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AYURVEDIC MANAGEMENT OF ANKYLOSING SPONDYLITIS – A CASE STUDY

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ABSTRACT

Ankylosing spondylitis (AS) belongs to a group of rheumatic diseases known as the spondyloarthropathies (SpA), which shows a strong association with the genetic marker HLA-B27. There is insidious, progressive involvement of spinal joints especially the sacroiliac joint. Inflammatory back pain and stiffness are prominent in the early stage of disease, whereas in chronic aggressive state, may produce severe pain and marked axial immobility or deformity. Selected *Panchakarma* procedures and *Ayurvedic* drugs have been proved valuable in these manifestations. Ayurvedic approach is directed towards alleviating the symptoms and also to reduce the disability. A 45 year old lady presented with AS, which was treated for 45 days with a combination of *Panchakarma* procedures and selected *Ayurvedic* drugs. The condition was diagnosed as *Asthimajjagata Vata* and was treated with *Rookshana* followed by *Snehapana, Abhyanga*, *Ushmasweda* and *Virechana. Ksheeravasti* with *Pancatiktaka ksheera* and *Indukantaghrta* were done followed by *samana* drugs. Patient's condition was assessed before and after treatment with disease-specific instruments for AS – Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Global Score (BAS-G), Bath Ankylosing Spondylitis Metrology Index (BASMI), Dougados Functional Index (DFI). Here a case report of AS is presented in which there was considerable improvement following the therapy.

Keywords: Ankylosing spondilitis, *asthimajjagataVata*, *pancakarma*, BASDAI, BASFI

INTRODUCTION

Ankylosing spondylitis (AS) is a chronic inflammation of the spine that primarily involves the sacroiliac joints and the axial skeleton. The disease more often manifests in young males than in females with the ratio of approximately 3:1[1]. In women, joints away from the spine are more frequently affected, than in men. Ankylosing spondylitis affects all the age groups, including children. When it affects the children, it is referred to as the juvenile Ankylosing spondylitis. The most common age of onset of symptoms is in the second and third decades of life. The prevalence of AS is generally believed to be between 0.1% and 1.4% globally while in India, around 0.25% population is estimated to be affected.[2]

Inflammation of the spine primarily causes pain and stiffness in and around the spine, including neck, middle back, lower back as well as the buttock. In the due course of time, chronic inflammation of the spine (spondylitis) can lead to a complete fusion of the vertebrae, a process referred as ankylosis, which leads to marked axial immobility and deformities like Kyphosis of the thoracic spine. There is also involvement of the peripheral joints and articular structures. Musculoskeletal pain, stiffness as well as immobility of spine due to AS, is the major burden.

Ankylosing spondylitis shares several features with many other arthritis conditions such as psoriatic arthritis, reactive arthritis (formerly Reiter's disease), and arthritis associated with Crohn's disease and Ulcerative colitis. In view of their similarities and tendency to cause inflammation of the spine, these medical conditions are collectively referred to as the term "spondyloarthropathies."

AS commences as peripheral arthritis in 47%, low back pain in 41%, acute anterior uveitis in 10%, and heel pain in 2% of the affected.[3] The cause of AS is multifactorial, as in many of the autoimmune diseases, based on endogenous factors, such as the very strong genetic influences of *Human Leukocyte Antigen (*HLA-B27) located at chromosome 6 and exogenous factors, such as bacterial infections especially gastrointestinal (with Salmonella, Shigella, Yersinia or Campylobacter) or urogenital (with Chlamydia trachomatis)[4].

In AS, the entheseal fibro cartilage is the major target of the immune system, and there may be destructive synovitis. The myxoid subchondral bone marrow is mainly affected. There is the destruction of nearby articular tissues or joint tissues as the disease progresses. The new and original cartilages are replaced by bony tissue through fusion. This causes the fusion of the joints, bones that causes stiffness and immobility. This fusion leads to bamboo spine formation, a hallmark of AS[5].

Unavailability of treatment not up to the mark in bio-medicine leads to permanent deformity in this disease. It is a need of the hour to explore satisfactory treatment modalities available in other medical system for the benefit of those affected. Regimented Ayurvedic intervention in the early stages of the illness reported to be highly beneficial, in managing the symptoms as well as preventing further progression.

Ayurveda interprets these changes as due to altered *Vata dosha* resulting from the pathological factors that affects mainly

the *Asthi* as well as the *majja dhatu*. Selected *panchakarma* procedures are mentioned for the management in such conditions by the *Ayurvedic* scholars. Here a case is narrated that was successfully managed with the protocol for *Asthimajjagata Vata.*

Table 1: Modified New York criteria for diagnosis of AS[6]*

Clinical criteria (Western perspective)
Low back pain of at least 3 months duration that is improved by exercise and not relieved by rest.
Limitation of lumbar spine in sagittal and frontal planes
Chest expansion decreased relative to normal values for age and sex
Radiographic criterion
Unilateral grade 3 or 4 sacroilitis or bilateral grade 2 sacroiliitis on plain radiograph

* A patient is classified as having definite Ankylosing spondylitis if the radiographic criterion is present and at least 1 clinical criterion is present

Table 2: Amor criteria for diagnosis of spondyloarthritis*

Criteria	**Score**
Lumbar or dorsal pain during the night, or morning stiffness of the lumbar or dorsal spine	1
Asymmetrical oligoarthritis	2
Buttock pain	1
Alternating Buttock pain	2
Sausage-like toe or digit	2
Heel pain	2
Iritis	2
Non gonococcal urethritis or cervicitis accompanying or occurring within 1 month before the onset of arthritis	1
Acute diarrhea accompanying or occurring within 1month before the onset of arthritis	1
Presence or history of psoriasis, balanitis, or inflammatory bowel disease	2
Radiologic sacroiliitis (at least grade 2 bilateral or grade 3 unilateral)	3
Presence of HLA–B27 or familial history of Ankylosing spondylitis, Reiter's syndrome, uveitis, psoriasis, or inflammatory bowel disease	2
Clear-cut improvement of rheumatic symptoms _48hours after receiving NSAIDs or relapse of pain 48hours after NSAIDs are discontinued	2

* A patient is considered to have spondylarthritis if the sum of the scores for criteria is at least 6.

Table 3: Ayurvedic Criteria

Subjective parameters	**Objective parameters**
Bheda (pricking pain) in *katee* and *greeva asthi*	X ray –changes
Bheda (pricking pain) *in katee* and *greeva sandhi*	Degenerative changes
Kukundara sandhi soola (pain)	Presence of osteophytes
Malabadhata	Ossifications
Mamsakshaya	
Satata (continous) ruja	

Balakshaya	

CLINICAL PRESENTATION

A 48 yr old Indian Hindu married female from Malappuram, attended our OPD with the complaints of insidious onset of neck pain along with stiffness and restricted mobility of the neck, since last 9 yrs. Pain worsens at night and also early morning, but decreases about 2 hr after awakening. Gradually the pain developed on the lumbar region and she felt difficulty in lying in the supine, standing as well as the squatting positions. She consulted an allopathic physician, got temporary relief with the NSAID's as well as the steroid therapy. Then she switched over to homeopathic medicine and continued for almost 2yrs. But the pain persisted and the condition worsened with the development of difficulty in breathing, sneezing and coughing. Then she commenced the Ayurvedic medicines at OP level but with no considerable relief. 1yr back she was admitted in this hospital for IP treatment, after that she got marked relief in the pain and her quality of life was also improved. For the time being, she again developed pain in the low back region and neck region for which got admitted.

CLINICAL FINDINGS

The patient had several episodes of low back pain which worsens at night, followed by spinal stiffness in the morning. Neck movements were restricted, movement range up to 30^0. Medical history of the patient was remarkable for thyroid dysfunction, since last 12yrs. On examination, the patient was found to be anxious, with disturbed sleep, had a moderate appetite, *madhyama Samhanana* (medium body built), *Sama Pramana* (normal body proportion), *sarva rasa satmya, avara in rogibala, madhyama in Satva* (mental strength), *vyayamshakti as avara* (least capability to carry on physical activities), *abhyavaharana shakti* and *Jaranashakti* (medium food intake and digestive power) as *madhyama*.

Table 4: Assessment of Ayurvedic Parameters

Dosa	*Vata (++), Kapha (+)*
Doosya	*Asthi, Majja and Sandhi*
Agni	*Visamagni*
Koshta	*Madhyama*
Prakrthi	*Vata pitta*

On examination, the srotas involved was mainly the *Asthivaha Srotas* and *Majjavaha srotas*. The examination also revealed straightening or absent Lordosis of cervical spine and also Kyphoscoliosis of the thoracic spine. There was a loss of lateral flexion of the lumbar spine but the forward flexion was possible and tenderness of grade 3 was elicited, over the sacroiliac joint.

Examination of spine showed restricted cervical mobility - distance between Occiput and wall - 6cm, Chest expansion in both inspiration and expiration was 90cm, and Schober's test was positive as well. X-ray of

vertebral column revealed straightening of the spine, listhesis of L5 over S1vertebrae, fusion of the inter vertebral disc between L2-L3 & L5-S1,and other associated areas were also ossified which produced a characteristic bamboo spine appearance. Scoliosis of the dorsal spine with convexity towards right side was also observed. Baseline hematological investigations were done, which revealed Haemoglobin: 10.6 gm%; Uricacid: 6.37mg/dl; ESR – 60mm/hr; TSH, serum (CLIA) – 2.30 IU/ML.

DIAGNOSTIC FOCUS AND ASSESSMENT

The patient had complained of incessant joint pain, Kyphoscoliosis, fatigue, weight loss and severely disturbed sleep resulting from pain. These symptoms point towards the condition of *Asthimajjagata Vata* as *Asthibheda* (stabbing pain in the bones), *Parvabheda* and *sandhi soola* (pain in sacroiliac joint and cervical region). *Mamsa kshaya* (depletion of muscular tissue) *Bala kshaya* (decreased vitality and strength), *Aswapana* (sleeplessness) and *Satataruk* (continuous pain) are the manifestation of the same.[7] *Adhyasthi* (Fusion of inter vertebral disc) is the manifestation of *Asthipradoshavikara* (diseases of bones).[8] *Vinamata* (kyphoscoliosis) is the manifestation of *Majjavrita Vata*[9] The patient was in *Niramaavastha* (stage of disease without *Ama*) condition with apparently normal appetite and approached as *Nirama Vata Vyadhi* (*Vata* disorder without *Ama*).

THERAPEUTIC FOCUS AND ASSESSMENT

Table 5: Treatment procedures

Treatment	No of days	Medicine	Rationale	Remarks
Takrapana	3	1Ltr *Takra with Vaisvanara choorna* (10 gm)	*Rookshana, deepana*	*Agni* improved
Snehapana	6	*Guggulu tikthaka ghrtm*	a) *Vatha Kaphahara* b) *Tikta rasa* – indicated in *asthi majjagata vyadhi* *c) Guggulu – Vata samana* d) indicated in sandhi asthimajjagata vyadhi	Bowel comfortable, Presence of *snehamsa* in stool, Fatigue, *aruci*, nausea Aversion towards ghee *Samyak laksana* attained on 6th day
Swedana	3	*Kottamchukkadi tailam* + *Karpooradi tailam*	For attaining *vilayana or draveekarana of dhatugata dosas*	Pain reduced
Virecana	1	*Gandharverandam* 45ml with hotwater (8AM)	*Sodhana*	*4 vegas*
Swedana	7	*Patrapotalasweda*	*Tapasweda*	Pain reduced
Ksheeravasti	3	*Panchatiktaksheera kwatha, indukantagritham*	*Vasti* highly effective in *vatika disorders* *Thiktharasa*-indicated in	Pain reduced

			astimajjagata vyadi and it boostens *asthi dhatu*	
Marsa nasya	7	*Ksheerabalatailam* -2ml	*Sodhana*	Comfortable

Table 6: Internal medicines

No.	Medicines	Dose	Time	Rationale
1	*Gandharvahastadi kwatha*	90ml	6am and 6pm	*Agnideepana ,anulomana*
2	*Vaiswanara coornam*	5gm	Before food	*Anulomana*
3	*Indukanta Kwatha*	90 ml	11 AM , 8 PM	*Vatha Kaphahara*
4	*Kaisora guggulu*	1	Twice daily	*In Asthi majjagata Vata*
5	*Chyavana prasha*	50 gm	6 AM	*Rasayana*

ASSESSMENT

Assessment of effect of the therapy was done on the basis of changes observed at the clinical level. Numerical score was assigned for each of the signs and symptoms by using Visual analogue scale (VAS).

Table 7: Bath Ankylosing Spondilitis Disease Activity Index (Basdai)

SYMPTOMS	BT 1st day	AT 1st week	AT 2nd week	AT 3rd week	AT 4th week
Fatigue	More	Less	Less	Less	Less
Neck pain, backpain, hip pain (VAS)	100	90	70	50	25
Pain or swelling in other joints	Nil	Nil	Nil	Nil	Nil
Morning stiffness- intensity (VAS)	100	95	80	70	50
Morning stiffness –duration (Approx)	2hr	1 ½ hr	1 ½ hr	1 ½ hr	1hr

Table 8: BATH ANKYLOSING SPONDILITIS FUNCTIONAL INDEX (BASFI)

DAILY ACTIVITIES	BT 1st Day	AT 1stweek	AT 2nd week	AT 3rd week	AT 4th week
Brushing	100	98	75	65	50
Washing face	75	75	70	70	50
Washing plates	75	70	65	60	50
Holding vessels filled with water	100	75	75	75	75
Combing hair	75	60	60	60	60

BATH ANKYLOSING SPONDILITIS GLOBAL SCORE (BASGS)

Well being of the patient based on VAS

BT (0^{th} week) - 100

AT (4th week) - 50

BATH ANKYLOSING SPONDILITIS METROLOGY INDEX (BASMI)

Axial spine – kyphoscoliosis (No change after treatment)

DOUGADOS FUNCTIONAL INDEX

Able to do daily functions

BT – Not able to do (score -2)

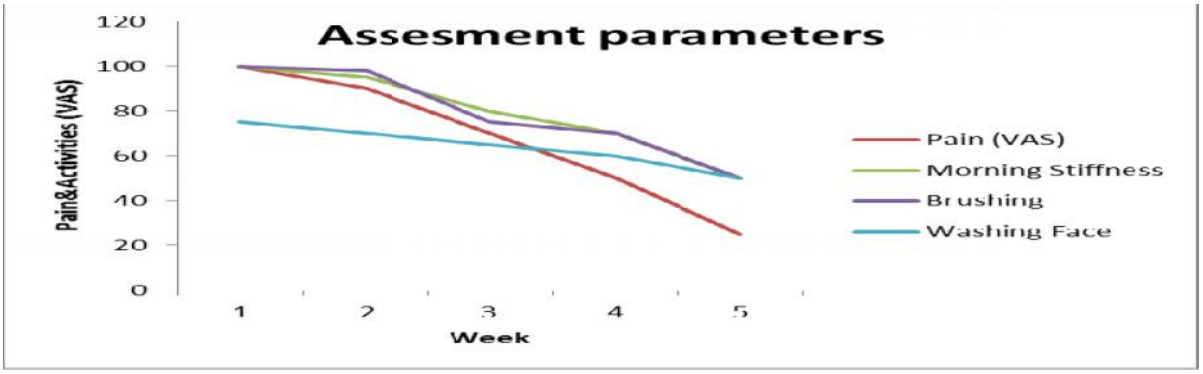
AT – Doing with difficulty (score – 1)

On assessing the condition of patient after 28 days of treatment by using the scales - Bath Ankylosing Spondilitis Disease Activity Index (BASDAI), Bath Ankylosing Spondilitis Functional Index (BASFI), Bath Ankylosing Spondilitis global score (BASGS) and Dougados functional index showed that there is marked relief in pain, stiffness and fatigue; also patient was comfortable on doing her daily activities. But bath Ankylosing Spondilitis metrology index (BASMI) showed no change in the radiological parameters.

OUTCOME OF THE TREATMENT

Spinal mobility, stiffness, fatigue, pain, and acute phase reactants (ESR) were reduced after the treatment. The restriction in the inspiration was also slightly improved. The patient was able to lie in the prone as well as supine positions, without much effort or pain. There was an overall improvement in functional capacity of the patient. Graphical representation of outcome of the treatment with special reference to pain and daily activities against duration of treatment in weeks are given below:

Graph 1: Overall outcome of treatment



DISCUSSION

The condition was approached and managed with the principles of management of *Asthimajjagata Vata.* In *Asthimajjagata Vatavyadhi*, two main events are contributing to the pathogenesis of the disease. They are the *kshaya* of the *asthidhatu* and also the *Vata prakopa.* According to Ayurveda, *asthi dhatu* and *Vata dosa* have *asraya-asrayee bandha*[10] in which the factor causing *kshaya* of *Vata dosa* gradually leads to *vrdhi of asthi dhatu* and vice versa leading to a vicious cycle in the pathogenesis[11].

Snehana (oleation), *Svedana* (sudation), and *Mridu Virechana* (mild purgation) are the line of treatment for *Nirama Vata Vyadhi*[12]. Before performing *sodhana snehapana*, mild *rookshana* is ideal which subsides the associative *Kapha* and also enhances the *agni*. For the same, *Takrapana* was done as the *Takra* posesses *laghu guna, amlarasa* and *deepana* property.[13] *Swedana karma* was aimed for achieving *vishyandana*

and vilayana of dosas so as to bring them into koshta.[14] In this case, *samyak snigdhata* was attained on the 6th day and *snigdha virecana* done with *Erandatailam* on 10th day, after 3 days *of sweda.*

The ultimate *upakrama* mentioned for *Vata* disorder is *Nirooha. Dravyas* having the properties of *snigdha guna* plays an important role in pacifying *Vata*[16] and *tikta rasa* drugs having *soshana and khara gunas* similar to *Asthidhatu*, resulting in *Asthidhatu vrdhi* as per the *Samanya Vishesha Sidhanta*[17]. *Vasti* and *Ghrita* processed with *Tikta Rasa* is therefore indicated for *asthimajja* pathology in the classics.[18] Foods and drugs having sweet and bitter properties are indicated in *Majja-pradoshajavikaras*[19].

Rasayana therapy has been given a crucial place in Ayurvedic classics, which mainly aimed for the balance of the *dhatu* metabolism. On the basis of method of use and scope of application *Rasayana* therapy can be adopted for the better management of degenerative joint diseases like *Asthimajjagata Vata.* Action of *Rasayana* drugs is mainly based on the following properties like anti-oxidants, anti-ageing, anti-inflammatory and immune modulating action. Before administering the *Rasayana* therapy, Ayurveda has emphasized that bio-purification of the body is essential prerequisite for administration of *Rasayana t*herapy[21]. Here administration of *Chyvanaparasa* for 1 month as early morning found to be very effective in curing as well as preventing the recurrence.

CONCLUSION

Ankylosing Spondilitis is not mentioned as a separate entity in the Ayurvedic classical texts. But considering the symptoms and the cause, disease can be approached with the concept of *Vatavyadhi* with special reference to *Asthimajjagata Vata*. After assessing the associative *doshas* and *Ama* status if any, the protocol is to be designed along with administration of internal medicines. This combined Ayurvedic treatment of the above mentioned oral *Ayurvedic* drugs and *Panchakarma* procedures had given promising result in the management of AS. This approach may be taken into consideration for further treatment and studies have to be conducted in this regard, so that we can effectively use the *Ayurvedic* principles for helping the affected mankind in such conditions as spondylarthropathies.

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