



## Case Report

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### A CLASSICAL AYURVEDIC APPROACH TO ANKYLOSING SPONDYLITIS (AS) WITH POSTURE CORRECTION: A CASE REPORT

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#### ABSTRACT

Ankylosing spondylitis (AS) is a chronic autoimmune inflammatory rheumatic disease that primarily affects the spine and sacroiliac joints, leading to progressive pain, stiffness, postural deformities, and eventual fusion of vertebrae. A 24-year-old male presented with complaints of stooped posture, forward-flexed upper body posture (partial kyphotic deformity), pain, and tenderness over the sacroiliac joints, with a confirmed diagnosis of Ankylosing spondylitis. A phase-wise classical Ayurvedic treatment protocol was adopted, focusing on Ama nirharana (elimination of metabolic toxins), Vata samana (pacification of aggravated Vata), nirharana of sthambana in greeva prishtha trika (relief of stiffness in the cervical, dorsal, and lumbosacral regions), kubjatva nirharana (correction of spinal deformity/hunchback posture) and dathu poshana (nourishment and restoration of body tissues). Both internal medications and external therapeutic procedures were administered as part of a holistic management approach. Clinical outcomes, including posture, pain, mobility, and functional ability, were assessed during follow-up. Significant improvements were observed in pain, stiffness, posture, mobility, and overall functional capacity. This case highlights the potential of a holistic Ayurvedic approach in improving quality of life and functional outcomes in patients with Ankylosing spondylitis.

**Keywords:** Ankylosing spondylitis, Ayurvedic management, Bamboo spine, Chronic rheumatic disorder, Kyphosis, Spondyloarthropathy.

#### INTRODUCTION

Ankylosing spondylitis (AS) is a chronic inflammatory rheumatic condition primarily affecting the axial skeleton, particularly the spine and sacroiliac joints, resulting in progressive pain, stiffness, and structural damage that may ultimately lead to ankylosis<sup>1</sup>. The Assessment of Spondyloarthritis International Society (ASAS) developed and finalized criteria in 2009, addressing inconsistencies in the diagnosis of ankylosing spondylitis that existed in earlier classification systems<sup>2</sup>. The prevalence of ankylosing spondylitis (AS) in India has been reported as 0.03% based on pooled data from Bone and Joint Decade (BJD) India community surveys conducted between 2004 and 2010<sup>3</sup>. Although only around 80-90 percent patients are HLAB27 positive<sup>4</sup>. From an Ayurvedic perspective, AS can be understood through the lens of Vata dosha (one of the three doshas in Ayurveda responsible for regulating movement and physiological functions) imbalance, which disrupts the immune system. The progression of ankylosing spondylitis is driven by a dysregulated immune response that promotes chronic inflammation in the axial skeleton. Persistent inflammation can lead to structural damage, pathological bone formation, and eventual fusion of affected joints. The clinical features of ankylosing spondylitis can be correlated with Amavata (rheumatoid arthritis) and Asthi-Majjagata vata (a vata condition affecting the bone and bone marrow). The disease process is conceptualized as originating due to Mandagni (diminished digestive fire), resulting in the accumulation of Ama (metabolic toxins). The accumulated Ama, along with aggravated Vata Dosha, localizes in Sandhis (joints), leading to the development of disease manifestations<sup>6</sup>. We describe a case of Asthi-Majjagata vata that was successfully managed using classic Kerala Ayurvedic methods.

#### Patient Information

A 24-year-old male presented to the Outpatient Department (OPD) of Vaidyaratnam Nursing Home, Thaikkattussery, Thrissur, Kerala, India, on 15 April 2024, with complaints of pain and stiffness in the low back, midback and neck. There was severe restriction of neck movements. There was restriction of spine movements causing a stooped posture, difficulty lying down on the back as the upper back and neck stay elevated. Patient was tested HLA-B27 positive in 2019 and diagnosed with Ankylosing Spondylitis. He has a history of occasional alcohol use, no history of smoking or drug abuse. No surgical history. Informed consent was taken from the patient.

#### Clinical Findings

The patient was of average build, with a body weight of 92.2 kg and a height of 5 ft 10 in at the time of admission. On examination, the patient had a stooped posture, moderate kyphosis of the spine, restricted neck movements, stiffness and tenderness of the trapezius; SCM (sternocleidomastoid muscle) was observed; no postural deviations; gait was normal; unable to perform cobra posture; and unable to lie down in supine posture due to stiffness of the whole spine. Schober's test was positive, and Faber's test was positive. Dasavidha pareeksha (ten aspects of examination) revealed a Kapha-pitta prakruthi (body constitution of Kapha and pitta) with a Vata-kapha vikruthi (disorder of Vata and Kapha). The individual exhibited medha sara (body constitution of medha dhatu), Madhyama (moderate) Samhanana (body build), and Madhyama pramanam (body proportion). Satmyam (adaptability) was observed to be Madhyama, while Satvam (psychological constitution) was assessed as Madhyama. The individual belonged to the Madhyama vayah (age). He showed madhyama Ahara shakthi

(digestion power) and Avara (Low) vyayama shakthi (exercise tolerance).

### Timeline

Table 1 shows the timeline of illness progression.

### Diagnostic Assessments

MRI performed on 17 April 2024 revealed structural changes involving the entire spine and sacroiliac joints. The MRI demonstrated Romanus lesions, which are considered early radiological features of AS and may progress to syndesmophyte formation and spinal fusion. Evidence of enthesitis, in the form of ischial tuberosity edema, was also noted, which is a characteristic feature of the disease. Additionally, sacroiliitis with sclerosis and erosive changes was observed. Other associated findings included disc bulges, Modic endplate changes, and Schmorl's nodes. Clinical examination revealed positive Schober's and Faber tests, supporting the diagnosis of axial involvement. Furthermore, HLA-B27 testing performed on 23 January 2020 was positive, a finding commonly associated with AS. Patient progress before and after treatment was tracked using BMI (Body Mass Index), BASDAI (Bath Ankylosing Spondylitis Disease Activity Index)<sup>7</sup>, BASFI (Bath Ankylosing Spondylitis Functional Index)<sup>8</sup>, ASQoL (Ankylosing Spondylitis Quality of Life Questionnaire)<sup>9</sup>, and BASMI - excluding cervical rotation (Bath Ankylosing Spondylitis Metrology Index)<sup>10</sup>. Flexibility was additionally assessed using the FlexifyMe digital platform, which employs AI-assisted movement analysis to generate flexibility and mobility-related assessments<sup>11</sup>.

### Therapeutic Interventions

Therapeutic Interventions were provided as both Internal medicines (Table 2) and Kriyakarmas (external treatments) (Table 3). The external therapeutic intervention of 27 days began initially with rooksha kizhi (bolus fomentation massage without oil) proceeding further with pizhichil (warm oil pouring

treatment), sathailam kolakulathadi choorna kizhi (bolus fomentation massage with medicated powder), dwadasamrutham takhra dhara (medicated buttermilk infused with 12 herbs poured on forehead), abhyangam (oil massage), prushtavasthy (oil filled over spine), pichu (oil soaked cotton), jambeeram pinda sweda (bolus fomentation massage with lemon and medicines), mathra vasthy (medicated oil enema), sneha vasthy (medicated oil enema in larger dose), Kashaya vasthy (medicated decoction enema), each treatment targeting the amatvam (accumulated waste product), avaranam of vata (vata covered or obstructed by other doshas), vata samanam (subsiding the vata dosha ) and shodana (cleansing out) thus resolving kati-prishta-trik graha (stiffness of low back, hip and thighs), stiffness of muscles, pain relief, correcting curvature of spine, posture correction respectively. The internal medicine was dhanwantharam kashayam, panchatikthakam grutham, rasnasaptakam kashayam, vyoshadi gulgulu, rheumacalm tablet, gulgulutiktakam tablets and nimbamruthadi eranda taila, as vatasamana, ama pachana (digestion of ama), sothahara (anti-inflammatory), balya (strengthening) and asthi-majja dathu poshana (nourishment of bone and bone marrow tissues). The discharge medicines provided to the patient are listed in Table 4.

### Follow-Up and Outcomes

The patient showed noticeable improvement, with reduced spinal stiffness and improved spinal mobility, as assessed before and after treatment using validated measures of AS (BASDAI, BASFI, BASMI, ASQoL) and related tests. Flexibility was additionally assessed using the FlexifyMe digital platform, which employs AI-assisted movement analysis to generate flexibility and mobility-related assessments. Table 5 compares clinical and functional outcome measures before and after Ayurvedic treatment, including BMI, BASDAI, BASFI, BASMI (excluding cervical rotation), ASQoL, and FlexifyMe mobility assessment scores. Figure 1 shows the change in flexibility post-treatment as measured by the AI-assisted FlexifyMe platform. No adverse effects or unanticipated events were observed during treatment or during the follow-up period.

Table 1: Timeline

| Timeline   | Status and Symptoms                                                                | Interventions                                                                       | Outcomes                                                          |
|------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Mid 2019   | Occasional low back pain and mild neck stiffness.                                  | None.                                                                               | Symptoms persisted.                                               |
| Early 2020 | Aggravated pain; difficulty with daily activities.                                 | MRI and HLA-B27 testing; diagnosed with Ankylosing Spondylitis.                     | Allopathic treatment declined due to side effect concerns.        |
| Mid 2020   | Fluctuating pain levels; episodes of aggravation followed by relief.               | Started Homeopathy, physiotherapy, and targeted exercises.                          | Initial relief for 6 months; symptoms later returned.             |
| 2023       | Progressive stooped posture, severe pain, spinal deformity; unable to sleep supine | Continued restriction of daily activities.                                          | Quality of life significantly impacted.                           |
| April 2024 | Severe stiffness and restricted flexibility.                                       | 28-day Ayurvedic treatment, followed by internal medicines and external oil therapy | Significant relief: Reduced pain and improved spinal flexibility. |
| Dec 2025   | Follow-up assessment.                                                              | Continuation of Ayurvedic protocol and physiotherapy.                               | Visible improvement in condition and posture.                     |

Table 2: Internal Medicines

| Medicine                                   | Dose                            | Time        | Duration |
|--------------------------------------------|---------------------------------|-------------|----------|
| Dhanwantharam kashayam                     | 15 ml with 60 ml warm water     | Morning B/F | 32 days  |
| Panchatikthakam ghrutham                   | 1 tsp                           | Morning B/F | 32 days  |
| Gulgulutiktakam kashayam tablet            | 2 tablets with 60 ml warm water | Noon B/F    | 32 days  |
| Vyoshadi gulgulu                           | 1 tab                           | Night B/F   | 32 days  |
| Rasnasaptakam kashayam                     | 15 ml with 60 ml warm water     | Night B/F   | 32 days  |
| Rheumacalm tablet                          | 2 tablets                       | Night A/F   | 15 days  |
| Nimbamruthadi eranda thailam chikkanapakam | 1 tsp with 60 ml milk           | Night A/F   | 17 days  |

**Table 3: Kriyakarmas**

| Procedure (Medicine)                                                                          | Days                       | Changes Observed                                                                          |
|-----------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------|
| Rooksha kizhi (Shyamaka choornam)                                                             | 1 day (Day 1)              | Mild reduction in body pain                                                               |
| Pizhichil (Sahacharadi Thailam, Prabanjana Vimardhana Thailam and Kottamchukkadi Thailam)     | 7 days (Day 2-8)           | Improvement in muscle stiffness, mild posture correction observed                         |
| Pradheshika Jambeeram kizhi on lower back (Kolakulathadi choornam)                            | 4 days (Day 4 to Day 7)    | Low back pain reduction                                                                   |
| Choorna kizhi Full body (Kolakulathadi choornam)                                              | 12 days (Day 8 to Day 19)  | Overall body stiffness reduced, and able to sleep straight on back                        |
| Sirodhara (Dwadasamrutham induced in buttermilk and Head oil Balaguluchyadi and rasa thailam) | 7 days (Day 16 to Day 22)  | Observed gradual improvements in deranged metabolism of body                              |
| Pristavasthy                                                                                  | 9 days (Day 22 to Day 30)  | Improved spine flexibility and neck movements                                             |
| Pichu for neck and shoulder                                                                   | (2 days) Day 15, Day 28    |                                                                                           |
| Prathimarsha nasyam                                                                           | 12 days (Day 14 to Day 25) | Neck stiffness reduced                                                                    |
| Thalam                                                                                        | 2 Days                     | metabolism improved                                                                       |
| Mathra Vasthy                                                                                 | 4 days                     | Low back stiffness reduced and vata anulomanam (normalization of Vata function)           |
| Sneha vasthy                                                                                  | 3 days                     | Vata anulomanam, dathu poshanam (promotion of tissue nourishment)                         |
| Kashaya vasthy: Vaiatharana vasthy – 2, Madhu thailika vasthy – 1, Yapana vasthy – 1          | 4 days                     | Anti-inflammatory changes, subsided vata, improved metabolism, asthi-majja dathu poshanam |

**Table 4: Discharge Medicines**

| Medicine                                                                          | Dose            | Time                                                    | Duration     |
|-----------------------------------------------------------------------------------|-----------------|---------------------------------------------------------|--------------|
| Dhanwantharam Kashayam and Panchathikthakam Ghrutham                              | 15 ml and 1 tsp | Morning B/F                                             | Three months |
| Rasnasapthakam Kashayam and Vyoshadi Gulgulu Gulika                               | 15 ml and 1 tab | Night B/F                                               |              |
| Gandharvahaatha Thailam and Hot water/Milk                                        | 1 tsp and 60 ml | Night A/F                                               |              |
| Balaguloochyadi Thailam and Rasa Thailam                                          |                 | External application on head for 30 minutes before bath |              |
| Sahacharadi thailam and Prabhanjana Vimardhana Thailam and Kottamchukkadi Thailam |                 | External application on body for 30 minutes before bath |              |

**Table 5: Comparison of Clinical and Functional outcome measures Before and After Ayurvedic treatment**

| Test                                | Section                    | BT (21/03/2024) | AT (06/08/2024) |
|-------------------------------------|----------------------------|-----------------|-----------------|
| FlexifyMe Mobility assessment       | Cobra pose                 | 0               | 40              |
|                                     | Standing Forward Fold Pose | 0               | 75              |
|                                     | Cervical flexion           | 0               | 15              |
|                                     | Cervical Extension         | 33              | 43              |
|                                     | Cervical lateral flexion   | 0               | 0               |
|                                     | Overall Score              | 33              | 173             |
| BMI                                 |                            | 38.8            | 27.7            |
| BASDAI                              |                            | 5.3             | 4.1             |
| BASFI                               |                            | 4.7             | 3.9             |
| BASMI (excluding cervical rotation) |                            | 5.5             | 5.25            |
| ASQoL                               |                            | 10              | 7               |

BT: Before Treatment, AT: After Treatment


**Figure 1: Comparison of flexibility assessment Before and After Ayurvedic treatment using the AI-assisted FlexiMyne platform**

## DISCUSSION

As an inflammatory disease, AS can lead to fusion of the small bones of the spine over time, restricting spinal movement and reducing flexibility, and progressing to a hunched forward posture. AS can also affect the ribs and cervical vertebrae, restricting chest expansion and neck movement. AS is considered autoimmune and a type of seronegative arthropathy. Available treatments in modern medicine include steroids, anti-inflammatory medicines, antirheumatic drugs, and immunomodulators. In severe cases, surgery is also indicated. This case was treated as an *asthi-majjagata vata* disorder. *Guguluthiktakam* and *panchathiktakam*<sup>12</sup> formulations, which have prominent *thikta rasa* (bitter taste), were specifically targeted<sup>13</sup> at the joint inflammations and surrounding tendons and muscles. *Rasnasaptakam kashayam*, *vyoshadi gulgulu*, and *Rheumacalm* tablets used have *ama-hara* (ama-reducing) properties. *Danwantharam kashayam* was used as *vata hara* (vata-reducing) and to strengthen the joints and surrounding structures. Oils used on the body had *vatahara* and *amahara* properties, which could help relieve stiffness and inflammation<sup>14</sup>. *Takra dhara* (*sirodhara* using medicated buttermilk) infused with *dwadasamrutham* medicines is specifically indicated in autoimmune or rheumatic conditions<sup>15</sup>. *Pichu* using *Rasathailam*, *Kethakeemooladi Tailam*, and *Nimbamruthadi Tailam*<sup>16</sup> was performed from the neck to the shoulders to relieve neck stiffness and improve range of movement, as per *Ashtavaidhya Ayurveda* tradition. Thus, the treatment approach aimed to address both *Ama* and aggravated *Vata* while improving joint function and overall quality of life. Post-treatment assessment demonstrated improvements in spinal mobility, functional status, disease activity, and quality of life. Marked gains in the *FlexifyMe* mobility assessment, along with reductions in BMI, BASDAI, BASFI, BASMI, and ASQoL scores, indicate an overall improvement in the patient's clinical condition following Ayurvedic management. According to the patient's history, previous homeopathic treatment and physiotherapy provided limited improvement in posture and quality of life before Ayurvedic intervention. Therefore, the favorable clinical outcome observed in this case suggests the potential role of Ayurvedic interventions aimed at addressing *Avarana* associated with *Vata* and *Dhatu Vikara* (pathology) in the management of ankylosing spondylitis.

## CONCLUSION

Ankylosing spondylitis is a chronic inflammatory rheumatic condition with a progressive nature leading to deformity, as there is no known cure. The patient had taken allopathic treatment alongside physiotherapy and even homoeopathy with no relief from pain, stiffness, or posture correction. Thus, it can be inferred that the improvement noticed is the result of Ayurvedic medication and treatments provided.

### Patient Perspective

The patient has given written and verbal voice notes about his perspective regarding how difficult his life was due to AS and how psychologically depressed he became before observing the improvements achieved after Ayurvedic treatments, resulting in reduced pain in the low back and neck regions, improved range of movement and flexibility of the spine, noticeable posture improvement, and resultant drastic improvement in the quality of his life.

## Declaration of patient consent

The authors confirm that informed patient consent was obtained for publication of the case and clinical details, with efforts made to ensure anonymity, though it cannot be guaranteed.

## Ethical Statement

This case report was conducted in accordance with the ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants. Written informed consent was obtained from the patient for publication. As this is a single case report, Institutional Ethics Committee approval was not required.

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