of endometriosis is also high in the same age group.

Most of the patients who presented were in stage III (moderate disease) activity. [Table 2]

Most common site of ectopic endometrial tissue were the ovaries, followed by Pouch of Douglas. Tubal blocks were found in 5 patients and adhesions were seen in 10 patients.

Amongst the 28 patients with endometriosis, laparoscopic ablation of endometriosis implants was done in 26 patients. The rest 2 patients were managed conservatively. [Table 3]

After treatment, out of 28 patients 16 patients successfully conceived. Conservative methods of management included once weekly injections of intramuscular injections of medroxyprogesterone acetate. [Table 4]

Table 1: Age distribution of patients

Age in years	No. of patients with infertility (n = 80)	No. of patients with endometriosis (n = 28)
21-30 years	52 (65%)	16 (20%)
31-40 years	19 (23.74%)	8 (10%)
>40 years	9 (11.2%)	4 (5%)
Total	100%	28 (35%)

Table 2: Staging of endometriosis

Stage	No. of patients (n = 28)
Minimal (Stage I)	7 (8.75%)
Mild (Stage II)	8 (10%)
Moderate (Stage III)	12 (15%)
Severe (Stage IV)	1(1.2%)

Table 3: Site of endometriosis

Site of lesions	No. of patients (n = 28)
Unilateral ovaries	18 (22.5%)
Bilateral ovaries	6 (7.5%)
Pouch of Douglas	16 (20%)
Uterosacral ligaments	10 (12.5%)
Uterus	8 (10%)

Table 4: Success rate of pregnancy after laparoscopic ablation / conservative management

Stage	No of successful pregnancies
Stage I (n = 7)	4
Stage II (n = 8)	4
Stage III (n = 12)	8
Stage IV (n = 1)	0

DISCUSSION

Endometriosis is a prevalent gynecological condition that significantly impacts women's reproductive health and is strongly associated with infertility. This condition affects approximately 10% to 15% of women of reproductive age, marking it as a substantial public health concern. It is due to ectopic implantation of endometrial-like tissue, which normally lines the inside of the uterus, outside the uterine cavity. This ectopic tissue can be found on the ovaries, fallopian tubes, the outer surface of the uterus, and other pelvic organs, leading to the formation of lesions, cysts, and adhesions.[11]

The presence of this aberrant tissue can induce chronic inflammation, pelvic adhesions, and ovarian cysts, commonly known as endometriomas. These pathological changes can severely disrupt the normal anatomical and functional environment of the pelvis, interfering with critical reproductive processes such as ovulation, fertilization, and embryo implantation. Consequently, endometriosis is identified in 30% to 50% of women experiencing infertility, making it one of the leading causes of reproductive challenges.[12]

The pathophysiology of endometriosis involves a complex interplay of hormonal, genetic, and immunological factors. For instance, elevated levels of estrogen promote the growth and persistence of endometriotic tissue, while an altered immune response may fail to clear ectopic endometrial cells. Additionally, women with endometriosis often endure severe dysmenorrhea (painful menstruation), chronic pelvic pain, and dyspareunia (pain during intercourse), which further exacerbate their reproductive difficulties and overall quality of life.[13]

The diagnostic journey for endometriosis is frequently protracted, with an average delay of 6 to 10 years from symptom onset to definitive diagnosis. This delay exacerbates the impact on fertility, as the disease often progresses untreated, leading to more extensive pelvic damage and reduced reproductive potential.

In this prospective cohort study, out of 80 patients, 35% of the patients were diagnosed to have endometriosis as the primary cause of infertility.

In present study, most of the patients with endometriosis belonged to 30-40 years of age group. Most of the patients in present study belonged to Stage III (moderate) of endometriosis. Ovaries were the most common site followed by Pouch of Douglas. This is in accordance with study findings of Valson et al.[18]

In present study, after patients (n = 28) undergoing treatment (laparoscopy or conservative management), 20% (n = 16) of them conceived. [Table 5]

Table 5: Comparison of age wise distribution of endometriosis

Study	21-30 years	31-40 years	>40 years
Present study	20%	10%	5%
Eskenazi et al[14]	33.3%	1.7%	4.3%
Flores et al[15]	3.1%	7.7%	6.3%
Eisenberg et al[16]	0.91%	2.7%	1.8%
Reid et al[17]	2.4%	3.5%	4.4%

Table 6: Comparison of successful pregnancy rates

Study	Pregnancy %
Present study	20%
Berrata et al[19]	66.7%
Hye Jun Lee et al[20]	41.9%
Teksin et al[21]	44.7%

CONCLUSION

Endometriosis is a gynecological disorder characterized by the ectopic growth of endometrial-like tissue outside the uterine cavity. This aberrant endometrial ectopic tissue can ultimately end up causing infertility.

Diagnostic evaluation typically involves trans-vaginal ultrasonography. Laparoscopy is the diagnostic method of choice.

Management strategies for endometriosis-associated infertility encompass analgesics, hormonal modulation, laparoscopic ablation and advanced reproductive technologies such as in vitro fertilization (IVF), providing a viable pathway to conception for many patients.

The present study evaluates 80 patients with infertility, amongst whom 35% had endometriosis and 20% of them had successful pregnancies after treatment.

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Conflicts of Interest: No conflicts of interest declared.

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