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ADENOMYOSIS: AN UNDERRECOGNIZED DISORDER IN AYURVEDA—A LITERARY REVIEW WITH CONCEPTUAL CORRELATION

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ABSTRACT

Adenomyosis is a benign uterine disorder characterized by ectopic endometrial tissue within the myometrium, resulting in uterine enlargement, chronic inflammation, and fibrosis. It typically presents with heavy menstrual bleeding, dysmenorrhea, pelvic pain, and infertility, although some cases may remain asymptomatic. With advancements in imaging techniques such as transvaginal ultrasonography and magnetic resonance imaging, adenomyosis is increasingly recognized in reproductive-age women, shifting its understanding from a purely histopathological finding to a clinically relevant condition. The pathogenesis remains multifactorial and not fully elucidated, with theories including endometrial invagination, Müllerian remnants, and stem cell origin. Estrogen-dependent inflammatory mechanisms play a central role in disease progression and symptom manifestation. Conventional treatment options include hormonal therapies such as progestins, levonorgestrel-releasing intrauterine system, and gonadotropin-releasing hormone analogues, which effectively reduce symptoms but may not be suitable for women desiring conception due to their contraceptive effects. Surgical management, including adenomyomectomy, is reserved for severe or refractory cases but carries significant obstetric risks. From an Ayurvedic perspective, adenomyosis can be correlated with *Vata*-predominant conditions such as *Vataja Asrigdara* and *Garbhashaya Granthi* involving *Artavavaha Srotodushti*. Ayurvedic management emphasizes dosha balance, symptom relief, and fertility preservation through *Shamana*, *Shodhana*, and local therapies. Overall, an integrated, multidisciplinary approach is essential for optimal management of adenomyosis.

KEYWORDS: *Vataja Asrigdara* and *Garbhashaya Granthi* involving *Artavavaha Srotodushti*.

INTRODUCTION

Adenomyosis is defined by the infiltration of the endometrial basalis layer (glands and stroma) into the myometrium through an altered junctional zone, a highly specialized hormone-responsive layer of the uterine architecture located in the inner third of the myometrium. Migration of endometrial tissue into the myometrium is associated with compensatory hypertrophy and hyperplasia of the myometrial smooth muscle along with progressive fibrotic changes in the uterine wall. It can be focal or diffused. The cause of such growth is not known.[1] It may be related to repeated childbirth, vigorous curettage, or excessive estrogen effect. Typically, it is estimated to affect 20-35% of women[2], with a majority of cases occurring post menopause. Patients often report heavy menstrual bleeding (menorrhagia) in 50 %, painful menstruation (dysmenorrhea) in 30%, and irregular menstrual cycle (oligomenorrhea or hypomenorrhea) in 20% of cases.[3,4] Additionally, adenomyosis is associated with a greater incidence of anxiety, depression, and psychosocial stress.[5] Pelvic endometriosis coexists in about 40%.[6] However, approximately one-third of women with adenomyosis are asymptomatic.

For many years, the diagnosis of adenomyosis depended exclusively on histopathological assessment after hysterectomy, with focal, diffuse, cystic, and adenomyoma lesions regarded as the principal adenomyotic subtypes. With the advent of advanced imaging techniques—particularly transvaginal ultrasonography (TVUS) and magnetic resonance imaging (MRI)—the diagnosis of adenomyosis has shifted from invasive histology to reliable non-invasive detection. Historically associated with women in their 40s and 50s, adenomyosis is now increasingly being identified in younger women suffering from pain, abnormal uterine bleeding or infertility. As a result, adenomyosis is currently regarded as a multifaceted clinical disorder instead of just a histopathological observation. Adenomyosis is most commonly associated with risk factors such as multiparity, age above 40 years, and prior cesarean delivery or uterine surgery.[7] Despite improved diagnostic modalities, adenomyosis often remains underdiagnosed and poorly recognized in clinical practice, frequently being confused with conditions such as uterine fibroids and endometriosis. This condition may be treated with NSAIDs, combined oral contraceptives to reduce heavy bleeding, levonorgestrel-releasing IUDs, danazol IUDs, and in severe cases, hysterectomy.[8] Surgical treatment may

involve procedures such as endometrial ablation, uterine artery ligation, or uterine artery embolization.[9] For women who have completed their families, hysterectomy is a definitive treatment option for symptomatic adenomyosis. Recent research indicates that adenomyosis is increasingly being identified in association with infertility.[10]

Ayurveda is a traditional healing system that focuses on overall health of body, mind, and spirit. It uses natural medicines and customized treatments to keep the body in balance. *Ayurveda* does not mention adenomyosis directly, but it explains menstrual problems and infertility that include similar symptoms. Various disorders are included under *Yonivyapada*, the group of gynaecological conditions in classical texts. In *Ayurveda*, conditions are generally identified through their symptoms and clinical features, supporting a holistic approach to diagnosis and care. So, based on symptoms such as *theevra vedana*, *shyava-aruna varna artava*, and *kati vedana*, the condition closely correlates with *Vataja Asrigdara*; where *Asrigdara* is a condition of heavy or prolonged menstrual bleeding, and it may also include bleeding between periods. Considering the underlying pathology, the condition may be interpreted as a form of *Shotha* or *granthi* in uterus.

METHODS

A literature review of Ayurveda classics and relevant texts of contemporary science was critically analyzed in this study. The findings were discussed systematically to understand the disease ‘adenomyosis’ in *Ayurveda*. PubMed and Google Scholar were searched for all peer-reviewed original and review articles related to pathophysiology, diagnosis and management of adenomyosis published in English until October 2025. Literature searches were performed to understand the possible correlation and pathophysiology od adenomyosis according to classics and identify all of the diagnostic criteria and techniques that have been applied so far in order to diagnose the disease. The main terms used were ‘adenomyosis’, ‘abnormal uterine bleeding’, ‘diagnosis’, ‘dysmenorrhea’, ‘imaging’, ‘heavy menstrual bleeding’ ‘myometrium’, ‘pelvic pain’, ‘transvaginal ultrasonography’, ‘Progestins’, ‘LNG-IUS’ , ‘GnRH analogues’ *‘Ayurveda’*, *‘Artavavaha srotodushti’*, *‘Shotha’*, *‘Granthi’*, *‘Vataja Asrigdara’, ‘Uttarbasti’.*

RESULTS

PATHOPHYSIOLOGY AND PREVALENCE

The pathogenesis of Adenomyosis remains inadequately understood, contributing to uncertainty regarding its etiology. The presence of endometrial glands and stroma in the myometrium is a hallmark of Adenomyosis, with several theories proposed for its pathogenesis.[11] The most popular theory is based on invagination of the endometrial basalis into the myometrium.[12] The presence of aromatase and estrogen-producing enzymes in adenomyosis tissue may enhance local estrogen production and stimulate the proliferation of endometrial tissue in the myometrium. A second theory suggests a de novo origin of adenomyosis from misplaced pluripotent Müllerian remnants, supported by evidence of distinct characteristics between ectopic and eutopic endometrium. Compared with eutopic endometrium, ectopic endometrial tissue exhibits reduced hormonal responsiveness, with minimal secretory transformation and abnormal cyclic activity. In adenomyosis, both myometrial changes and the expression of growth factors and cytokines are distinctly different from normal tissue. Overall, the evidence supports the view that adenomyosis does not arise from eutopic basal endometrium but from a separate origin.[12,13,14,15] An emerging theory indicates that Adenomyosis originates from bone marrow–derived stem cells, based on findings showing their involvement in endometrial regeneration. The hypothesis suggests bone marrow stem cells contribute to endometrial repair and myometrial infiltration in adenomyosis.[12,13,14,15]

In *Ayurveda*, considering the underlying pathology, the condition may be interpreted as a form of *Shotha* or *granthi* in uterus. In case of adenomyosis it can be understood as when vitiated *Vata* is blocked by disturbed *Kapha*, *Pitta*, and *Rakta* in the peripheral vessels of *mamsa*, it gives rise to localised swelling called *Shotha*.[16] This concept describes inflammation as a vascular and cellular response, where disturbance of microcirculatory channels i.e. *Artavavaha Srotodushti* which leads to excessive activity, blockage or reduced function, abnormal growth, and disordered movement.[17] The initial inflammatory phase involves increased vascular activity with excess exudation and protein leakage into the extracellular matrix, followed by obstruction that impairs the diffusion of nutrients, oxygen, and waste products, potentially leading to tumor formation.[18] Occurring in *garbhashaya* within the *Artavavaha Srotas*, adenomyosis is associated with symptoms like menstrual disturbance and infertility, which are considered *srotoviddha lakshana*, and thus can be interpreted as *Garbhashaya Granthi*.[19] In Adenomyosis, abnormal and enhanced vascularization has been observed, with estrogens promoting cell mobilization and

microvascular integration. Increased neoangiogenesis is also evidenced by higher microvessel density in both ectopic and eutopic endometrium.[20,21]

Estimates of the prevalence of Adenomyosis range from 5% to 70%. This considerable variability is likely due to the lack of standardized diagnostic criteria, potential bias among pathologists, and variations in the populations studied.

CLINICAL FEATURES

Adenomyosis often manifests with symptoms such as chronic pelvic pain, dysmenorrhea, excessive menstrual bleeding, and infertility. Furthermore, individuals with adenomyosis frequently experience higher levels of anxiety, depression, and psychosocial stress.[22] Several studies have identified a direct association between Adenomyosis and multiparity, possibly because of the invasive behaviour of trophoblasts and the subsequent invagination of the basalis layer. Other studies have also reported increased rates of adenomyosis among women with a history of dilation and curettage procedures.[23] Several studies have identified a direct association between Adenomyosis and multiparity, possibly because of the invasive behaviour of trophoblasts and the subsequent invagination of the basalis layer. Other studies have also reported increased rates of adenomyosis among women with a history of dilation and curettage procedures. “According to Ayurvedic principles, the clinical presentation can be correlated with *Vataja Asrigdara* based on the predominance of symptoms such as menorrhagia and dysmenorrhea particularly *Theevra Vedana* (severe pain), *Shyava-Aruna Varna Artava* (dark reddish or brownish menstrual blood), and *Kati Vedana* (low backache).[24] The presence of severe pain indicates the involvement of aggravated *Vata*, while the altered discoloration of *Artava* reflects vitiation of *Rakta* along with *Vata*. Associated symptoms like lower back pain further support the predominance of *Vata* dosha in the pathogenesis.

DIAGNOSIS

Until recently, Adenomyosis was traditionally considered a condition predominantly affecting parous women. Because clinical examination offers few definitive findings, the diagnosis of Adenomyosis was traditionally established through surgical specimen analysis and histopathological confirmation. However, with the advent of improved imaging techniques, it is now more commonly detected in women presenting with infertility.[25] Hysterosalpingography was once used to diagnose Adenomyosis, but is now obsolete due to low accuracy.[26] Transvaginal Ultrasound is recommended as the primary diagnostic method

in patients with suspected Adenomyosis. Characteristic transvaginal ultrasound findings in Adenomyosis include heterogeneous hypoechoic, ill-defined myometrial regions, with or without anechoic cystic spaces, along with linear striations radiating from the endometrium into the myometrium, poor definition of the junctional zone (JZ) and pseudo-widening of the endometrium due to uterine enlargement with asymmetric thickening of the anterior or posterior uterine wall. Diagnosis of Adenomyosis is suggested by the presence of three or more sonographic criteria. On 3D transvaginal ultrasound, adenomyosis is associated with JZ max ≥8mm, myometrial asymmetry, and hypoechoic striations.

Moreover, consistent diagnostic standards for non-invasive techniques are crucial for accurately assessing the true prevalence of Adenomyosis throughout the reproductive lifespan and for identifying risk factors specific to different developmental stages.

MANAGEMENT

The management approach for adenomyosis, particularly among women desiring pregnancy, involves balancing symptom relief with the maintenance of reproductive potential. However, at present, no specific pharmacological agent has been officially approved for the management of adenomyosis. Surgical management may be opted for in severe cases or when conservative therapies prove ineffective. This surgical procedure aims to remove adenomyotic lesions to enhance uterine function, though it is associated with significant pregnancy-related risks. Hormonal therapy forms the cornerstone of medical treatment for adenomyosis, focusing on symptom relief and improving the uterine environment to support conception. As adenomyosis is an oestrogen-dependent disorder, these treatments aim to regulate hormonal levels by reducing oestrogen concentrations, which in turn helps diminish inflammation and lesion size. By exerting anti-gonadotrophic actions and inhibiting ovulation, these hormonal therapies may not be ideal for women wishing to conceive. These management options comprise- Progestins, LNG-IUS, GnRH analogues etc. Progestins such as dienogest exert anti-oestrogenic actions by inducing a pseudo-pregnancy state, which helps reduce the oestrogen-mediated progression of adenomyotic lesions. Dienogest exhibits anti-inflammatory and antiproliferative effects on adenomyotic tissue, reducing pain and uterine volume. The levonorgestrel-releasing intrauterine system (LNG-IUS) provides local hormone release, causing endometrial thinning and reducing heavy menstrual bleeding in adenomyosis. GnRH analogues (agonists and antagonists) induce a hypo-oestrogenic state by downregulating the hypothalamic–pituitary–ovarian axis, leading to reduced oestrogen

production and regression of adenomyotic lesions. They further act on key pathogenic pathways by reducing inflammation and angiogenesis, leading to decreased uterine volume and relief of bleeding and pain symptoms. Conservative surgical management may be considered in carefully selected patients who are refractory to medical treatment or have severe symptoms, with the aim of excising or reducing adenomyotic tissue while maintaining uterine structure.

Adenomyomectomy removes adenomyotic tissue using various techniques and may improve fertility, but carries risks such as bleeding, infection, adhesions, and uterine rupture, requiring careful selection and expertise. Diffuse adenomyosis generally requires open surgery via laparotomy, while focal lesions can often be treated with minimally invasive laparoscopic adenomyomectomy, offering quicker recovery.

Alternatively, Ayurvedic management of adenomyosis is a conservative, holistic approach that seeks to restore balance of doshas, reduce inflammation, and promote uterine health using *shamana chikitsa*, *shodhana karma*, and lifestyle modifications, with the goal of symptom relief and fertility preservation. Since these conditions arise due to vitiated *Doshas* and other causative factors, management of the basic pathology is considered essential. The therapeutic approach comprises both *Shamana* and *Shodhana* modalities. Additionally, it has been stated that all forms of *Yonivyapadas* should be treated through *Panchakarma* procedures, owing to their local therapeutic effect.[26] Specialized local therapies like *Yonidhavana*, *Yonipichu dharana* and *Uttarbasti*, are indicated in gynaecological disorders following proper assessment. *Yonidhavana* and *Yoni Parisheka*[27-29] are vaginal douching procedures using lukewarm medicated decoctions that help alleviate pain and reduce inflammation.

According to *Acharya Charaka*, the pathogenesis of *yoni roga* involves vitiated *Vata dosha*, making its pacification essential. *Basti Chikitsa*[30] is highly effective in managing pain, menstrual irregularities, and pelvic congestion associated with various gynaecological disorders. *Basti Chikitsa* is thus considered the prime therapy for *Vata* disorders. *Uttarbasti*[31] is a unique therapeutic procedure in *Ayurveda* wherein medicated oil or *ghee* is introduced into the uterine cavity and tubes. Owing to its unique therapeutic qualities, it is effective in alleviating disorders like *Artava Dushti*, *Shukra Dushti*, *Kashtartava*, *Yonivyapadas*, and various causes of *Vandhyatva*.[32]

Matra Basti is categorized under *Anuvasana Basti*, and the same line of treatment indicated for *Vataja Yonivyapada* may be adopted for Adenomyosis, as it closely resembles the features of *Vataja Asrigdara*. The line of management recommended for *Rakta Atisara*, *Rakta Pitta*, *Rakta Arsha*, and *Garbha Srava* may also be considered.[33] The line of treatment indicated for *Raktayoni* can be applied in *Asrigdara*, and haemostatic drugs should be selected according to the prevailing *dosha*.[34]

DISCUSSION

Adenomyosis is a benign uterine condition characterized by ectopic endometrial tissue within the myometrium, resulting in uterine enlargement, chronic inflammation, and fibrosis. It commonly presents with heavy menstrual bleeding, dysmenorrhea, pelvic pain, and infertility, although some cases remain asymptomatic. Advances in imaging, particularly transvaginal ultrasonography and MRI, have improved early and non-invasive diagnosis, leading to increased detection in reproductive-age women.

The exact pathogenesis remains unclear, with theories including endometrial invagination, Müllerian remnants, and stem cell contribution. A key role of local estrogen excess and inflammatory processes drives disease progression. In Ayurvedic literature, it can be correlated with Vata-predominant disorders such as *Vataja Asrigdara Shotha*, *Garbhashaya Granthi*, involving *Artavavaha Srotodushti*.

Management is particularly challenging in women desiring fertility. Hormonal therapies such as progestins, LNG-IUS, and GnRH analogues are effective in reducing symptoms by suppressing estrogen-dependent activity, but may not be suitable for conception due to ovulation inhibition. Dienogest, LNG-IUS, and GnRH analogues help reduce pain, bleeding, and uterine volume, though recurrence may occur after stopping therapy.

Surgical options like adenomyomectomy are reserved for severe or refractory cases and may improve fertility outcomes, but carry risks including hemorrhage, adhesions, and uterine rupture. In contrast, Ayurvedic management offers a conservative and holistic approach focused on doshic balance, symptom relief, and fertility preservation through *Shamana*, *Shodhana*, and local therapies.

Overall, Adenomyosis requires a multidisciplinary and individualized treatment strategy integrating modern and traditional approaches for optimal patient outcomes.

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