

Adolescent Endometriosis: Diagnosis and Treatment Approaches

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Abstract

Background: Endometriosis is a chronic gynaecological disorder that affects a large number of adolescents, causing, dysmenorrhea and impaired quality of life. To evaluating diagnosis and treatment approaches for adolescent endometriosis.

Materials and methods: This was a cross-sectional study 150 adolescent girl, aged 13 to 19, in purposively selected healthcare settings in Sylhet, including Jalalabad Ragib-Rabeya Medical College and Hospital, Oasis Hospital etc.

Results: The participants had a mean age of 16.4 years, an average BMI of 22.6 kg/m², and an average age at menarche of 12.5 years. A family history of endometriosis was reported in 26.7% of cases. Diagnostic methods used included laparoscopy (66.7%), MRI (20.0%) and ultrasound (13.3%). Treatment strategies comprised hormonal therapy (73.3%), NSAIDs (60.0%), laparoscopic surgery (33.3%), complementary therapies (20.0%), psychological counseling (26.7%), and physical therapy (13.3%). The mean PedsQL score was 65.2, the EPDD score was 6.8 and the HADS score averaged 14.3. Half of the participants experienced delays in diagnosis, which significantly impacted timely treatment. Improved outcomes were associated with early menarche, hormonal therapy, and laparoscopic surgery.

Conclusion: This study underscores the significant diagnostic delays and the profound impact of endometriosis on the quality of life of adolescents in Bangladesh. Enhancing diagnostic protocols, promoting early intervention, and strengthening support systems are essential for improving the management of adolescent endometriosis.

Key words: Adolescent girl; Diagnosis; Endometriosis; HRT; QoL; Treatment.

INTRODUCTION

Adolescents commonly report pelvic pain and dysmenorrhea, with studies showing that endometriosis affects 25-38.3% of adolescents who experience chronic pelvic pain.^{1,2} Endometriosis, characterized by endometrial tissue located outside the uterus, is estimated to affect 10-15% of women of reproductive age and 70% of women experiencing chronic pelvic pain.^{3,4} The prevalence of endometriosis among adolescent females experiencing pelvic pain after laparoscopy is less readily apparent, with estimates ranging from 19-73%.⁵ Two retrospective studies found endometriosis in 70-73% of adolescents with pelvic pain that did not respond to medical treatment, while a prospective study reported a 47% prevalence among adolescents undergoing laparoscopy for pelvic pain.^{6,7}

Recognizing the distinctive features of adolescent endometriosis is essential for early diagnosis, as they differ from adult cases. Endometriosis is a chronic condition that affects women throughout various stages of life, often causing pain, infertility and

potential malignant changes. Although most women diagnosed are over their mid-twenties, two-thirds of those diagnosed after age 20 reported symptoms like dysmenorrhea or chronic pelvic pain starting in adolescence. Early diagnosis and ongoing care are critical for younger individuals to prevent disease progression and safeguard fertility.⁸

Adolescents with endometriosis are typically underdiagnosed, as many are hesitant to seek medical attention owing to unusual symptom presentations, making diagnosis more difficult.⁹ Adolescents with endometriosis may present with subtle symptoms, requiring thorough evaluation through pelvic ultrasonography and laparoscopic examination. Medical and surgical treatments should be customized to align with their developmental stage and future goals. A significant majority of adolescents (70–93%) report experiencing painful periods.^{10,11}

Dysmenorrhea, often related to endometriosis, is the most common reason for missing school and other activities.¹² It severely affects quality of life and increases the risk of depression and anxiety.^{13–15} Adolescents experience more severe pain than adults and often seek medical care for functional impairment due to dysmenorrhea.¹⁶ For persistent pain, adolescents should receive appropriate medication and further evaluation. First-line treatments include Oral Contraceptive Pills (OCPs) and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) however, many adolescents still report pelvic pain despite these therapies. It is essential to consider endometriosis in the differential diagnosis for these young patients. While adult women with endometriosis usually experience cyclic pelvic pain, adolescents may report both cyclic and acyclic pain. Endometriosis is estimated to affect between 4% and 17% of post-menarchal females.¹⁷ Contrary to the belief that endometriosis manifests only after years of menstruation, it has been detected before menarche and as early as 1 to 5 months post-menarche.^{18,19} 50% to 70% of adolescents who had a laparoscopy because their pelvic pain was not eased by NSAIDs or OCPs had endometriosis, according to studies.^{7,20} This study aimed to evaluate the diagnosis and treatment approaches for adolescent endometriosis in Bangladesh, providing insights into clinical characteristics, treatment efficacy and the impact on daily life.

MATERIALS AND METHODS

This study was a cross-sectional analysis that examined diagnostic and treatment approaches for adolescent endometriosis. Study conducted from January to December 2023 across purposively selected healthcare settings, including medical college hospital and clinics named Jalalabad Ragib-Rabeya Medical College and Hospital, Oasis Hospital etc. The research included adolescents girl aged 13 to 19 who had been diagnosed with endometriosis through laparoscopic surgery or imaging studies within the past two years and provided informed consent. Exclusion criteria included other chronic pelvic pain conditions, lack of a professional diagnosis and non-consent.

Participants were recruited from gynecology clinics, referrals from primary care physicians and school health services, as well as public advertisements. Data were gathered through

medical record reviews, questionnaires and interviews, which provided demographic information, medical history, diagnostic procedures and treatment regimens. The diagnosis of endometriosis was confirmed through laparoscopic visualization and imaging studies (USG and MRI).

The data were checked and cleaned followed by categorizing data, coding, and postcodes into IBM SPSS v 25 software. Descriptive analysis and inferential statistics done to assess the significance of associations and a P-value of <0.05 at a 95% confidence interval was taken as significant. Informed consent was obtained from all participants and their legal guardians in the case of minors. The study received approval from the Institutional Ethics Committee of Jalalabad Ragib-Rabeya Medical College, Sylhet 3030, Bangladesh.

RESULTS

The study population comprised 150 adolescents girl with a mean age of 16.4 years (SD 1.8) and a median age of 16 years (IQR 15–18). The average BMI was 22.6 kg/m² (SD 3.2), with a median BMI of 22 kg/m² (IQR 20–24). The mean age at menarche was 12.5 years (SD 1.3), while the median age at menarche was 12 years (IQR 11–14). A family history of endometriosis was reported by 26.7% of the participants. The diagnostic methods used included laparoscopy in 66.7% of cases, MRI in 20.0% and ultrasound in 13.3%.

Table I Demographic and clinical characteristics of study population (n=150)

Characteristic□	Mean (SD)□	Median (IQR)
Demographics		
Age (Years)□	16.4 (1.8)□	16 (15–18)
BMI (kg/m ²)□	22.6 (3.2)□	22 (20–24)
Age at menarche (Years)□	12.5 (1.3)□	12 (11–14)
Family history of endometriosis□	□	40 (26.7%)
Diagnostic methods n(%)		
Laparoscopy□	□	100 (66.7%)
MRI□	□	30 (20.0%)
Ultrasound□	□	20 (13.3%)

The treatment approaches for the study population included hormonal therapy for 73.3% of the participants and NSAIDs for 60.0%. Laparoscopic surgery was performed on 33.3% of the adolescents, while complementary therapies were utilized by 20.0%. Psychological counseling was provided to 26.7% of the participants, and physical therapy was administered to 13.3% of the study population.

Table II Treatment approach to the study population (n=150)

Treatment approach□	n□	(%)
Hormonal therapy□	110□	73.3
NSAIDs□	90□	60.0
Laparoscopic surgery□	50□	33.3
Complementary therapies□	30□	20.0
Psychological counseling□	40□	26.7
Physical therapy□	20□	13.3

The quality of life and pain assessments for the study population revealed a mean Pediatric Quality of Life Inventory (PedsQL) score of 65.2 (SD 15.6) with a median score of 67 (IQR 55-75). The Endometriosis Pain Daily Diary (EPDD) had a mean score of 6.8 (SD 2.4) and a median score of 7 (IQR 5-9). The Hospital Anxiety and Depression Scale (HADS) showed a mean score of 14.3 (SD 4.2) with a median score of 14 (IQR 11-17).

Table III Quality of life and pain assessment (n=150)

Assessment tools□	Mean (SD)□	Median (IQR)
Pediatric Quality of Life Inventory (PedsQL) scale□	65.2 (15.6)□	67 (55-75)
Endometriosis Pain Daily Diary (EPDD) scale□	6.8 (2.4)□	7 (5-9)
Hospital Anxiety and Depression scale (HADS)□	14.3 (4.2)□	14 (11-17)

Factors associated with improved outcomes in the study population showed that an earlier age at menarche was significantly associated with better outcomes, with an odds ratio of 1.15 (95% CI 1.02-1.29, $p=0.021$). Hormonal therapy significantly improved outcomes with an odds ratio of 1.25 (95% CI 1.10-1.42, $p=0.003$). Laparoscopic surgery also demonstrated a significant positive impact on outcomes, with an odds ratio of 1.32 (95% CI 1.12-1.55, $p=0.001$).

Table IV Factors associated with improved outcomes (n=150)

Variables□	Odds Ratio (95% CI)□	p-value
Age at menarche□	1.15 (1.02-1.29)□	*0.021
Family history of endometriosis□	0.85 (0.72-1.01)□	0.069
Hormonal therapy□	1.25 (1.10-1.42)□	*0.003
Laparoscopic surgery□	1.32 (1.12-1.55)□	*0.001
Psychological counseling□	1.18 (0.98-1.41)□	0.078

*Statistically significant value.

Qualitative analysis from the interviews revealed several key themes. Diagnostic delays were reported by 50.0% of participants, with one stating, "It took years to get a proper diagnosis." The impact on daily life was significant for 40.0% of the adolescents, exemplified by the quote, "The pain affects my school and social activities." Satisfaction with treatment was noted by 36.7% of the participants, with a representative quote being, "Hormonal therapy has been effective in managing my pain." Additionally, 30.0% of the participants expressed a need for better support systems, highlighted by the comment, "There is a lack of support groups for young girls."

Table V Qualitative themes from interviews (n=150)

Themes□	n (%)□	Representative Quotes
Diagnostic delays□	75 (50.0)□	"It took years to get a proper diagnosis."
Impact on daily life□	60 (40.0)□	"The pain affects my school and social activities."
Satisfaction with treatment□	55 (36.7)□	"Hormonal therapy has been effective in managing my pain."
Need for better support systems□	45 (30.0)□	"There is a lack of support groups for young girls."

DISCUSSION

The participants had a mean age of 16.4 years, an average BMI of 22.6 kg/m² and a mean age at menarche of 12.5 years. A family history of endometriosis was noted in 26.7% of the participants. These findings are consistent with previous studies that highlight similar demographic profiles among adolescents with endometriosis, underscoring the importance of early clinical suspicion and timely diagnostic intervention.^{21,22} Diagnostic methods utilized in the study included laparoscopy (66.7%), MRI (20.0%) and ultrasound (13.3%), reflecting current clinical practices. The reliance on laparoscopy as the primary diagnostic tool is supported by studies highlighting its importance for definitive diagnosis in cases where non-invasive methods are inconclusive.²⁴ Despite these diagnostic tools, 50% of participants reported delays in diagnosis, mirroring findings from studies in the UK and other regions that highlight significant diagnostic delays due to factors such as normalization of symptoms and inadequate awareness among healthcare providers.^{25,26} These delays negatively impact the timely initiation of treatment and overall patient outcomes, underscoring the need for improved diagnostic protocols and clinician education.²⁶

Treatment approaches in our study population included hormonal therapy (73.3%), NSAIDs (60.0%), laparoscopic surgery (33.3%), complementary therapies (20.0%), psychological counseling (26.7%) and physical therapy (13.3%). The high utilization of hormonal therapy and NSAIDs is consistent with established treatment guidelines and supported by literature demonstrating their efficacy in managing endometriosis-associated pain.^{8,27} However, the persistence of symptoms in many adolescents despite these treatments highlights the need for personalized treatment plans and possibly earlier surgical intervention in selected cases.²⁸ The significant impact of endometriosis on daily life was evident, with 40% of adolescents reporting disruptions in school and social activities, a finding consistent with studies showing similar quality of life impairments.²⁹

The mean score for the PedsQL was 65.2, the EPDD mean score was 6.8 and the HADS mean score was 14.3. These scores indicate significant physical and mental health challenges, aligning with findings from other studies that show notable reductions in quality of life and heightened levels of anxiety and depression among adolescents with endometriosis.^{30,31} Satisfaction with treatment was reported by 36.7% of participants, especially regarding hormonal therapy, indicating that while current treatments can be effective, there is still potential for improvement. Additionally, 30% of participants expressed a need for better support systems, highlighting a significant gap in the healthcare provision for adolescents with endometriosis. This aligns with findings from various studies that advocate for comprehensive care approaches, including psychological support and educational interventions, to enhance patient outcomes and satisfaction.³²

Comparatively, studies from other regions have also reported the benefits of combining surgical and hormonal treatments, showing significant improvements in quality of life and reduction in pain symptoms.^{33,34} The significant association between earlier age at menarche and better outcomes, as well as the trends towards improved outcomes with family history and psychological counseling observed in our study, further emphasize the importance of early and multi-faceted intervention strategies.^{10,35}

Our study highlights the urgent need for early diagnosis and comprehensive, personalized treatment strategies for adolescent endometriosis. Addressing diagnostic delays, improving treatment protocols and establishing strong support systems are vital for enhancing the quality of life and clinical outcomes for affected adolescents. Future research should aim to refine diagnostic criteria and develop holistic care models that incorporate medical, psychological, and social support for adolescents with endometriosis.

CONCLUSION

This study provides critical insights into the diagnosis and treatment of adolescent endometriosis in Bangladesh, highlighting both the clinical characteristics and the significant impact of this condition on young adolescent lives. The findings reveal substantial diagnostic delays, which contribute to prolonged suffering and disruptions in daily activities for

affected adolescents. The predominance of hormonal therapy and NSAIDs as treatment approaches underscores their central role in managing symptoms, though a significant proportion of patients continue to experience persistent pain, necessitating more comprehensive and individualized treatment strategies. The study also emphasizes the importance of early diagnosis and intervention, particularly through the use of laparoscopy, which remains the gold standard for definitive diagnosis. The observed associations between earlier age at menarche, family history and improved outcomes suggest that these factors should be carefully considered in clinical evaluations. Additionally, the study underscores the need for better support systems, including psychological counseling and educational programs, to address the emotional and social challenges faced by adolescents with endometriosis. Enhancing awareness and education among healthcare providers and the general public is crucial for reducing diagnostic delays and improving the overall management of this condition.

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DISCLOSURE

All the authors declared no competing interest.

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