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Research Article

Histopathological and Clinical Correlates of Endometriosis in Women Presenting with Dysmenorrhea and Chronic Pelvic Pain. A Cross-Sectional Clinical Study

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ABSTRACT

Background: Endometriosis is a chronic gynecological disorder frequently associated with dysmenorrhea, chronic pelvic pain, infertility, and reduced quality of life, yet it often remains underdiagnosed until histopathological confirmation is obtained.

Objective: To identify the histopathological and clinical correlates of endometriosis among women who present with dysmenorrhea and chronic pelvic pain.

Methods: The study is a cross-sectional clinical study conducted at the Department of Gynecology, Bolan Medical Complex Hospital, Quetta, from March 2024 to September 2025. Ninety women aged 18-45 years with dysmenorrhea and/or chronic pelvic pain were recruited consecutively. The clinical history, pelvic examination, ultrasonography, laparoscopic findings, and histopathological findings were recorded. Associations between symptom profile, lesion type, and microscopic findings were analyzed using SPSS version 26.0, with $p < 0.05$ considered statistically significant.

Results: The mean age of participants was 30.9 ± 6.1 years. Endometriosis, known as a histopathologically confirmed was found in 61 (67.8) women. Fifty (82.0) of the confirmed cases had moderate-to-severe dysmenorrhea, 46 (75.4) had chronic pelvic pain >6 months, 34 (55.7) had dyspareunia, 25 (41.0) had infertility, and 38 (62.3) had adnexal tenderness. Ovarian endometrioma (36.1) and peritoneal implants (29.5) were the most prevalent laparoscopic lesions, and deep infiltrating was ranked third (16.4). Endometrial glands with stroma (90.2%), hemosiderin-laden macrophages (70.5%), fibrosis (60.7%), and chronic inflammatory infiltrates (57.4%), were most commonly seen by histopathology. Deep infiltrating lesions ($p = 0.038$), fibrosis ($p = 0.001$), chronic inflammation ($p < 0.001$), and pelvic adhesions ($p = 0.028$) were significantly associated with severe pain.

Conclusion: Endometriosis was significantly clinically and histopathologically correlated with continuing pelvic pain and reproductive morbidity. The early identification of symptom clusters could enhance the accuracy of diagnosis and prompt treatment.

Keywords: Endometriosis; Dysmenorrhea; Chronic pelvic pain; Histopathology; Dyspareunia; Infertility; Pelvic adhesions

INTRODUCTION

Endometriosis is an inflammatory, estrogen-dependent, chronic gynecological condition, which is associated with endometrial-like glands and stroma extra currently in the ovaries, pelvic peritoneum, uterosacral ligaments, rectovaginal septum, and pouch of Douglas[1]. It has been identified as one of the most clinically significant benign gynecologic diseases in women of reproductive age due to its close relationship with pelvic pain, dysmenorrhea, dyspareunia, infertility, menstrual dysfunction, and poor quality of life. The current instructions characterize endometriosis as an inflammatory disorder that has a wide range of clinical manifestations, not as a disease based on an anatomic lesion[2,3].

Even though the true prevalence of endometriosis is hard to pinpoint due to late diagnosis and the diversity of the disease severity, it is estimated that it occurs in a significant proportion of women over

the reproductive years, with even greater predisposition being in women who present with infertility, severe dysmenorrhea, and chronic pelvic pain[4,5]. Out of all the presenting symptoms, dysmenorrhea and chronic pelvic pain are still two of the most common and clinically disabling symptoms. Pain in most patients starts at an early stage in reproductive life and continues to get worse with time, mostly disrupting the normal functioning of the body, emotional stability, sexual health, social life, and reproductive performance. The symptoms are usually underdiagnosed or treated symptomatically over several years before a definite diagnosis can be made. In contemporary guideline-based practice, endometriosis is also closely linked with pain and infertility[6,7].

Endometriosis is a multifactorial pathophysiology. Various mechanisms have been suggested, such as retrograde menstruation, impaired immune surveillance, chronic inflammation of the pelvis, oxidative stress, hormonal dysregulation, angiogenesis, neurogenesis, and progressive fibrosis[8]. Such mechanisms play a role in the implantation and persistence of ectopic endometrial tissue and the production of pain and tissue remodelling. Notably, the clinical diagnosis is not always based on the observable disease severity, and this problem complicates the application of clinical diagnosis. Women who have the superficial lesions may complain of high pain levels, yet the women with advanced disease may be minimally symptomatic. This is one of the key factors why endometriosis remains unrecognized and undiagnosed in everyday gynecological practice. Pain related to endometriosis is also becoming recognized as indicative of inflammatory, fibrotic, and neurobiological processes, as opposed to the size of lesions[9,10].

Pathologically, endometriosis is traditionally diagnosed by a positive histological finding of ectopic endometrial glands and stroma, with or without hemosiderin-containing macrophages, chronic inflammatory infiltrates, fibrosis, and hemorrhagic alterations[11]. Histopathological examination is also very useful in that it is used to confirm the diagnosis and to give an understanding of the biological activity and chronicity of lesions. This is highly applicable in women whose symptoms of persistent pain may not necessarily translate into a complete pathological burden of disease by findings made during operative procedures. Histopathological assessment can be used in tertiary care facilities where women tend to bring with them long-term or treatment-resistant symptoms, thereby creating more precise clinicopathological associations and enhancing diagnostic accuracy. Even with the increasing application of imaging and symptom-based assessment to diagnostic pathways, histology continues to play a central role when tissue is obtained[12,13].

Women with dysmenorrhea and chronic pelvic pain are a particularly significant patient group to be considered in the endometriosis assessment, as they often share symptoms with other gynaecological and pelvic conditions like adenomyosis, pelvic inflammatory disease, irritable bowel syndrome, ovarian cysts, and pelvic adhesions[14]. This leads to a long period being taken to make a definite diagnosis. This wait can lead to an aggravation of pain, disease, infertility, recurring visits to the healthcare facility, and lower living standards. Thus, it is of great practical importance to determine the clinical correlates that have a strong predictive value for the presence of histopathologically confirmed endometriosis in gynecological practice[15].

Although there is increased awareness regarding endometriosis, further clinically oriented research is still required that gives a direct correlation between presenting symptoms, pelvic findings, and histopathological patterns in women with pain-predominant disease. Specifically, the relationships between particular symptoms, including severe dysmenorrhea, chronic pelvic pain, dyspareunia, infertility, and pelvic tenderness, and the microscopic characteristics of the endometriotic lesions can facilitate the enhancement of the early suspicion and diagnostic accuracy and individualized treatment[16,17].

Therefore, the present study was conducted to evaluate the histopathological and clinical correlates of endometriosis in women presenting with dysmenorrhea and chronic pelvic pain, and to determine the relationship between symptom profile, operative findings, and histopathological confirmation in a tertiary care clinical setting[18].

MATERIALS AND METHODS

The study is a cross-sectional clinical study that was carried out at the Department of Gynecology, Bolan Medical Complex Hospital, Quetta, during 18 months between the month of March 2024 and September 2025. A total of 90 women of reproductive age with dysmenorrhea, chronic pelvic pain, or both were considered by the study, which examined them on clinical, radiological, and histopathological grounds, regarding the presence of endometriosis.

The study included women between the ages of 18 and 45 years with moderate to severe dysmenorrhea, persistent pelvic pain of at least six months duration, or other symptoms of endometriosis that included dyspareunia, infertility, adnexal tenderness, pelvic mass, or a menstrual irregularity. Patients who had already been diagnosed with gynecological malignancy, inflammatory disease of the pelvis, acute pelvic infection, pregnancy, dominant uterine fibroids

most likely to present with symptoms, previous hysterectomy, or missing clinical and histopathological data were excluded.

A non-probability consecutive sampling technique was used for patient recruitment. All registered women were thoroughly assessed clinically after informed consent was obtained. Age, parity, body mass index, menstrual history, duration and severity of pain, infertility status, dyspareunia, bowel or bladder symptoms, and history of previous treatment were all documented on a structured proforma. The extent of pain was measured on the Visual Analog Scale (VAS) and classified into moderate and severe intensity based on clinical presentation.

General physical examination, abdominal examination, and pelvic examination were performed to all patients. Baseline investigations and ultrasound of the pelvis, especially the transvaginal ultrasound where possible, were done to detect whether there was an adnexal mass, endometrioma of the ovary, pelvic tenderness, or any other structural abnormality. Patients with endometriosis who had persistent symptoms and had high clinical suspicion were further examined using diagnostic or operative laparoscopy as a routine practice in gynecology. Suspicious lesions, including peritoneal implants, ovarian cysts, adhesions, nodules, puckered lesions, and deep areas of infiltration, were detected, documented, and biopsied or excised where necessary during laparoscopy.

The tissue specimens were referred to the pathology laboratory to subject the samples to histopathological analysis. The presence of endometrial glands, endometrial stroma, hemosiderin-laden macrophages, fibrosis, or chronic inflammatory cell infiltrates in ectopic pelvic tissue confirmed the presence of endometriosis on microscopy. The clinical presentation and operative findings were then compared with the histopathological findings.

All data gathered were entered and analyzed on SPSS version 26.0. Mean ± standard deviation was used to represent quantitative variables (age, body mass index, duration of symptoms), whereas frequencies and percentages were used to represent categorical variables (dysmenorrhea severity, infertility, dyspareunia, laparoscopic findings, and histopathological features). Chi-square test was used to determine relationships between categorical clinical variables and endometriosis histopathologically proven. The p-value below 0.05 was taken as a statistically significant value.

The research was conducted with the permission of the institutional ethical committee of the hospital, and all information about the patients was kept confidential during the period of conducting the research.

RESULTS

This study involved 90 women who presented with dysmenorrhea and/or chronic pelvic pain. The mean age of the participants was 30.9 ± 6.1 years, and the majority of women belonged to the 26–35 years age group. Histopathological confirmation of endometriosis was obtained in 61 (67.8%) patients, while 29 (32.2%) women had no histopathological evidence of endometriosis despite clinical suspicion. The majority of women with a histologically proven endometriosis were more symptomatic with a longer symptomatic period, more severe pain, and more often related complaints, including dyspareunia, infertility, and adnexal tenderness. These results show that clinically severe and enduring patterns of symptoms had a stronger correlation with histologically confirmed disease (Table 1).

Table 1. Demographic and Clinical Characteristics of the Study Population

Variable	Histopathologically Confirmed Endometriosis (n=61)	No Histopathological Endometriosis (n=29)	p-value
Age (years), mean ± SD	30.4 ± 5.8	31.8 ± 6.6	0.286
BMI (kg/m²), mean ± SD	24.7 ± 3.2	25.3 ± 3.5	0.431
Duration of symptoms >12 months	40 (65.6%)	10 (34.5%)	0.008
Moderate-to-severe dysmenorrhea	50 (82.0%)	15 (51.7%)	0.004
Chronic pelvic pain >6 months	46 (75.4%)	14 (48.3%)	0.013
Dyspareunia	34 (55.7%)	8 (27.6%)	0.015
Infertility	25 (41.0%)	6 (20.7%)	0.049
Adnexal tenderness	38 (62.3%)	9 (31.0%)	0.007
Menstrual irregularity	21 (34.4%)	8 (27.6%)	0.527
Painful bowel/bladder symptoms	17 (27.9%)	4 (13.8%)	0.142

The symptom profile revealed that moderate-severe dysmenorrhea was the most prevalent clinical complaint in women with established endometriosis, with 82.0% cases, followed by chronic pelvic pain that lasted more than 6 months (75.4%) and adnexal tenderness (62.3%). Women who had endometriosis that was confirmed by histology were also found to have dyspareunia and infertility, which were significantly higher compared to those who had no tissue confirmation. Menstrual irregularity and bowel/bladder symptoms were also more common in the confirmed group, but these were not statistically significant. All these results indicate that women having chronic, painful, and multisymptom pelvic complaints have a higher chance of having real endometriotic pathology (Table 1).

The Laparoscopic and operative results in the histopathologically confirmed cluster revealed that the most common type of lesion in the case of ovarian endometrioma was observed, followed by peritoneal implants and deep infiltrating lesions. Moreover, pelvic adhesions were observed in almost half of the confirmed cases, and this demonstrates the chronicity and progressiveness of the disease. The typical diagnostic pattern of endometrial glands and stroma was mostly revealed by the histopathological examination, and hemosiderin-laden macrophages, fibrosis, and chronic inflammatory infiltrates were also frequent signs that denoted repeated cyclical bleeding and chronic tissue remodeling (Table 2).

Table 2. Laparoscopic and Histopathological Findings in Histopathologically Confirmed Endometriosis Cases (n=61)

Variable	Frequency	Percentage
Laparoscopic lesion type		
Ovarian endometrioma	22	36.1%
Peritoneal implants	18	29.5%
Deep-infiltrating lesions	10	16.4%
Uterosacral nodules	6	9.8%
Rectovaginal septal lesions	5	8.2%
Associated operative findings		
Pelvic adhesions	28	45.9%
Cul-de-sac obliteration	10	16.4%
Bilateral adnexal involvement	16	26.2%
Histopathological findings		
Endometrial glands + stroma	55	90.2%
Hemosiderin-laden macrophages	43	70.5%
Fibrosis	37	60.7%
Chronic inflammatory infiltrate	35	57.4%
Hemorrhagic cystic changes	20	32.8%

Ovarian endometrioma (36.1) was identified as the most frequent lesion among the confirmed cases, which is congruent with the existing propensity of endometriosis to involve the ovaries in symptomatic reproductive-aged women. Peritoneal implants (29.5%) and deep infiltrating lesions (16.4%) were also notable, while uterosacral and rectovaginal lesions represented smaller but clinically important subsets. The histopathological pattern strongly supported the diagnosis, with endometrial glands and stroma present in 90.2% of specimens. The frequent presence of hemosiderin-laden macrophages (70.5%), fibrosis (60.7%), and chronic inflammation (57.4%) suggests that many patients had active but longstanding disease, which may explain the chronicity and severity of symptoms in this population (Table 2). The role of histopathology is to verify the presence of the ectopic endometrial tissue, which is usually accompanied by chronic hemorrhage and fibrosis of the lesions in the pelvis.

Figure 1: Reveal Endometrial glands and stroma embedded in myometrium (10x)

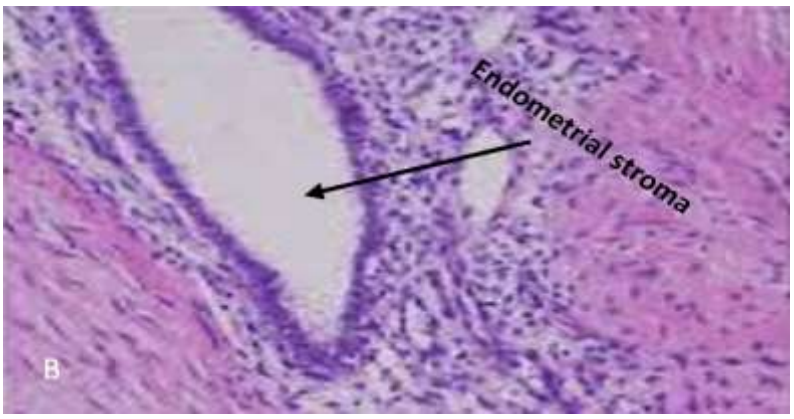

Figure 2: Close View of Endometrial glands exhibiting secretory phase embedded in myometrium (40x).

Pain severity was further analyzed among the 61 histopathologically confirmed cases to assess its relationship with lesion type and microscopic features. Deep infiltrating lesions, fibrosis, chronic inflammatory infiltrates, and pelvic adhesion were more prevalent in women with severe pain. Likewise, more women who experienced severe pain reported dyspareunia and infertility, which may indicate that the higher the symptom severity, the greater the lesion invasion and the presence of more advanced tissue involvement in the pelvis (Table 3).

Table 3. Correlation of Pain Severity with Clinical and Histopathological Variables in Histopathologically Confirmed Endometriosis Cases (n=61)

Variable	Moderate Pain (VAS 4–6) n=22	Severe Pain (VAS 7–10) n=39	p-value
Deep-infiltrating lesions	1 (4.5%)	9 (23.1%)	0.038
Ovarian endometrioma	7 (31.8%)	15 (38.5%)	0.594
Fibrosis on histology	7 (31.8%)	30 (76.9%)	0.001
Chronic inflammatory infiltrate	6 (27.3%)	29 (74.4%)	<0.001
Pelvic adhesions	6 (27.3%)	22 (56.4%)	0.028
Dyspareunia	7 (31.8%)	27 (69.2%)	0.006
Infertility	5 (22.7%)	20 (51.3%)	0.031
Adnexal tenderness	9 (40.9%)	29 (74.4%)	0.011

There was a notable trend where women with intense pain experienced a markedly higher burden of fibrosis, chronic inflammatory infiltration, adhesions, and profound deep infiltrating disease than those who reported moderate pain. This implies that the intensity of pain in endometriosis does not always depend only on the existence of ectopic tissue but could be much more associated with the extent of inflammation, fibrosis, tissue invasion, and pelvic distortion. Severely paining women also reported very high rates of dyspareunia, infertility, and adnexal tenderness, which suggests that symptom severity might be a useful clinical indicator of more aggressive or

progressive disease (Table 3). Recent studies indicate as well that the severity of pain tends to reflect inflammation, fibrosis, nerve presence, and the depth of lesions more than the size of lesions.

In general, the findings of the present study can be used to conclude that histopathologically confirmed endometriosis has a strong correlation with persistent dysmenorrhea, chronic pelvic pain, dyspareunia, infertility, adnexal tenderness, and typical operative and microscopic findings. The data also indicate that pain severity is closely linked with deep infiltrative disease, fibrosis, inflammation, and pelvic adhesions, highlighting the importance of clinicopathological correlation in women presenting with chronic pelvic symptoms.

DISCUSSION

The present cross-sectional clinical study evaluated the histopathological and clinical correlates of endometriosis in women presenting with dysmenorrhea and chronic pelvic pain and demonstrated that histopathologically confirmed endometriosis was strongly associated with persistent pelvic pain, severe dysmenorrhea, dyspareunia, infertility, adnexal tenderness, pelvic adhesions, fibrosis, and chronic inflammatory changes[1-3]. The results support the idea that endometriosis is not just an accidental lesion of the pelvis but a clinically important chronic inflammatory gynecological condition that carries significant symptomatic and reproductive outcomes[4,5].

In the current study, 61 out of 90 women (67.8%) who presented with dysmenorrhea and/or chronic pelvic pain had histopathologically confirmed endometriosis[6]. Such a relatively large percentage is clinically explicable since the patient population was selected in a tertiary care gynecology environment in which women are more likely to manifest with intractable, treatment refractory, or complicated pelvic symptoms. This finding corroborates existing data that women who experience chronic pelvic pain and secondary dysmenorrhea are a symptomatic high-risk group in whom endometriosis is to be vigorously suspected instead of being treated empirically over extended periods of time. Modern advice is also that endometriosis is something patients with pelvic pain, dysmenorrhea, dyspareunia, or infertility need to consider sooner than when the advanced disease develops into a clinical manifestation[7,8].

One of the key findings of this research was that there is a significant correlation between moderate-severe dysmenorrhea and histologically-proven endometriosis. In the confirmed cases, dysmenorrhea was the most common presenting complaint, with 82.0% of confirmed cases having dysmenorrhea[9]. This aligns with the established pathophysiology of endometriosis in which menstrual bleeding in ectopic lesions, localized release of prostaglandins, and local activation of inflammatory cytokines and neurovascular growth are all implicated in progressive menstrual pain. This pain is initially neglected as normal menstrual pain in most women, hence leading to late diagnosis and prolonged pain in the victims. The present results endorse the clinical significance of differentiating between secondary dysmenorrhea and primary menstrual pain, particularly in cases of severe, progressive pain, or when related to pelvic tenderness or reproductive dysfunction. Endometriosis is closely considered to be one of the causes of secondary dysmenorrhea and long-term pain in reproductive-age women[10].

Similarly, chronic pelvic pain lasting more than 6 months was significantly more frequent in women with histopathologically confirmed disease[11]. This is a critical point to note since chronic pelvic pain in endometriosis can be multifactorial, which can be caused by persistent inflammation, adhesions, peripheral nerve sensitization, central pain amplification, fibrosis, and mechanical distortion of the pelvic structures. The endometriosis pain is not solely dependent on the lesion size or lesion count. That is why, some women who have comparatively small lesions can become very symptomatic and other ones who have large-scale disease can show themselves with relatively less pain. The results of the current study are consistent with the existing literature that characterizes endometriosis as a persistent inflammatory and pain-enhancing disease and not a strictly anatomical one[12,13].

The other clinically relevant outcome of this research was that the rates of dyspareunia and infertility were found to be greatly higher among women who had endometriosis which was proven by histology[14]. Dyspareunia was observed in more than half of confirmed cases, while infertility was present in 41.0% of affected women[15]. These results are very important as they show that not only superficial or incidental lesions of endometriosis were present in this population, but also that there was a likely possibility of pelvic involvement of endometriosis that was indeed functionally important. Dyspareunia in endometriosis is often linked to lesions involving the uterosacral ligaments, cul-de-sac, rectovaginal septum, or deep posterior compartment, while infertility may result from distorted tubo-ovarian anatomy, pelvic adhesions, inflammatory peritoneal fluid, impaired oocyte quality, ovulatory dysfunction, and altered implantation biology. Such symptom associations in the current research make the clinical utility of dyspareunia and infertility significant correlates of relevant pelvic endometriosis[16].

In the operative perspective, the current study established that the most frequent form of lesion was the ovarian endometrioma, followed by the peritoneal implants and deep infiltrating lesions. This trend is typical of ordinary gynecologic practice and is an indication of the heterogeneous anatomical patterns of endometriosis[17]. Ovarian endometrioma is an important and prevalent phenotype because it is often linked to chronic inflammation, recurring cyclical bleeding, adhesions, pelvic distortion, infertility, and recurrent pain. Although not always as dramatic on the macroscopic view, peritoneal lesions may also play a significant role in causing pain because of local inflammatory and neuroangiogenic activity[18]. Deep infiltrating lesions, although appearing less often in absolute terms, were of special interest in the present study due to their greater association with severe pain and more progressive pathological alterations. This logically contributes to the idea that location and depth of lesions could be more clinically useful than the number of lesions. Complete penetrating endometriosis is always linked to acute pains, dyspareunia and organ encroachment and more complicated clinical load[19].

The correlation between pain severity and the nature of histopathological lesions, especially fibrosis, chronic inflammatory infiltrates, and pelvic adhesions, was one of the strongest findings of this study[20]. These features were much more prevalent among women with severe pain than with moderate pain. This is very significant as it implies the presence of ectopic endometrial tissue is correlated with pain in endometriosis, but more importantly, the biological behavior of lesions, particularly inflammatory and fibrotic action[1-4]. Fibrosis is manifested by recurrence of tissue damage and repair, whereas inflammatory infiltrates are evidence of ongoing immune-mediated disease mechanisms. Adhesions also cause pelvic distortion, limited movement of organs, traction pain, and chronic pain. New evidence is increasingly pointing to fibrosis as a key pathological element of endometriosis and a major factor in the perpetuation of pain and functional organ dysfunction[5,9].

Endometrial glands and stroma were the most common histopathological observations in the current study, followed by hemosiderin-carrying macrophages, fibrosis, and chronic inflammatory cell infiltration[10]. The significance of these findings is that they represent the diagnostic hallmarks as well as the long-term biological development of the disease. Although the presence of glands and stroma is the classical basis of tissue diagnosis, other observations that indicate chronicity of lesions and repetitive cyclical hemorrhage include the presence of hemosiderin deposition and fibrosis[11]. The burden of fibrosis and inflammation, in most instances, can be a better explanation of the pain phenotype of the patient, rather than the mere presence of glandular tissue. This helps to justify the preservation of the use of histopathological examination in patients undergoing operative evaluation of possible endometriosis, particularly in symptomatic women, where the ultimate diagnosis is needed to become certain and be able to make long-term management plans. In the case of tissue acquisition, histology is still very useful in diagnosis confirmation and lesion behavior[12-14].

The current research holds significant clinical significance for the care of gynecology, particularly in the tertiary and resource-limited environments[15]. Women with severe dysmenorrhea, chronic pelvic pain, dyspareunia, infertility, and adnexal tenderness should be highly suspected of having endometriosis instead of being repeatedly treated only with empirical analgesics or short-term hormonal treatment without any additional investigation[16]. The previous recognition of symptom clusters can guarantee a shorter diagnostic delay, better patient counseling, timely laparoscopy in case of indications, and a more specific treatment before the formation of advanced fibrosis, adhesions, and infertility. The results presented in this research thus add to a more symptom-based and clinicopathological method of diagnosis of endometriosis[17].

There are some limitations of this study. It was done in one tertiary care hospital, and this could not be generalized to larger community groups[5-7]. The cross-sectional design also limits the causal inference and does not allow longitudinal evaluation of symptom development or treatment outcomes. Also, not every suspected disease woman had the same lesion distribution or disease stage, and staging-based analysis was not conducted. Nonetheless, even with these shortcomings, the study offers clinically significant information on the correlations between presenting symptoms, operative findings, and histopathological diagnosis of endometriosis in a symptomatic gynaecologic group[18,19].

Comprehensively, the current results reinforce the perception that endometriosis is a clinicopathological inflammatory pain disorder, which has significant reproductive and quality-of-life implications, as opposed to a laparoscopic diagnosis. A further understanding of its clinical and histological correlates will probably enhance earlier diagnosis and more personalized management[20].

CONCLUSION

Endometriosis was found to be strongly associated with dysmenorrhea, chronic pelvic pain, dyspareunia, infertility, adnexal tenderness, and

characteristic histopathological abnormalities in women presenting to a tertiary care gynecology department. Ovarian endometrioma, peritoneal lesions, fibrosis, chronic inflammatory infiltrates, and hemosiderin-laden macrophages were most frequently linked to histopathologically confirmed disease. Severe pain was significantly associated with deep infiltrating lesions, adhesions in the pelvis, fibrosis, and inflammatory alterations, and demonstrated that the intensity of symptoms can reflect more progressive and biologically active disease. These results demonstrate the significance of clinical suspicion, particularly in the early stages, meticulous pelvic examination, and histopathological verification among women with the symptoms of persistent pelvic pain. Enhanced clinicopathological awareness of endometriosis could help in earlier diagnosis, improved treatment planning, and improved symptom and fertility management.

Availability of Data and Materials

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

- **ZB**: Conceptualization, study design, supervision, final approval.
- **FJ**: Study design, patient recruitment, manuscript review.
- **SS**: Data collection, clinical assessment, drafting.
- **RK**: Data analysis, statistical interpretation.
- **RN**: Literature review, data entry, initial draft.
- **SG**: Histopathology evaluation, interpretation.

All authors approved the final manuscript.

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