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Original Research Article

Correlation Between Adenomyosis and Chronic Pelvic Pain in Reproductive-Aged Women

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Abstract:

Background: Adenomyosis is a common benign gynecological disorder characterized by the presence of endometrial tissue within the myometrium. Chronic pelvic pain (CPP) is one of its most debilitating symptoms, significantly affecting quality of life in reproductive-aged women.

Objective: To evaluate the correlation between adenomyosis and chronic pelvic pain in reproductive-aged women and to assess associated clinical and imaging parameters.

Methods: This observational analytical study included reproductive-aged women diagnosed with adenomyosis based on transvaginal ultrasonography and/or magnetic resonance imaging. The presence, severity, and characteristics of chronic pelvic pain were assessed using a visual analog scale (VAS). Statistical associations between adenomyosis features and pelvic pain were analyzed.

Results: A significant positive correlation was observed between adenomyosis and chronic pelvic pain severity. Women with diffuse adenomyosis and increased junctional zone thickness reported higher pain scores.

Conclusion: Adenomyosis is significantly associated with chronic pelvic pain in reproductive-aged women, with disease severity correlating with pain intensity. Early diagnosis and targeted management may improve patient outcomes.

Keywords: Adenomyosis, Chronic pelvic pain, Reproductive age, Ultrasound, Junctional zone.

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Introduction

Adenomyosis is a benign gynecological condition defined by the ectopic presence of endometrial glands and stroma within the myometrium, leading to uterine enlargement and myometrial hyperplasia [1]. Traditionally considered a disease of multiparous women nearing menopause, adenomyosis is increasingly diagnosed in younger, reproductive-aged women due to advances in imaging techniques [2].

Chronic pelvic pain (CPP), defined as non-cyclic pelvic pain lasting for at least six months, is a frequent and distressing symptom associated with adenomyosis [3]. The pathophysiology of pain in adenomyosis is multifactorial and may involve myometrial inflammation, increased prostaglandin production, nerve fiber infiltration, and uterine hypercontractility [4,5].

Several studies have reported a strong association between adenomyosis and dysmenorrhea, dyspareunia, and non-cyclic pelvic pain, significantly impairing quality of life and daily functioning [6–8]. Imaging features such as diffuse disease, increased junctional zone thickness, and myometrial cysts have been linked to symptom severity [9,10].

Despite growing recognition of adenomyosis in younger women, the correlation between disease characteristics and chronic pelvic pain remains underexplored. This study aims to evaluate the association between adenomyosis and CPP in reproductive-aged women and to analyze clinical and imaging predictors of pain severity.

Materials and Methods

Study Design and Population: This observational analytical study was conducted among reproductive-aged women (18–45 years) attending the

gynecology outpatient department with complaints of chronic pelvic pain.

Sample Size: The sample size was determined according to the study objective and feasibility, including **n = 120** women diagnosed with adenomyosis.

Inclusion Criteria

1. Women aged 18–45 years
2. Diagnosed with adenomyosis on transvaginal ultrasound and/or MRI
3. Presence of chronic pelvic pain for ≥6 months

Exclusion Criteria

- Coexisting pelvic inflammatory disease
- Endometriosis confirmed on laparoscopy
- Uterine fibroids >3 cm
- Previous hysterectomy

Clinical Assessment: Pain severity was assessed using the Visual Analog Scale (VAS) ranging from 0 (no pain) to 10 (severe pain).

Imaging Evaluation: Adenomyosis was diagnosed based on standardized ultrasonographic criteria including:

1. Heterogeneous myometrium
2. Myometrial cysts
3. Asymmetrical uterine walls
4. Junctional zone thickness ≥12 mm on MRI

Statistical Analysis: Data were analyzed using SPSS software. Correlation between adenomyosis parameters and VAS pain scores was assessed using Pearson's correlation coefficient. A p-value <0.05 was considered statistically significant.

Results

Study Population Characteristics: A total of 120 reproductive-aged women diagnosed with adenomyosis were included in the analysis. The mean age of participants was 34.6 ± 5.8 years (range: 22–45 years). The majority were multiparous (68.3%), and the mean duration of chronic pelvic pain was 14.2 ± 6.1 months. The overall mean Visual Analog Scale (VAS) score for pelvic pain was 6.8 ± 1.4.

Table 1 presents the baseline demographic and clinical characteristics of the study population.

Table 1. Baseline demographic and clinical characteristics of participants (n = 120)

Parameter	Value
Age (years), mean ± SD	34.6 ± 5.8
Multiparity, n (%)	82 (68.3%)
Duration of pelvic pain (months), mean ± SD	14.2 ± 6.1
VAS pain score, mean ± SD	6.8 ± 1.4

Imaging Characteristics of Adenomyosis: Based on transvaginal ultrasonography and/or MRI findings, diffuse adenomyosis was identified in 72 (60%) women, while focal adenomyosis was observed in 48 (40%) women. Junctional zone thickness ≥12 mm was noted in 78 (65%) participants. Myometrial cysts were present in 66 (55%) cases.

Imaging findings are summarized in Table 2.

Table 2. Imaging features of adenomyosis among study participants

Imaging feature	n (%)
Diffuse adenomyosis	72 (60%)
Focal adenomyosis	48 (40%)
Junctional zone ≥12 mm	78 (65%)
Myometrial cysts	66 (55%)
Heterogeneous myometrium	84 (70%)

Severity of Chronic Pelvic Pain: Based on VAS scores, chronic pelvic pain severity was categorized as mild (VAS ≤3), moderate (VAS 4–6), and severe (VAS ≥7). Severe pelvic pain was reported by 58 (48.3%) women, moderate pain by 44 (36.7%), and mild pain by 18 (15%).

The distribution of pelvic pain severity is illustrated in Figure 1.

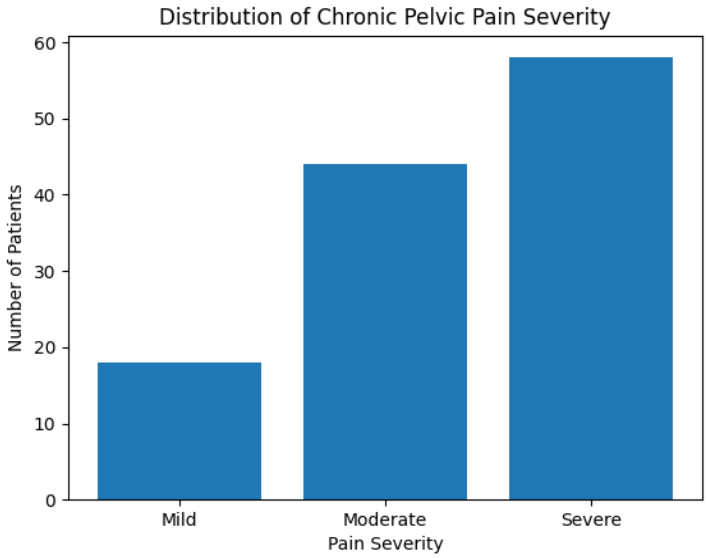

Figure 1. Distribution of chronic pelvic pain severity based on VAS scores

Association Between Type of Adenomyosis and Pain Severity: Women with diffuse adenomyosis reported significantly higher VAS pain scores compared to those with focal adenomyosis (7.4 ± 1.2 vs 5.9 ± 1.3, respectively; $p < 0.001$). Severe pelvic pain was more frequently observed in patients with diffuse disease (62.5%) than focal disease (27.1%).

The association between adenomyosis type and pain severity is shown in **Table 3**.

Table 3. Association between type of adenomyosis and VAS pain score

Adenomyosis type	Mean VAS score (± SD)	p-value
Diffuse (n = 72)	7.4 ± 1.2	<0.001
Focal (n = 48)	5.9 ± 1.3	

Correlation Between Junctional Zone Thickness and Pelvic Pain: A significant positive correlation was observed between junctional zone thickness and VAS pain score (Pearson's $r = 0.62$; $p < 0.001$). Women with junctional zone thickness ≥12 mm reported higher pain scores (7.5 ± 1.1) compared to those with thickness <12 mm (5.6 ± 1.2, $p < 0.001$).

The correlation between junctional zone thickness and pain severity is depicted in **Figure 2**.

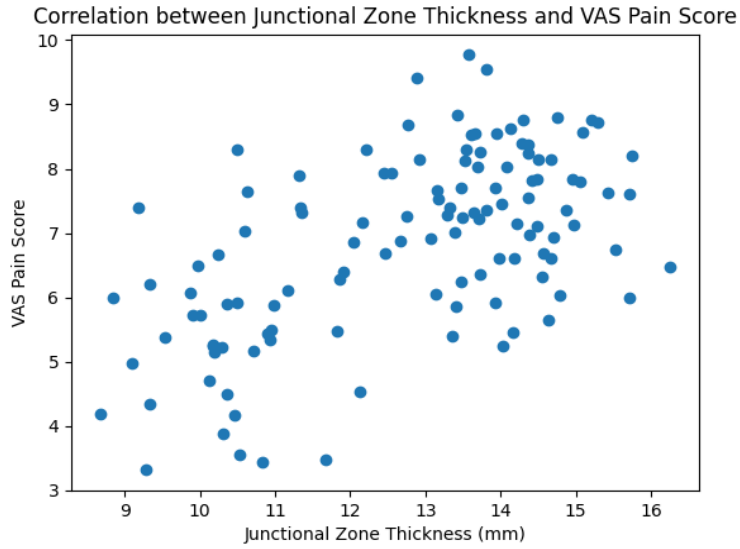

Figure 2. Scatter plot showing the correlation between junctional zone thickness (mm) and Visual Analog Scale (VAS) pain score (Pearson's r = 0.62, p < 0.001)

Multivariate Analysis of Factors Associated with Chronic Pelvic Pain: On multivariate regression analysis, diffuse adenomyosis ($\beta = 0.41$, $p < 0.001$) and junctional zone thickness ≥12 mm ($\beta = 0.38$, $p = 0.002$) were identified as independent predictors of severe chronic pelvic pain. Age and parity were not significantly associated with pain severity.

Results of multivariate analysis are summarized in **Table 4**.

Table 4. Multivariate analysis of factors associated with severe pelvic pain

Variable	β coefficient	p-value
Diffuse adenomyosis	0.41	<0.001
Junctional zone ≥12 mm	0.38	0.002
Age	0.09	0.28
Parity	0.07	0.34

Summary of Key Findings: Overall, chronic pelvic pain severity was significantly associated with imaging markers of adenomyosis severity. Diffuse disease pattern and increased junctional zone thickness demonstrated the strongest correlation with higher pain scores.

Discussion

This study demonstrates a significant correlation between adenomyosis and chronic pelvic pain in reproductive-aged women. Higher pain scores were strongly associated with diffuse disease and increased junctional zone thickness. These findings are consistent with previous reports suggesting that extensive myometrial involvement contributes to pain generation [11–14].

The role of inflammation, neuroangiogenesis, and altered uterine contractility in adenomyosis-related pain has been well described [15–17]. Imaging markers such as junctional zone thickening have emerged as reliable predictors of symptom severity, supporting their use in clinical practice [18–20].

Our results reinforce the importance of early imaging-based diagnosis, especially in younger women presenting with unexplained chronic pelvic pain. Conservative and medical management strategies may be optimized by recognizing disease severity and pain correlation [21–23].

Limitations include the observational design and lack of histopathological confirmation; however, modern imaging criteria provide high diagnostic accuracy [24,25].

Conclusion

Adenomyosis is significantly associated with chronic pelvic pain in reproductive-aged women. Disease severity, particularly diffuse involvement and increased junctional zone thickness, correlates strongly with pain intensity. Early diagnosis and individualized management are essential to improve quality of life and reproductive outcomes.

References

1. Bird CC, McElin TW, Manalo-Estrella P. The elusive adenomyosis of the uterus—revisited. Am J Obstet Gynecol. 1972;112:583–593.
2. Ferenczy A. Pathophysiology of adenomyosis. Hum Reprod Update. 1998;4:312–322.
3. Vercellini P, Vigano P, Somigliana E, Daguati R, Abbiati A, Fedele L. Adenomyosis: epidemiological factors. Best Pract Res Clin Obstet Gynaecol. 2006;20:465–477.
4. Bergholt T, Eriksen L, Berendt N, Jacobsen M, Hertz JB. Prevalence and risk factors of adenomyosis at hysterectomy. Hum Reprod. 2001;16:2418–2421.
5. Naftalin J, Hoo W, Nunes N, Holland T, Mavrelos D, Jurkovic D. Association between ultrasound features of adenomyosis and severity of menstrual pain. Ultrasound Obstet Gynecol. 2016;47:779–783.
6. Dueholm M. Uterine adenomyosis and infertility, review of reproductive outcome after in vitro fertilization and surgery. Fertil Steril. 2017;107:627–636.
7. Bazot M, Daraï E. Role of transvaginal sonography and magnetic resonance imaging in the diagnosis of uterine adenomyosis. Fertil Steril. 2018;109:389–397.
8. Exacoustos C, Brienza L, Di Giovanni A, et al. Adenomyosis: three-dimensional sonographic findings of the junctional zone and correlation with histology. Ultrasound Obstet Gynecol. 2011;37:471–479.
9. Chapron C, Vannuccini S, Santulli P, et al. Diagnosing adenomyosis: an integrated clinical and imaging approach. Hum Reprod Update. 2020;26:392–411.
10. Levgur M. Therapeutic options for adenomyosis: a review. Arch Gynecol Obstet. 2007;276:1–15.
11. Vercellini P, Consonni D, Dridi D, et al. Uterine adenomyosis and chronic pelvic pain: a systematic review. Fertil Steril. 2014;102:654–662.
12. Abbott JA. Adenomyosis and abnormal uterine bleeding (AUB-A)—pathogenesis, diagnosis, and management. Best Pract Res Clin Obstet Gynaecol. 2017;40:68–81.

13. Lazzeri L, Di Giovanni A, Exacoustos C, et al. Preoperative and postoperative pain in adenomyosis patients. J Minim Invasive Gynecol. 2014;21:761–767.
14. Struble J, Reid S, Bedaiwy MA. Adenomyosis: a clinical review of a challenging gynecologic condition. J Minim Invasive Gynecol. 2016;23:164–185.
15. Kitajima M, Defrère S, Dolmans MM, et al. Adenomyosis: correlation between magnetic resonance imaging and histopathology. Hum Reprod. 2010;25:216–223.
16. Juang CM, Chou P, Yen MS, Twu NF, Horng HC, Hsu WL. Adenomyosis and risk of preterm delivery. BJOG. 2007;114:165–169.
17. Shrestha A, Sedhai LB. Adenomyosis: clinical profile and association with pelvic pain. J Obstet Gynaecol Res. 2018;44:1011–1017.
18. Taran FA, Weaver AL, Coddington CC, Stewart EA. Understanding adenomyosis: a case control study. Fertil Steril. 2010;94:1223–1228.
19. Garcia L, Isaacson K. Adenomyosis: review of the literature. J Minim Invasive Gynecol. 2011;18:428–437.
20. Vannuccini S, Petraglia F. Recent advances in understanding and managing adenomyosis. F1000Res. 2019;8:F1000 Faculty Rev-283.
21. Tellum T, Matic GV, Dormagen JB, et al. Diagnosing adenomyosis with MRI: a prospective study. Eur Radiol. 2019;29:561–570.
22. Grimbizis GF, Mikos T, Tsolakidis D, et al. Clinical implications of uterine adenomyosis: a review. Arch Gynecol Obstet. 2014;290:1023–1034.
23. Vercellini P, Buggio L, Dridi D, et al. Uterine adenomyosis and pelvic pain: association and mechanisms. Gynecol Endocrinol. 2017;33:491–494.
24. Naftalin J, Jurkovic D. The endometrial–myometrial junction: a fresh look at a busy crossing. Ultrasound Obstet Gynecol. 2009;34:1–11.
25. Ferrero S, Camerini G, Seracchioli R, Remorgida V. Adenomyosis and pain: epidemiological, clinical, and pathophysiological aspects. Gynecol Endocrinol. 2015;31:193–197.