Ankylosing Spondylitis a Conceptual Review - Ayurveda Perspective

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ABSTRACT

Ankylosing spondylitis is an inflammatory disease affecting the lower back of the body starting with sacroiliitis. In later stage affect the whole spine by fusing the vertebrae. Seen in early adulthood which affects most of life. In Ayurveda, management of this type of musculoskeletal disorder comes under Vatavyadhis. Therefore different treatment modalities are applied to manage pain and other symptoms seen in AS. In this study focus was given to interpret the concept of Ama with Vata Dosha as correlating the inflammatory signs seen in AS and other symptoms of Ama associated with Vata. Treatment principle of this basis helped to provide significant relief in patient suffering with Ankylosing spondylitis.

Key word: Ankylosing spondylitis, Ayurveda, vatavyadhi

INTRODUCTION

Ankylosing spondylitis is a chronic immunomediated inflammatory arthritis included in the so called group of Spondyloarthrosis (SpA). It typically develops in males in their third decade of life and affect mainly the axial skeleton and the sacroiliac joints. Although the oldest description dates from the time of Galen, it was not until the 19th century that the disease could be accurately diagnosed on the basis of reports by Vladimir Bekhterev, Adolph Strumpell, and Pierre Marie. The HLA-B27 allele is known to have a strong association with the disease.¹ Prevalence of spondyloarthropathy in India seen by Indian data on the epidemiology of spondyloarthropathy (SpA) are scare. Prevalence data from the first Indian community oriented programme for control of rheumatic disease (COPCORD) survey showed the rural prevalence of back pain to be 17.3%. Among of that AS is likely to be about 0.2%. The prevalence of AS in a population is directly related to the frequency of HLA-B27 antigen. The frequency of HLA-B27 in the north Indian population is 6%, similar to that in Caucasians is 0-1%.² Chronic back pain and progressive spinal stiffness are the most common features of the disease. Impaired spinal mobility postural abnormalities, hip and buttck pain, enthesis and dactylitis are associate with AS. Extraskeletal manifestation like IBS (50%), acute anterior uveitis (25-35%) and psoriasis (10%)³. There is increase in flow of patients in Indian systems of medicine due to poor response of treatment and associated side effect in contemporary medical science. In Ayurveda there is description regarding the management of such disorders based on the stages of expression under the concept of Vatavyadhi. There are 80 types of independent Vatavyadhis⁴ are mentioned and Avarana of Vata with other doshas are also mentioned as another. Compared with main clinical findings in patients of AS are
pain (Shola), stiffness (Stambha) and heaviness (Gouraba) in Ayurveda both the symptoms are found in Vata and Kapha Dosha. But the inflammatory signs like enthesitis, dactylitis can be due to Pitta. Derangement of all Doshas are found in AS. Hypothesis was made after reviewing various published articles and research studies are on ankylosing spondylitis, few disease conditions like Amavata, Katishoola, Ashtimajjagata Vata, Katitrikaprishtahgraha etc. can be also compared with Ankylosing spondylitis as per the stages which were described in different Ayurveda texts. Rationality behind this article are by gone through various texts and after comparing the patient condition, Vata Doshas are main Dosha with involvement of Ama.

**Aim and objectives:**

1) To explore various disease condition based on concepts and principles which can be correlate to Ankylosing spondylitis.

2) To understand the pathogenesis of Ama associated category of Vatavyadhis and its possible Ayurvedic management.

**MATERIALS AND METHODS**

The article is based on a review of Ayurvedic texts. Literature related to Vatavyadhis, Amavata, Ankylosing spondylitis and other relevant topics have been collected. The main Ayurvedic texts used in this study are Charak Samhita, Sushruta Samhita, Astanga Samgraha, Astanga Hrudaya, Madhava Nidana, Sarangadhara Samhita and available commentaries on these. We have also referred to the modern texts and searched various websites to collect information on the relevant topics.

**Conceptual:**

**Pathophysiology of AS:**

Ankylosing spondylitis is a chronic, immune-mediated inflammatory disease that is associated with inflammation in the sacroiliac joints, the axial skeleton, enthesis, peripheral joints, uvea and other structures.

AS is characterized by chronic inflammation and progressive ankylosis. Commonly accepted that inflammation is driving force for structural damage in AS. Long term inflammation of the joint of the spine. The underlying mechanism is
believed to be autoimmune or autoinflammatory.\(^7\)

Autoimmune disease occurs when the body is working hard to defend against potentially hazardous substances to our body such as allergens, toxins, infections or food, but does not see the difference between the invaders and our own body cells.

**Ayurveda view:**

Concepts of autoimmune disease are mostly correlate with *Ama* dominant disease in Ayurveda. *Ama* is the undigested food residue due to improper digestion. And these particles are moved with blood, lymph and got vitiated after involving different *Doshas* resulting various abnormalities anywhere in the body. Mainly rheumatoid arthritis is considered as *Amavata*, there are also various inflammatory joint conditions where will also considered as involvement of *Ama*. Disorder like Sjogren’s syndrome, Reiter’s arthritis, ankylosing spondylitis also can be considered as involvement of *Ama* with *Doshas* as per conditions.

### Pathogenesis of *Ama*\(^8\):

Starting from *Mandagni*, Ayurveda quoted as “*Rogah sarvepi mandagnou*”\(^9\), all disease are starting with involvement of improper digestive fire. By various unsuitable diet habits with improper lifestyle leads to as *Mandagni*. It results in formation of proper digestive material and goes circulating in the body. These substances are called as *Ama* in Ayurveda. During circulation when got suitable place to lodge it affect that part and resulting into disease. Such diseases called as *Samarogas*.

### Correlation of diet, digestion, inflammation and *Ama*:

*Mandagni* leads to *Samarogas* and inflammatory substances leads to bony ankylosis. The correlation of *Ama* with inflammation and the pathogenesis of Ankylosing spondylitis helps to treat AS through Ayurveda. Many human studies have found high level of systemic markers of inflammation (like C-reactive proteins, intraleukin-6 and Tissue necrotic factors) in individuals with low fiber, high fat diet\(^10\). Metabolic syndrome involves biochemical abbreviations in signalling pathways which regulate lipid metabolism and chronic inflammations\(^11\).

The Ayurvedic concepts of *Ama* are similar to the Egyptian concepts of *Ukedu*, and the old theory of intestinal auto intoxication propounded by Metchnikoff\(^12\). Thus, he believed that proteolytic gut bacteria can produce toxic *by-products*, from digestion of dietary proteins. These toxic by-products of digestion accumulated with age and caused disease\(^13\). Therefore the theory of *Ama*, its production and developing any inflammatory or immune disorder by disturbing normal body physiology. This gives a ways to understand the Ankylosing spondylitis pathways according to Ayurveda by involvement of *Ama* with the dominant *Doshas*. 
Lakshana of Ama yukta vata and its correlation:

Different Ayurveda treatise mention various symptoms with involvement of Ama and Vata as mentioned below:

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Ama vata symptoms</th>
<th>Ankylosing spondylitis symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bibandha</td>
<td>Pain of the body parts</td>
</tr>
<tr>
<td>2</td>
<td>Angamardha</td>
<td>Joint pain</td>
</tr>
<tr>
<td>3</td>
<td>Gatrastabdha</td>
<td>Body stiffness</td>
</tr>
<tr>
<td>4</td>
<td>Dosravaya</td>
<td>Weakness</td>
</tr>
<tr>
<td>5</td>
<td>Gaurava</td>
<td>Heaviness</td>
</tr>
<tr>
<td>6</td>
<td>Alaya</td>
<td>Lethargy</td>
</tr>
<tr>
<td>7</td>
<td>Nishada</td>
<td>Disturbed sleep due to pain</td>
</tr>
<tr>
<td>8</td>
<td>Utsaha hani</td>
<td>Lack of vigour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Sama vata lakshana</th>
<th>Sama Lakshana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Srotododha</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Balabhirumsa</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gourava</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Anilamadhatwa</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Alasya</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Apakhi</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Nisthiva</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Malasanga</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Aruchi</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Kiama</td>
<td></td>
</tr>
</tbody>
</table>

Here in AS, chief complains are pain, stiffness with other associated symptoms which affects normal life style. This disease mainly affect to Asthi and Sandhi, so the symptoms as described by Madhava nidana for Amavata can be correlated to AS.

These are the main symptoms which found in cases of Ankylosing spondylitis. And associated symptoms which could be seen as early stage or intermittently these are Jwara (febrile feeling), Aruchi (anorexia), Trishna (thirst), Anaha (flatulence), Apaka (indigestion), Bibandha (constipation). These are the symptoms which could be compared with both Amavata as well ankylosing spondylitis.

In contemporary science they also have various criteria for diagnosis of ankylosing spondylitis, one among them is ASAS\textsuperscript{15} (Assessment of spondyloarthritis international society) criteria for Ankylosing spondylitis is mentioned as:

- Back pain for 3months or longer
- Age at onset < 45years
- Sacroiliitis on imaging (radiographs or MRI) plus one or more spondyloarthritis features.
- HLA-B27 plus two or more other spondyloarthritis features.

Where the spondyloarthritis features are inflammatory back pain, arthritis, enthesitis, uveitis, dactylitis, psoriasis, Chron’s disease, good response to NSAIDs, family history of SpA, elevated ESR.

Samprapti vighatanas:

According to the chief complain and condition the patients the aetiopathogenesis of this disease can be correlate as

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Dosa</th>
<th>Vatakapha</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Dasha</td>
<td>Rasa, Asthi, Sandhi, Mamsa</td>
</tr>
<tr>
<td>3</td>
<td>Vaga</td>
<td>Visha, Rama, Mandagni</td>
</tr>
<tr>
<td>4</td>
<td>Srotas</td>
<td>Asthivaha, Rasaaha</td>
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<tr>
<td>5</td>
<td>Srotodasi</td>
<td>Sanga</td>
</tr>
<tr>
<td>6</td>
<td>Vyadhimarga</td>
<td>Balihya, Madhyama</td>
</tr>
<tr>
<td>7</td>
<td>Upati shana</td>
<td>Pavishaya</td>
</tr>
<tr>
<td>8</td>
<td>Sanchhara shana</td>
<td>Prithi, Kati</td>
</tr>
<tr>
<td>9</td>
<td>Upashava</td>
<td>Ushma, sweda</td>
</tr>
<tr>
<td>10</td>
<td>Vyadhiswabhava</td>
<td>Chirakari</td>
</tr>
</tbody>
</table>

Pain is prime features of Vata with Stambha and Gourava due to Kapha so as per main feature of AS, doshik involvement will be Vata and Kapha here. Both are also source of Ama. These vitiated Doshas along with Ama are then affect the Katitrika pradesha (sacroiliac joint) and Asthi dhatu are main contents to affects. The Ama with Vata dosha goes to Asthidhatu so the symptoms of Asthimajjagata vata are seen as Sandhishoola (joint pain), Mamsakshyaya (weight loss, lethargy), Satataruk (continuous pain), etc. in later stage it also affects whole spine so spinal pain and stiffness seen in lumbar, cervical and also difficulties in chest expansion. Mostly patient were came after several year and after onset of pain so in later stage development of Bamboo spine seen as diffusion of vertebrae seen in radiological imaging.

Treatment plan:

Treatment includes medication, physiotherapy, and in rare cases, surgery. In contemporary, main goal to relieve pain and...
stiffness and delay complications and spinal deformity. NSAIDs, TNF blocker etc are use. Physical therapy like exercise can be useful in AS. Surgery is mostly advised in cases of severe joint deformity occurred. In Ayurveda treatment based on Dosha, Dushya, Agni, Bala etc like 10 factors described by Acharya Vagbhata\textsuperscript{16}. Here in cases of AS, Ayurveda treatment based on Vatakapha Shamaka which could be also beneficial in Asthidhatu Gata Vyadhis.

In Amajanya Vyadhis different Achryas described the following line of treatment like Deepana/Pachana, snehapana, Sodhana, in proper Sodhana kala. In Chakradatta the line of treatment was described as:

1) **Deepana/Pachana**: first line to treat the Agni (digestive power) as main pathogenesis start after depletion of Agni. So Deepana and Pachana drugs will suitable which have Tikta (bitter) and Katu rasa (taste). It will improve the digestion and will reduce the formation of Ama (toxins).

2) **Snehapana**: before going to Sodhana therapy there are various poorvakarma procedure to perform, one among the Snehapana where medicated Sneha (Ghee/oil) given by oral route as per Agni vala after assessment of Ama. The medicated ghee/oil will reduce the Vayu, it loosen the channel of body and improve the digestive power with loosen any constipation or any waste accumulations\textsuperscript{17}.

3) **Virechana**: Procedure to induce laxation. It removes the metabolic waste and will works on Pitta dosha. Pitta dosha shows the inflammatory signs in body like burning sensation, redness etc. in case of AS virechana will have good effects by elimination of wastes etc\textsuperscript{18}.

4) **Basti**: Vata dosha as prime involvement of AS and pain as main symptom, Basti will have good effect on alleviate both Vata and resulting pain alleviation\textsuperscript{19}. In condition of Ama where chronic cases of Ankylosing spondylitis, Basti like Kshara Basti to relief from Ama will helpful. Asthi dhatu and Vata dosha are both inversely proportional in Ayurveda as described by Ashrayaashrayi Bhava\textsuperscript{20}. So to treatment of Asthidhtugata Vyadhis, Basti should have made up of Tikta Rasa Yukta and will prepared from milk\textsuperscript{21}. It will also help in Dhatukshaya Avastha where after a long term illness patient got weight loss. So as Ksheerabasti also may be helpful in these conditions.

5) Other therapies: therapies like local Basti by putting oil in tendered area for relief in pain will helpful. For Rookshana therapies like Vaaluka swedana, Choorna pinda swedana\textsuperscript{22} to remove stiffness from the body.

**DISCUSSION**

One type of inflammatory disease that, overtime can cause some of the small bones in spine to fuse. The fusing makes the spine less flexible can result in a hunched forward posture. It can be also affect ribs and cervical vertebrea resulting difficulties in chest expansion and reducing of neck movement also. Underlying mechanism of AS is autoimmune and it considered as a type of seronegative spondyloarthropathy, meaning that tests show no presence of rheumatoid factor antibodies\textsuperscript{23}. The available treatment can lessen the symptoms and possible slow progression of the disease. Various Ayurveda treatment protocols should gave the same result as to reducing the symptoms, improves the quality of life in patients of Ankylosing spondylitis and may stop further progression of disease. In early stages of AS there is chronic dull pain in the lower back or gluteal region combined with stiffness of the lower back\textsuperscript{24}. This condition can be treated with as Katishoola or Katigrham with special Vata alleviating medication. In later stage, loss of spinal mobility and chest expansion with reduced lumbar movement are seen. Comparing to this condition management to Katiprishtagrah with special Basti by giving Rookshana with local Basti to reduce pain and stiffness along with different Basti.
like Erandamooladi nirooha basti can be applied. Systemic involvement like fever, weight loss, fatigue etc. with extra articular manifestation of disease have to examine properly like Bala, Agni etc and plan to go for a proper Sodhana with treatment to alleviate Vatakapha and improves Asthidhatus as involvement of Ama and Srotorodha Lakshana are seen. Ayurveda describe 80Vatavyadhis along with its Avarana. So special description of Ama and its disease can be correlate various pathologies of disease burden shown in this era. Most of the condition now develops as autoimmune or any immune mediated pathologies which affects multiple systems in human body. As there description of Amavata and its variety as per patient condition will shows a path to manage condition like Ankylosing spondylosis.

CONCLUSION

As per the sign and symptoms shown in AS the disease could be correlate with Ama associated Vata Vyadhis where multi system wise symptoms were occurred. Mainly Shoola with Stambha are seen which indicates involvement of Vata and Kapha. Pathogenesis of this condition shown, disease occurred in Katitrika after vitiation of all Doshas with inflammation indicative of involvement of Pitta. So treatment according disease condition with Deepana pachana, Virechana followed with Basti karma and external treatment like Ruksha svedana and Kati Prishta Basti etc have shown improvement in terms of relief in pain, stiffness and increase in range of movement.

REFERENCE


