

"A COMPREHENSIVE REVIEW OF ANKYLOSING SPONDYLITIS IN LIGHT OF ASTHI-MAJJAGATA VATA AND AYURVEDIC TREATMENT MODALITIES"

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ABSTRACT

Ankylosing Spondylitis (AS) is a chronic, progressive inflammatory disorder primarily affecting the axial skeleton, leading to pain, stiffness, and potential vertebral fusion. It is strongly linked to the HLA-B27 gene and classified under seronegative spondyloarthropathies. Ayurvedically, AS is similar to *Asthimajjagata Vata*, where vitiated *Vata Dosha* affects the *Asthidhatu* and *Majjadhatu*, causing symptoms like pain, rigidity, and degeneration. The pathogenesis of *Asthimajjagata Vata* involves the movement of *Vata Dosha* into tissues, leading to *Dhatukshaya*. Clinical signs include *Bhedoasthiparvani* (cracking in joints), *Sandhi Shoola* (piercing pain), *Mamsabalakshaya* (muscle loss), *Aswapna* (insomnia), and *Santataruja* (continuous pain), observed in conditions like *Kati Graha* (lumbar stiffness) and *Gridhrasi*

(sciatica). Conventional treatment for AS includes NSAIDs, biologics, and physical therapy. Ayurvedic management, however, offers a holistic approach with *Panchakarma* (detox), *Snehana* (oleation), *Swedana* (sudation), and *Rasayana* (rejuvenation) therapies, aiming to balance *Vata*, nourish the tissues, and slow disease progression. Further clinical studies are needed to validate these Ayurvedic interventions and integrate them with modern medical practices.

INTRODUCTION

Ankylosing Spondylitis (AS) is a chronic inflammatory condition affecting the spine and sacroiliac joints, leading to intervertebral disc degeneration, nerve root compression, and

eventual vertebral fusion, resulting in a rigid posture. It predominantly affects young adults (15-30 years), with a higher incidence in men and a strong genetic association with the HLA-B27 gene.^[1]

Management of AS involves a multi-disciplinary approach, including NSAIDs, TNF inhibitors, IL-17 inhibitors, DMARDs, physical therapy, surgical intervention, and lifestyle modifications. The primary goals are symptom control, functional improvement, and prevention of complications.

From an Ayurvedic perspective, AS correlates with *Asthimajjagat Vata*, a type of *Vatavyadhi*.^[2] characterized by the degeneration of *Asthi Dhatu* (bones) and *Majja Dhatu* (bone marrow). *Vatadosha* imbalance due to improper diet and lifestyle leads to two major types of *Vatavyadhi*: *Dhatukshayatmaka Vatavyadhi* (tissue depletion) and *Margavarodhjanya Vatavyadhi* (obstruction in body channels). *Asthimajjagata Vata* represents the former, where the vitiated *Vata* causes degeneration in bones and marrow.

DHATU KARMA^[3]

Asthidhatu

The *Asthi Dhatu* (bone tissue) plays a critical role in maintaining body structure, posture, and overall stability. It provides essential support to muscles, blood vessels, and ligaments, contributing to the body's strength. Imbalance or aggravation of *Asthi Dhatu* can lead to various disorders, including abnormal bone growth (e.g., extra teeth, *Adhyasthidanta*).^[4] pain, and changes in skin or tissue colour.

Majjadhatu

Majja Dhatu is vital for *Snehana*, *Bala*, *Asthi Poorana*, and *Shukra Poshana*. Imbalance of *Majja Dhatu* can lead to symptoms like *Ruk*, *Bhrama*, *Moorcha*, and *Arumshi*.

Dhatus exist in two forms: *Asthayi Dhatu* and *Sthayi Dhatu*. When the stable *Dhatus* weaken due to *Dhatu Gatatva*, they create an environment conducive to the localization of aggravated *Vata Dosha*. Therapeutic strategies should focus on rejuvenating and strengthening the *Dhatus*, while alleviating the aggravated *Vata*.

Concept of Gatatva

The clinical manifestations of *Dhatu Gatatva*^[5] vary depending on the disease's complexity. These can range from a single disorder to a group of related or even contradictory

presentations. Generally, the clinical picture reflects the depletion or debility of the affected *Dhatu*.

Acharya Vagbhata describes how vitiated *Doshas* initially disturb the *Rasa* and other *Dhatu*s, as well as the *Malas*, ultimately leading to the vitiation of the *Srotas*. Through these vitiated *Srotas*, various diseases manifest. Thus, the term *Gatatva* signifies both movement and occupation, with the pathological displacement of *Vata Dosha* characterized by its abnormal mobility and inappropriate localization in tissues where it should not reside.

Asthi Dhatu and *Vata Dosha* share an *Ashraya-Ashrayee Sambandha*.^[6] where *Asthi* serves as the site and *Vata* resides within it. Consequently, any increase in *Vata* directly affects *Asthi Dhatu*. Similarly, *Majja Dhatu* is linked to *Kapha Dosha* through the same *Ashraya-Ashrayee Sambandha*, meaning any imbalance in *Kapha Dosha* impacts *Majja Dhatu*.

Ankylosing Spondylitis

Ankylosing Spondylitis (A.S.) usually develops in people who are genetically predisposed, though the exact trigger is not clearly known. Studies suggest that increased growth of the bacteria *Klebsiella aerogenes* in the intestine may play a role, as it is linked to worsening of joint and eye symptoms in A.S. patients.

Clinical features^[7]

This include both articular and extra articular features

Articular features

- Low back pain & marked stiffness
- Morning stiffness
- Restricted movement of lumbar spine in all direction
- Restricted chest movement
- Tenderness over bony prominences

Extra articular features

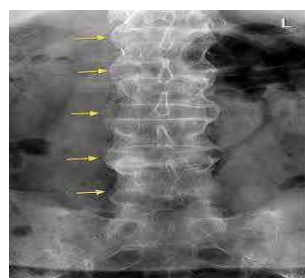
- Anterior uveitis (25% cases)
- Prostatitis (80%)
- Cardiovascular diseases
- Pulmonary fibrosis

- Amyloidosis

Investigations



Normal X-Ray- Lumbosacral Spine



Abnormal X-ray of LS Spine with AS



Normal CT image



AS CT image

- MRI: MRI is found to be useful for early detection of sacroiliitis
- Elevated C.R.P. and E.S.R. suggest inflammatory changes
- RF and other auto antibodies are usually negative
- HLA-B27: It is found to be positive in 80% of affected patients



Normal MRI LS spine

MRI LS spine with AS

Diagnostic criteria

The most widely accepted diagnostic criteria for Ankylosing Spondylitis is the Modified New York Criteria (1984). These criteria include both clinical and radiographic components.

1. Chronic low back pain lasting at least 3 months, which improves with exercise but is not relieved by rest.
2. Limitation of motion of the lumbar spine in both the sagittal (forward-backward) and frontal (side-to-side) planes.
3. Reduced chest expansion, relative to normal values for age and sex.

Radiographic criteria include following two conditions

1. Bilateral sacroilitis grade 2-4.
2. Unilateral sacroiliitis grade 3-4.

Definitive Diagnosis of Ankylosing Spondylitis

- Radiographic evidence of sacroilitis (either unilateral Grade 3–4 or bilateral Grade 2–4)
- At least one of the clinical criteria outlined in the Modified New York Criteria.

Ankylosing Spondylitis (AS): An Ayurvedic Perspective

Ankylosing spondylitis (AS) is a chronic, inflammatory autoimmune disorder predominantly affecting the axial skeleton, particularly the sacroiliac joints and spine. Clinically, it is characterized by persistent low back pain, progressive spinal stiffness and restricted range of motion. Patients frequently report associated symptoms such as buttock pain, hip discomfort, and postural abnormalities, especially kyphosis in advanced stages.

From an Ayurvedic standpoint, these manifestations closely resemble the *Lakshanas* described under *Asthi-Majjagata Vata*, Key features include:

Site of affliction: AS aligns with the localization of vitiated *Vata Dosha* in the *Asthi* and *Majja*, which are the very tissues involved in *Asthimajjagata Vata*. This explains the typical symptoms of stiffness, severe spinal pain, and restricted mobility seen in AS.

Dosha involvement: *Ruksha*, *Khara*, and *Chala* guna of *Vata* when aggravated in *Asthi* and *Majja* produce degenerative and inflammatory changes in the vertebrae and intervertebral discs. This leads to progressive fusion and loss of flexibility.

Pathogenesis: Chronic inflammation and fibrosis of spinal ligaments and joints can be seen as the result of *Vata*-induced deterioration and dysfunction of *Asthi* and *Majja* tissues, alongside possible involvement of aggravated *Pitta* and *Kapha* doshas contributing to inflammation and obstruction.

Symptoms common to Asthimajjagata Vata and AS.^[8]

- *Sandhishoola* (pain in the joints)
- *Asthibheda* (piercing or splitting pain in bones)
- *Parvabheda* (pain in the small joints, such as fingers)
- *Mamsa Kshaya* (muscle wasting or emaciation)
- *Bala Kshaya* (generalized weakness and loss of strength)
- *Aswapna* (disturbed or lack of sleep)
- *Satata Ruk* (chronic or continuous pain)

The kyphotic deformity observed in late-stage AS corresponds to *Vinamata*, a classical sign of *Majjavrita Vata*, where vitiated *Vata* is obstructed by *Majja*, leading to curvature and rigidity.

Radiographic findings in advanced AS often reveal ankylosis (fusion) of spinal facet joints. This pathological fusion may be interpreted in Ayurveda as *Adhyasthi* an abnormal bone overgrowth which is one of the defining features of *Asthi-Pradoshaja Vikara* (disorders caused by imbalanced bone tissue metabolism).

DISCUSSION

In the management of *Asthi Pradoshaja Vikaras*, particularly *Asthimajjagata Vata*, Panchakarma therapies are widely recommended. Ayurvedic treatment includes both *Bahya* and *Abhyantara Snehana* procedures.

Bahya Snehana, performed through *Abhyanga*, alleviates local stiffness and pain by soothing *Vata Dosha*. *Abhyantara Snehana* involves *Snehapana* and *Basti Karma*, which work systemically to pacify aggravated *Vata*.

Among the various types of *Basti*, *Matra Basti* is particularly beneficial for chronic *Vata* conditions, being one of the twenty-four types of *Abhyantara Snehana Pravacharana*. To enhance the efficacy of *Basti*, it is ideally administered following *Virechana Karma*, which helps cleanse the *Srotas*, eliminate metabolic waste, and facilitate the clearance of necrotic bone tissue.

The formulation used in *PanchatiktaKsheeraBasti*^[9] includes

- *Panchatikta* herbs – *Guduchi*, *Patola*, *Nimba*, *Vasa*, *Kantakari*
- *Ghrita* (ghee), *Ksheera* (milk)

- *Madhu* (honey), and *SaindhavaLavana* (rock salt)

These ingredients play distinct therapeutic roles

- *Panchatikta Dravyas*, rich in *Tikta Rasa*, stimulate the *Dhatvagni* at the levels of *Asthi Dhatu* and *Majja Dhatu*, promoting healthy bone regeneration.
- *Ghrita* and *Ksheera* are renowned for their nourishing and *Vata*-pacifying properties, which help in mitigating degenerative processes.
- *Madhu* and *Saindhava* enhance the absorption and distribution of *Basti* contents throughout the colon, optimizing therapeutic efficacy.

In his commentary, Dalhana asserts that *Purishadhara Kala* functions similarly to *Asthidhara Kala*, indicating a direct link between the large intestine and bone tissue. This relationship supports the notion that rectally administered medications, such as *Basti*, can influence and nourish *Asthi Dhatu*.

The administration of *Panchatikta Ksheera Basti*, following purification through *Virechana*, not only provides symptomatic relief in *Asthimajjagata Vata* (similar to conditions like Ankylosing Spondylitis) but also plays a critical role in halting further degeneration and promoting tissue regeneration at the level of bone and marrow.

CONCLUSION

Ankylosing Spondylitis (AS) is a long-term disease that mainly affects the spine and sacroiliac joints. It causes pain, stiffness, and difficulty in movement, and in severe cases the bones of the spine may fuse together, leading to a rigid posture. Modern medicine can help to manage the symptoms of AS with pain-relieving drugs such as NSAIDs, disease-modifying medicines like biologics, and regular physiotherapy. However, it does not offer a complete cure, and patients often struggle with reduced flexibility and long-term complications.

From the Ayurvedic perspective, Ankylosing Spondylitis can be understood as a condition called *Asthimajjagata Vata*. In this disorder, the imbalanced *Vata Dosha* affects the *Asthi Dhatu* and *Majja Dhatu*. This leads to continuous pain, stiffness, degeneration of bones, and weakness in muscles. Ayurveda explains that once the tissues are weakened by *Vata*, they become more prone to damage, which matches closely with the progressive nature of AS described in modern medicine.

This approach does not just focus on reducing pain but also aims to correct the imbalance at its source, nourish the weakened tissues, and prevent further progression of the disease. For this purpose, *Panchakarma* therapies such as *Snehana*, *Swedana*, *Virechana*, and especially *Basti* are used. Among these, *Panchatikta Ksheera Basti*, prepared with bitter herbs, milk, and ghee, has been found particularly effective. It works in two ways by detoxifying the body and by nourishing the bones and marrow, which helps in slowing degeneration and reducing stiffness. *Rasayana* are advised to strengthen the body and support long-term healing.

A key aspect of management is *Nidana Parivarjana*, which means avoiding the root causes that aggravate the disease, such as an improper diet, irregular lifestyle, lack of exercise, and excessive stress. Thus, along with therapies, patients are advised to follow a balanced lifestyle, eat nourishing foods, and maintain regular activity to keep *Vata* under control.

Although Ayurvedic management shows promising effects, more scientific research, clinical trials, and evidence-based studies are needed to confirm its benefits and ensure safety.

A combined approach that uses modern diagnostic tools and pharmacological treatments alongside preventive and restorative therapies may provide the best results. This integrative approach offers hope for patients by relieving pain, preserving spinal mobility, slowing down disease progression, and improving overall quality of life. While modern medicine helps with symptomatic control over the particular condition,

Ayurveda supports the body from within by restoring balance and strengthening tissues. Together, both systems of medicine can provide a more complete and sustainable way of managing Ankylosing Spondylitis.

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