

Efficacy of Ayurvedic Management in *Pravruddha Aamvata* w.s.r to Ankylosing Spondylitis: A Case Report

Case Report

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Abstract

Ankylosing spondylitis (AS) is a form of chronic autoimmune-mediated inflammatory disease of the axial skeleton starting with sacroiliitis. AS in an acute stage can be correlated with *Saam Avastha* of *Vayu* i.e. *Pravruddha Aamvata* while during *Niram Avastha*, it can be considered as a *Vatavyadhi* (~vitiated *Vata* Disorder) i.e., *Asthimajjagat Vata* (~Aggravation of *Vata* in bone, bone marrow) along with joints as per symptoms described in classics. A 30-year-old male came to OPD complaining of pain and swelling of the right ankle, stiffness of the spine, inability to walk, fatigue, and anorexia diagnosed as vitiated *Vata* Disorder. Ayurvedic appetizer, digestive and laxative treatment were administered as the patient came in a State of air element associated with toxic metabolic waste. After achieving a state devoid of *Aam* pathology, *Vata* alleviating, strength and bulk-promoting micro channels cleansing and immunomodulatory Ayurvedic drugs were given orally with local Therapeutic *Snehana-Swedana* and *Kala Basti*. Clinical symptoms were significantly resolved after the therapy and there was also significant improvement in parameters like Bath indices, Finger to Floor length, ASQoL scale and inflammatory markers. On applying this treatment protocol major pathological abnormalities that occur in AS like gut mucosal barrier disturbance, a higher load of intestinal bacterial peptides, cytokines, erosion of bone, spur formation, and degeneration of disc might have been kept on hold and proper nutrition to affected spines and joints might have been accomplished. In addition to this Ayurvedic management is significantly helpful to overcome certain drawbacks of unestablished modern medicine for this disease.

Keywords: Ankylosing Spondylitis, Gut mucosal barrier, *Kala basti*, *Pravruddha Aamvata*, *Vatavyadhi*.

Introduction

Ankylosing spondylitis (AS) is a form of chronic autoimmune-mediated seronegative inflammatory disease of the axial skeleton starting with sacroiliitis. The extra skeletal structure also may be affected by this disease. (1) AS primarily includes spine, entheses which lead to persistent low back pain and morning stiffness, intermittent pain in the gluteal region. As the disease progresses, loss of spinal movement, loss of lumbar lordosis, restricted respiratory excursion and kyphosis occur which is termed a “Bamboo spine” on X-ray. The presence of Human Leukocyte Antigen (HLA)-B27 gene is strongly associated with AS. (2)

Studies showed that up to 5-10% of patients with AS have more severe intestinal inflammation leading to IBD resembling Crohn's disease while 70% of patients have subclinical gut inflammation. (3) The gut microbiota is related to physiological and metabolic activities, immune response, intestinal endocrine function and amino acid metabolism. Dysbiosis is

induced due to environmental, genetic, immune factors through arthritic peptide recognition, clonal expansion, etc. mechanisms. Which ultimately leads to the inflammation of joints or other sites. (4)

AS in the acute stage can be correlated with *Pravruddha Aamvata* (5) i.e. disruption of gut mucosal barrier leading to stimulation of innate immune response. (4) *Aam* can be correlated with the microbiome dysbiosis concept of modern science which can be the root cause of this disease.

However, *Niram Avastha* or *Vatavyadhi* i.e., *Asthimajjagat Vata* (~Aggravation of *Vata* in bone, bone marrow) can be correlated with the state following the execution of morbid endotoxins. (6) Keeping this in mind in the present case *Swedan* (~fomentation), *Langhana*(~depletion), *Pachana* (~digestive) and *Ruksha* (~roughening) treatment for the acute stage. (7) and after achieving a state devoid of *Aam* pathology *Vata* alleviating, strength and bulk-promoting, therapeutic enema, therapeutic massage applied (8) (9)

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Patient information

A 30-year-old male came to OPD complaining of cervical and back pain associated with spine stiffness, right ankle joint swelling, left sternoclavicular joint pain and swelling, bilateral hip joint pain, morning stiffness that improves with activity, fatigue, insomnia and

anorexia having past illness history of typhoid 12 years ago. The patient used to take *Shadrasatmak Aahar* (~including six types of tastes), mixed diet (non-vegetarian once a week), *Vishmashan* (~taking food irregularly), stale food *Sevan* and *Divaswapn* (~Sleeping in the daytime), works as an event manager(manual) 10-12 hr/day.

A written informed consent was taken before initiating the treatment.

Clinical Findings:

Ashtavidh Parikshana (~Eight-fold examination)

Nadi(~pulse) was *Vata* and *Kapha* predominance, 87/min, Regular, Unsatisfactory bowel with incomplete

digestion, Frequent micturition (7-8 times/day) was present. The tongue was *Saam*(~coated). The voice was clear. The touch was temperate. Swollen joints were warm to the touch. There was pterygium over the right eye while B/L eye vision was normal, Patient was underweight with a BMI of 16.12.

Urah Parikshana (~chest examination):

Swelling and pain over the left sternoclavicular joint. Chest expansion- 1.6 cm, Reduced. **B.P:** 110/70 mm of hg, **HR-** S1 & S2 Normal, **P-** 83/min **SpO2-** 97%, **RR-** 14/min.

Timeline: Timeline shown in [Table 1].

Table 1: Showing timeline of the treatment

Relevant past history			
Sr.No	Date	Events	Remarks
1	03/01/23	Patient experienced cervical and back pain associated with spine stiffness, right ankle joint swelling, left sternoclavicular joint pain and swelling, bilateral hip joint pain, morning stiffness, fatigue, insomnia and anorexia, unable to walk and visited a private clinic. Done CRP was 21.	
1	07/01/23	The patient didn't get relief. Came to OPD with the same complaints. Schober's test, Faber's test, Finger to floor distance test were performed positive. Finger to floor length was 43. BASDAI, BASMI, BASFI, BAS-G, and ASQoL scores were 10, 5.8, 9.4, 10, and 17 sequentially. Started <i>Aampachaka Vati</i> , Cap.Laxorin, <i>Valuka Pottali Swedana</i> , and <i>Prusthavansha Basti</i> .	for correction of <i>Saamta</i> state and pain management along with <i>Pathyapathya</i> as <i>Nidanparivarjana</i> .
2	9/1/23	All routine investigations were sent.	
3	11/1/23	Relief in signs and symptoms of <i>Saamta</i> state and also relief in pain intensity. Started <i>Simhnada Guggul</i> and <i>Sarvanga Abhyanga Swedana</i> .	for removal of <i>Strotoavarodha</i> and enhancing digestive power.
4	14/1/23	Sent for <i>Basti Fitness</i> . Advised HLAB27 test for confirmative diagnosis. <i>Ashwagandharistha</i> started.	for increasing the <i>Jathragni</i> , absorption of nutrients in the gut and correcting immunity.
5	16/1/23	HLAB27 test reported positive	
6	23/1/23	Started <i>Karma Basti</i> of <i>Anuvasana</i> and <i>Vaitarana Basti</i> * alternate.	For removal of endotoxins responsible for the disease.
8	28/1/23	Advised <i>Kolkulthadi Lepa</i> for L.A.	Facilitates <i>Dosha Gati</i> from <i>Shakha</i> to <i>Kostha</i>
9	31/1/23	<i>Niram Avastha</i> achieved. Started a combination of <i>Troyodashanga Guggul</i> 250 mg, <i>Balpusthikara Yoga</i> 1 gm, <i>Mahavatvidhwansa Rasa</i> 250 mg and <i>Guduchi Satva</i> 250 mg with <i>Panchtikta Ghrita</i>	After gaining <i>Niram Avastha</i> , <i>Balya</i> , <i>Bruhaniya</i> , <i>Vata Nashaka</i> , <i>Asthiposhaka</i> intervention added.
11	10/02/23	<i>Amruta Bhallataka Avaleha</i> started with <i>Ksheera</i> .	For <i>Apunarbhava Chikitsa</i> by its immunomodulatory activity.
15	25/02/23	The patient was discharged and advised to give follow-up.	
16	03/03/23	On follow advised to continue above Herbo mineral combination and repeat assessment taken.	

Vaitarana Basti

Ingredients of Vaitarana Basti

Saindhava Lavana-5 gm; *Guda*-10 gm; *Amleeka*-20 gm; *Tila tail* 20 ml; *Gomutra* 80 ml.

Method of preparation

The *Amlika* devoid of seeds and *Guda* added in 100 ml of water and kept for whole night. In *Vaitarana Basti* first *Saindhava* is ground well and then filtered water of *Purana Guda* and *Amlika* is added to *Saindhava*. Then *Talia* is added to a thin stream and mixed well. To this mixture, *Gomutra* is added slowly and mixed thoroughly. This solution is filtered and made lukewarm by keeping over a water bath.

Puran Guda and seedless *Amlika* were combined with 100 ml of water and left overnight. In *Vaitarana Basti* first *Saindhava* is ground well and then filtered water of *Purana Guda* and *Amlika* is added to *Saindhava*. Then *Tila Talia* is added to a thin stream and mixed well. *Gomutra* is gradually added to this mixture and thoroughly mixed in. After this, solution is kept over a water bath until it becomes lukewarm.

Diagnostic Assessment

The patient was diagnosed as *Pravruddha Aamvat* based on symptoms described by *Madhava Nidana* like *Angamarda*, *Gatrastabdha*, *Dourbalya*, *Gaurava*, *Alasya*, *Aruchi*, *Jwara*, *Apaka*, *Trishna*, *Angashoonta* which can be correlate with AS

symptoms. The patient was diagnosed as a Ankylosing spondylitis based on clinical presentation, radiological investigation [figure-1,2 &3], HLAB27 report [Figure-4], pathological investigation specially raised levels of inflammatory markers like ESR and C-reactive protein summarized in[Table 2] and on Bath Ankylosing Spondylitis Disease Activity Index(10), Bath Ankylosing Spondylitis Functional Index(11), Bath Ankylosing Spondylitis Global Score(12), Bath Ankylosing Spondylitis Metrology Index(13), ASQoL assessment tools.(14)

**Table 2 Showing laboratory investigation
Haematological examination: 09/01/2023**

Sr. No	Investigation	Value
1	CBC	WNL
2	ESR	35
3	BSL-R	141
4	Urea	19.4
5	Sr. Creatinine	0.57
6	Uric acid	4.1
7	Sr. Cholesterol	98
8	Sr. Triglycerides	49.8
9	RA Factor (03/01/23)	2.9
10	CRP (03/01/23)	21

Therapeutic Intervention

The treatment protocol included Ayurvedic appetizer, digestive and laxative treatment for State of air element associated with toxic metabolic waste. After achieving a state devoid of Aam pathology, *Vata* alleviating, strength and bulk-promoting micro channels cleansing, immunomodulatory Ayurvedic drugs were

given orally with local therapeutic oleation-fomentation and therapeutic enema of 16 days presented in [Table 3].

Figure 1: X-ray cervical spine AP view showing fusion and inflammation of vertebrae, loss of curvature



Figure 2: X-ray lumbosacral spine AP view showing fusion of vertebrae, loss of curvature, Strightning of spine like bamboo



Figure 3- X-ray Pelvis AP view showing bony erosions, subchondral sclerosis and bilateral hip joint space reduction



Figure 4: Showing HLAB27 positive Report dated 16 January 2023



Table 3: Shows therapeutic intervention

Duration	Aushadi and Upkrama	Dose	Anupana
07/01/23 To 18/01/23	1. Aampachaka Vati	500 mg BD	Koshana Jala
	2. Valuka Potalli Swedana	Half hour BD	
	3. Prusthavansha Basti with Tilatail	Half hour OD	
	4. Cap.Laxorin	2HS	Koshana Jala
	5. Strict instructions Pathyapathya		
11/01/23 To 30/01/23	CT ALL		
	6. Simhnada guggul	500 mg BD	Koshana Jala
14/01/23	7.Sarvanga Abhyanga Swedana	0D	
	CT ALL		
23/01/23 To 21/02/23	8.Ashwagandharistha	20 ml BD	
	9.Krama Basti of Anusana Basti & Vaitarana Basti	According to Avastha	
31/01/23 To 14/02/23	10.Kolkulthadi Lepa LA	BD	
	11.Troyodashanga Guggul 250 mg Balpushthikara Yoga 1 gm Mahavatvidhwansa Rasa 250 mg Guduchi Satva 250 mg	BD	Panchtikta Ghrita
	18.Amruta Bhallataka Avaleha	10 gm BD	Ksheera
10/2/23 To 25/02/23	19. Bhujanga Aasana		

Follow-up and outcome

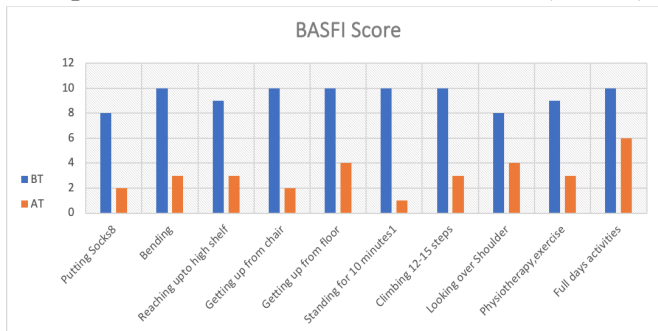
After treatment, Significant relief was noted in the BASDAI score [Table 4]. Around 75% improvement was found in putting on socks, 80 % for bending, 67% in reaching up to a high shelf, 80% in getting up from a chair, 60% in getting up from the floor, 90% in standing

for 10 minutes, 70% in climbing 12-15 steps, 50% in looking over shoulder, 67% for physiotherapy and exercise and 40% for full day's activity in BASFI Score [Graph-1].

Table 4: Assessment of Disease Activity Index (BASDI Score)

Sr. No	Domain	BT	AT	% of relief
1	Fatigue	10	4	60
2	Neck, back, and hip neck	10	4	60
3	Swelling in joints	10	3	70
4	Tenderness	10	3	70
5	Morning stiffness	10	3	70

Graph 1: Assessment of Functional index (BASFI)



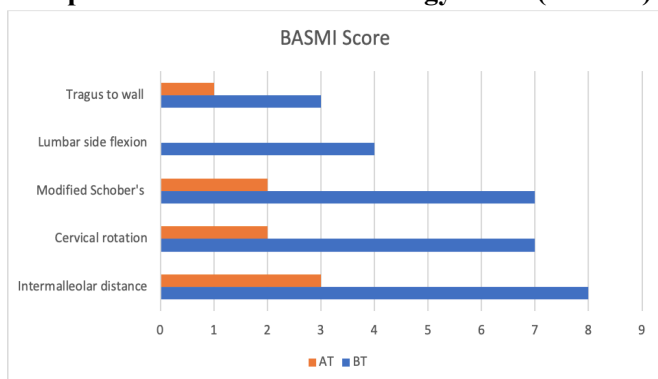
After treatment, 80% improvement was found for the effect of AS on patient’s well-being by BAS-G Score. [Graph-2].

Graph 2: Assessment on global score (BAS-G)



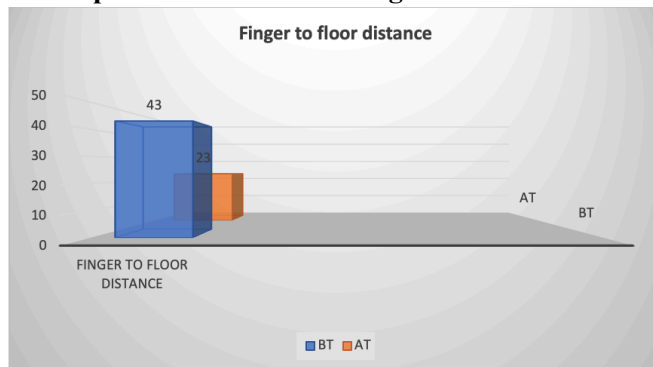
Around 67% relief was found in tragus to wall distance, 100 % relief in lumbar side flexion, 72 % in modified Schober’s test & cervical; rotation and 67% found in intermalleolar distance after treatment in BASMI Score[Graph-3].

Graph 3: Assessment on metrology index (BASMI)



There was also considerable improvement in finger-to-floor distance [Graph- 4].

Graph 4: Assessment of Finger to floor distance



Overall Assessment of Bath indices, ASQOL scale and inflammatory markers presented in [Table- 5] and laboratory investigation assessment presented in [Table 6].

Table 5: Overall Assessment of Bath Indices, ASQOL Scale

SR.NO	Assessment Parameter	BT	AT	% of relief
1	BANDAI	10	3.5	75
2	BASFI	9.4	3.1	67
3	BAS-G	10	2	80
4	BASMI	5.8	1.6	72.42
5	Finger-to-floor length	43	23	46.52
6	ASQoL	17	5	89.37

Table 6: Showing Assessment on Laboratory Investigation

Sr. No	Investigation	BT	AT
1	ESR	35	54
2	BSL-R	141	124
3	Urea	19.4	17.2
4	Sr. Creatinine	0.57	0.62
5	Uric acid	4.1	3.8
6	Sr. Cholesterol	98	95
7	Sr. Triglycerides	49.8	102
8	RA Factor	2.9	Not done
9	CRP	21	9

Discussion

Vagbhat described *Swedana*(~fomentation), *Pachana*(~digestive), *Rukshana*(~Roughening) *Chikitsa* for the acute *Avastha* of *Saam Vata*. (7) According to Charak *Aamavrutta Vata* should be treated with *Pramehaghna*(~antidiabetic), *Medohara*(~fat-alleviating), *Vatahara*(~Vata-alleviating) medications. (15) When *Vata* become more aggravated in bone marrow, it should be treated with an oily substance. (8) Sushruta has stated oleation and thermal cautery (9) for this condition. Keeping this in mind patient was treated with certain Ayurvedic drugs having the foresaid properties with therapeutic enema.

Deepana and *Pachana* therapies like *Aampachaka Vati* enhances the *Agni* (digestive fire), dissolve vitiated and accumulated *Doshas* and restores

dysbiosis, which prevent the translocation of gut microbiota. (16) Thermogenic stimulation of *Valuka Pottali Swedana* reduced pain intensity through gait control mechanism. Through local vasodilation, a rise in blood flow that stimulates neural receptors and causes muscular relaxation, it aids in the removal of harmful metabolites from blood vessels (17) i.e. *Vishyandan* (~Liquefaction) of *Doshas*. laxative *Dravya Cap.Laxorin* is helpful for *Vayu Nighra* (~expulsion of flatulence) which led to the movement of *Dosha* (toxic metabolites of innate immune response) from *Sakha* (~Extremity) to *Kostha* (~intestinal lumen cells) for excretion. (18)

Sihanad Guggul removes the obstruction of the *Strotas* (~bodily channels) by anti-inflammatory activity and also helps to increase digestive power.(19) *Basti* promotes the transfer of endotoxins from colon cells to the lumen, aids in their removal through the processes of pinocytosis, osmosis, its local and systematic effects lead to supports the maintenance of the typical gut flora, as the disturbance of gut flora is the main root cause of initiations of innate system and other pathological cascade in Ankylosing Spondylitis. (20) As serotonin also found in gastrointestinal mucosa, *Basti* may augment the descending inhibitory pathway of centrally sensitised pain through the enteric nervous system mechanism. (21) while *Anuvasana Basti* rejuvenate bony tissue by *Vata*-eliminating qualities.

After achieving a state devoid of *Aam* pathology *Vata* alleviating, strength and bulk-promoting and as an *Apunarbhava Chikitsa* immune-modulatory drugs like *Vatavidhwansa Rasa*, *Balpusthikara Yoga*, *Troyadashanga Guggul*, *Ashwagandharistha* and *Amrita Bhallataka Avaleha* administered and therapeutic massage applied.

On applying this treatment protocol major pathological abnormalities that occur in AS like gut mucosal barrier disturbance, a higher load of intestinal bacterial peptides, innate immune response, IL17/23 axis activation, cytokines formation like TNF- α , TGF- β , interleukins etc., inflammation, erosion of bone, spur formation, and degeneration of disc might have been kept on hold and proper nutrition to affected spines and joints might have been accomplished. In addition to this Ayurvedic management is significantly helpful to overcome certain drawbacks of unestablished modern medicine for this disease.

In comparison with previous study conducted on AS with Ayurvedic management, treatment including holistic approach of Ayurveda targeting the intestinal dysbiosis, has rarely been studied. However, this was a single case, better scientific outcome can be achieved by considering this therapy in larger number of similar patients with longer follow-up periods.

Conclusion

Reduced severity of clinical symptoms like pain, stiffness, fatigue, and insomnia showed the efficacy of Ayurvedic management which was also helpful in the improvement of quality of life. However, this was a single case report, better scientific outcomes can be

achieved by considering this therapy in a larger number of similar patients.

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Conflicting Interest (If present, give more details):

No conflict of Interest

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