

Potential Applications of Ayurveda in Ankylosing Spondylitis – A Review

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ABSTRACT

Ankylosing spondylitis (AS) is a disease involving long-term inflammation of the joints of the spine that causes vertebrae to fuse. Cause of AS is unknown. It is considered to be a combination of some genetic and environmental factors. The underlying mechanism is believed to be autoimmune or auto-inflammatory. There is no definitive cure for AS. Treatments may relieve symptomatically and prevent worsening. *Ayurved* believes that every individual has a unique pattern or fingerprint, each person has a particular pattern of energy which comprises their own constitution. Hence, every patient is different, *hetu sevani* is different in every patient, so the pathophysiology according to ayurveda also differs in different patients. *Ayurveda* encompasses various tools and techniques for assessing health and root of disease. They also consider the patient's suitability for various treatments. Considering all probable pathophysiologies of this condition as per *Ayurveda*, this article encompasses treatment modalities that can be incorporated for treating AS. Extensive literature review is done for selecting, localizing the described condition. Data are obtained by applying Ayurveda principles from various *Samhitas* with logical reasoning.

Keywords: Ankylosing spondylitis, Asthi-Majjagat vata, Marmaghat, Niram vata, Upstambhit vata, Vatvyadhi
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INTRODUCTION

Ankylosing spondylitis (AS) is a long-term inflammation of the joints of the spine. It causes vertebrae to fuse. Typically, the joints where the spine joins the pelvis are affected. Occasionally, other joints such as the shoulders or hips are involved. This fusing makes the spine less flexible and result in a hunched-forward posture. If ribs are affected, difficulty in deep breathing occurs. AS affects men more than women. Signs and symptoms typically begin in early adulthood. Back pain is a characteristic symptom of AS and it often comes and goes. Stiffness of the affected joints generally worsens over time. There is no definite cure for this condition and treatment is aimed at maintaining or improving the quality of life. This may include medication, exercise, physical therapy, and surgery in rare cases. Medications used include NSAIDs, steroids, DMARDs such as Sulfasalazine, and biologic agents such as TNF inhibitors. Recognition of a full blown case is not difficult. Early detection of case is important for better prognosis.^[1]

Role of Ayurveda is very important in diagnosis and treatment of such conditions because –

- a. Ayurveda main aim is – Preservation of health of a healthy and pacification of diseases in the patients.^[2]

Ayurveda places great emphasis on prevention and encourages the maintenance of health through close attention to balance in one's life, positive thinking, diet, lifestyle, and the use of herbs.

- b. The best physician is who knows the science of administration of drugs with due reference and reasoning to country and season and who uses it only after examining each and every patient individually.^[3]

Everyone has a unique fingerprint, each person has a particular pattern of energy – an individual combination of physical, mental, and emotional characteristics – which comprise their own constitution. Hence, every patient is different, causative factor (*hetu sevani*) is different in every patient, so the pathophysiology according to ayurveda will be different in different patients.

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c. Each and every disease cannot be labeled.^[4] Ayurveda encompasses various techniques for assessing health and root of disease

d. They also consider the patient's suitability for various treatments. Palliative and cleansing measures can be used to help eliminate an imbalance. Every disease cannot be exactly correlated with the diseases mentioned in our classics but using Ayurveda principles, we can treat this condition effectively.

There is no specific recipe of treatments for AS patients. All interventions planned come with appropriate reasoning and justification bases on assessment and examination. This article encompasses review of AS in ayurveda perspective.

BACKGROUND

Cause of AS is unknown. It is considered a combination of genetic and environmental factors.

The underlying mechanism is believed to be autoimmune or autoinflammatory.^[5] More than 85% of those affected have a

specific human leukocyte antigen that is HLA-B27 antigen.^[6] AS is a type of seronegative spondyloarthritis,^[7] which means that tests show no presence of rheumatoid factor antibodies. It is also within a broader category known as axial spondyloarthritis. Disease presents as Gradual appearance of symptoms with peak onset being between 20 and 30 years of age. Initial symptoms are usually a chronic dull pain in the lower back or gluteal region with stiffness of the lower back, pain, and stiffness that awaken them in the early morning hours. Main aim of treatment is –

1. To relieve pain and stiffness
2. To maintain a maximum range of skeletal mobility
3. Avoid deformity.

Education and appropriate physical activity are cornerstones of management.

- a. Early cases are treated with –
 1. Advice daily back extension exercises
 2. Routine morning “warm-up”
 3. Punctuate prolonged periods of inactivity
 4. Swimming is ideal exercise
 5. Avoid Poor bed and chair postures
- b. Physical therapy – This is a key element of the overall management of all patients. Hydrotherapy particularly beneficial.
- c. Drug therapy –
 1. Non-steroidal anti-inflammatory drugs
 2. Disease modifying anti-rheumatic drugs-Sulfasalazine, methotrexate, and azathioprine
 3. Corticosteroids – intra-articular or periarticular steroid injection
 4. Bisphosphonates – oral bisphosphonates are commonly used for fracture prevention in AS
 5. TNF-alpha antagonists

All these medications have limited role in treating AS and have their own complications.

6. Surgery
 - Indicated in –
 - Severe deformity (kyphosis)
 - Deformities of the hip and knee
 - Breathing and visual difficulties
 - Danger to the great vessels and the spinal cord along with the nerve trunks
 - Cosmetic reason.

AYURVED FOR AS

Considering all these aspects, ayurveda may be effective in treating AS without complications. Ayurveda first try to find out root cause and try to treat accordingly.

- a. First step toward assessment of this condition in ayurveda perspective is to decide whether it is Primary (*Swatantra*) or secondary disease (*Paratantra Vyadhi*).^[8] Importance of identifying this is that treatment varies accordingly. The disease manifests either as chief one or associated with another disease are known as Primary (*Swatantra*) or secondary (*paratantra*), respectively. Diseases that have their own reasons of vitiation, that is, primary diseases (*Swatantra Doshaprakopaj Vyadhi*) have following features.^[9]
 1. It has its own causes of vitiation (*hetu*), that is, independent
 2. Specific line of treatment is available. Symptoms relieved

with the treatment of that particular *Dosha*

3. Specific well-defined signs and symptoms (*Spasht Lakshan*) – symptoms are predominantly according to vitiated *Dosh* according to its cause of vitiation (*hetu sevana*). Secondary disease (*Paratantra Doshaprakopaj Vyadhi*) has *vice versa* features.
 - b. Second step is identification of *Dosh* involved and cause (*Hetu*) which is responsible for this condition, that is, *Vata-Vata* gets aggravated from consuming foods which are bitter, salt and astringent taste, of less quality, dry, prolonged fasting, suppression, and premature initiation of urges such as flatus, stools or urine, keeping awake at nights, speaking in high pitch for long time, effect of some therapies like emesis in excess, fear, grief, worry, excess physical activities intercourse, summer, terminal part of day, and night.^[10] As we can see involvement of *Vaat dosh* predominantly that to *Vyan* involvement will be more because function of *Vyan* is – *Vyana vayu* pervades the whole body. It is responsible for all activities such as gait, flexion, extension, and twinkling^[11] and these activities are affected in this particular condition. Hence, we need to find out causes of *vyan vayu* vitiation, which may include any of below depletion of tissue elements, worry, grief, debilitating diseases, usage of uncomfortable beds or seats, anger, day sleep or even with fright, suppression of natural urges, indigestion, trauma, abstaining from food, and injury to vital areas, that is, *Marmaghat*, falling from swift moving elephant, camel, or horse. Aggravated *vata* occupies the vacuous channels in the body and leads to various generalized or localized disorders.^[12]
 - c. Third step in any disease pathology is identification of Affected body tissues (*Dushya*) involved – *Dushya* involved in AS will be osseous tissue and bone marrow as the signs and symptoms mentioned in following table shows involvement of these tissue elements (*dushyas*) –
 - d. Very important step in disease pathology according to ayurveda is – Any disease occurs due to amalgamation of vitiated *dosha* and weak, susceptible body tissue. The very same vitiated *Doshas* depending upon the nature of the causative factors, travel to many parts of body, and produce many diseases^[4]
 - e. Initial obscure manifestation of the diseases is considered to be prodromal symptoms. When the major feature is clearly manifested, it is called as symptom, while the alleviated features are indicative of cure^[13] After the vitiated *Dosha* occupies vacuous channels, we can see prodromal symptoms of the disease
- In general, patient seeks medical advice in *Vyaktavastha*, that is, when symptoms are evident. However, if we educate our patients that if you are exposed to any of above causes frequently, seek medical advice so that frequent exposure to cause will not end up in a fully blown disease. Considering all the above aspects if we can put pathology of this condition as –
- *Dosha – Vata*
 - *Dushya – Bone and bone marrow (Asthi, Majja)*
 - *Udbhav – Pakvashay*
 - *Sthan sanshray – Bones and joints (Asthisandhi)*
 - *Vyakti – lumbosacral region (Kati, Prushta)*
 - Origin is said to be Excretory (*Pakvashay*), because as diseases are of two types.^[14]

- (*Aamashayodbhav*) Digestive Origin – All the diseases that originate from Digestive origin are considered to be *Kaph Pittaj*
 - (*Pakvashayodbhav*) Excretory Origin – All the diseases that originate from excretory origin are considered to be all *Vataj*.
- f. Probable Pathophysiology According To Ayurved –
1. Obstruction to its path (*Upasthambhit* or *Margavarodhjanya*)^[15] – If patient is having following symptoms –
 - Pain, swelling, feeling of pricks, pain aggravates on oleation sometimes on sunrise, night, or in cloudy atmosphere then obstructive pathology should be considered.
 2. Diminution of tissue elements (*Nirupastambhit* or *Dhatukshayanya*) – If patient is having following symptoms –
 - Less stiffness (*Nirvibandho*)
 - Less pain (*Alp vedana*) then it can be considered as the pathology is due to diminution of tissue elements.
 3. Vessels and tendons (*Sira kandara*) involvement should be identified with following clinical features^[16]
 - The vitiated *Vata* causes cutting pain where by making them deformed, produces limping or incapacitated while moving all over the body. AS can be closely correlated with *Vata* affecting osseous tissue and bone marrow (*Asthi majjagat vata*) as the symptoms described in classics are – the patient feels soothing on local sudation and pressing, splitting pain, feeling of niddles and pricks, bending deformity of the body, stretching and stiffening of the trunk, and twisting and colicky pain. The patient gets relief gentle massage
 4. The overall presentation of disease is low back pain, Cervical or lumbar stiffness, flexion deformity, Stiffness. Kiphosos or scoliosis, Bone epiphysis involvement, vareity of pain [Table 1].
 5. Next probable pathology that can be postulated is Injury to vital parts (*Marmaghataj*) because as *marmaghata* is one of the causes for provocation of *vyan vayu* which is considered as the main culprit
 6. Next possible pathology is gastrointestinal origin (*Grahani Dushti*).
AS can be seen in association with disease conditions like crohn's disease and other autoimmune diseases. As Digestive pathology (*grahani dushti*) can be correlated with crohn's disease and is described as *Pittadhara kala is majjadhara kala*^[17] and *pittadhara kala* is nothing but *grahani* so *grahani dushti* may cause *dushti* of *Majja* and may lead to this condition.
 - g. Now after, thorough assessment of pathology treatment plan will vary according to *Samprapti*.
- Outline of management of AS according to underlying pathology –
- a. If the pathology is found to be obstructive (*margavarodhjanya vata*) –
 - Improving *digestive fire*
 - Sudation
 - Treatment of *Niram vata*
 - Forcing *vata* in its right direction
 - Symptomatic management includes – Therapeutic heat burn (*Agnikarma*) and needle prick to let out entrapped abnormal *vata* (*vidhakarma*).
 - b. If the pathology found to be due to diminution of tissue elements (*Dhatukshaya*) –
 - Nourishing treatment, externo-internal oleation,

Table 1: Signs and symptoms correlation

<i>Low back pain</i>	<i>Katishool</i>
Cervical or lumbar stiffness	Paniprushtth shirograha
Flexion deformity	Sankoch
Stiffness	Parvanam Stambh
Kyphosis, Scoliosis	Khanj Pangulya Kubjatva
Bone epiphysis involvement	Bhedo Asthi Parvanam
Stiffness	Stambh
Variety of pain	Bheda, Toda, Arti Shosho Anganam

Table 2: Do's and don'ts in diet

	<i>Good to have diet</i>	<i>Avoid diet</i>
Taste	Sweet, Salty, sour	Pungent, bitter, Astringent
Potency	Cool	Hot
Characteristics	heavy, unctous	Dry, cool, light
Cereals	Shali, Shasti, Yava	New cerelas
Legumes and pulses	Green gram	Bengal gram, beans
Vegetables	Gourd, Garlic	Leafy vegetables
Milk and milk products	Grita	-
Fruits	Pomogranate, grapes, rippen mango	Jamun
	Timely food intake	Irregular food timing

Table 3: Do's and don'ts in behaviour

<i>Good to do</i>	<i>Avoid</i>
Massage	travelling
Massage with pressure	Holding of natural urges
Head massage	Laborious work, awake at night, day sleep
Foot massage, mild exercise	intercourse, worry

Sudation – *Nadi swedana*, in which steam is passed through a tube, *Prastar* – lying on medicinal mattress, *Sankar* – bolus fomentation, and *Shali shashtik pinda sweda*^[18] Importance of externo-internal oleation in AS is – Tingling numbness, pricking pain, aches, convulsions, swelling, stiffness, and spasticity and other similar conditions can be quickly cured and the flexibility of the part can be restored by means of sudation. That means, these procedure increases flexibility of spine that is affected in AS. Medicated enema (*Basti*) – *Karma basti*, *Kal basti*, *Yog basti*, *Yapana basti*, and *Tikt ksheer basti*. Administering medication through nasal rout (*Nasya*) – can be tried, where the cervical spine is affected and became stiff, foot massage (*padabhyanga*),^[19] and forcing *vata* in its right direction (*Anulomana*).

- c. If there is more flexion deformity due to involvement of tendons and vessels which are secondary part (*Upadhatu*) of Blood (*Rakta*). Some principals of *Vatarakta* management can be followed-Purgation and blood purification.^[20]
- d. *Vata occupying osseous tissues and bone marrow (Asthi majjagata vata)* can be treated considering similar to diminution of tissue elements.
- e. *Sudation* – *Shali shashtik pinda sweda Yapana Basti* – a form of medicated enema which supports healthy life and longevity
Anuvasana – where oils and fats are used in enema
Nasya – Administering medication through nasal rout. As origin is *Pakvashaya* – Purgation can be effective.
- f. *Pathology due to injury to vital parts(Marmaghataj)* –

- Medicated enemas
 - Blood purification.
- g. Finally the very important part, do's and don'ts in diet and behavior has also its own role in the management of AS [Tables 2 nad 3].
- h. YOGA CHIKITSA is the last but not the least and considered as a key management of AS.
- The National AS Society of Britain recommends *yoga* to help relieve AS pain.
 - *Yoga* improves – range-of-motion and flexibility.
 - Deep breathing promotes ribcage expansion to improve breathing.
 - However, consistency is the necessary
 - There are varieties of *Aсанas* that can be followed-
 - *Vishramasan* (Back Relaxation)
 - *Urdhva Hastasana*
 - *Utthita Parsvakonasana*
 - *Bharadvajasana*
 - *Utthita Marichyasana*
 - *Utthita Hasta Padangusthasana* etc.
 - Posture modification –
 - Use a rolled towel behind lower back to reduce the pain by the Spondylitis
 - Increase the time of physical activities
 - Do not lay stress on lower back while sitting.

CONCLUSION

The physician who can identify the decrease, increase, normality, and obstruction of *vata* and other *dosha* do not makes any error with regard to treatment.^[21] If a physician is aware of all *Dosha kshaya, vridhi, samata*, and *Aavaran*, he cannot make any mistake in diagnosis and management of any disease. There is no specific recipe of treatments for AS patients. This means pathophysiology that may vary according to *hetu sevan*, so treatment will vary according to the underlying pathology which is described in this particular article with logical reasoning. All interventions planned, which comes with appropriate reasoning and justification bases on assessment and examination.

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