

Case Report

Yoga and Naturopathy Approach in the management of Ankylosing Spondylitis: A Case Report

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ABSTRACT

Ankylosing spondylitis (AS) is an inflammatory rheumatic disease that affects the axial skeleton, instigating characteristic of back pain, stiffness which leads to structural and functional impairments also decreases the quality of life. There is no specific cause identified for Ankylosing spondylitis. Which set off health care professionals to face difficulties towards its cure; This study aims to describe the Yoga and Naturopathy system of approach in patients with ankylosing spondylitis. They evolve as treatment strategies for AS to manage the symptoms and its severity. A 23 year old male previously identified with AS, got admitted for 10 days in the inpatient ward, After the intervention period the patient showed improvement in the post assessments, the sit and reach test score were improved from 8 to 11 inches, and pain in the visual analogue scale was reduced from 7 (moderate) to 3 (Good), which also showed improvement in the patient's Quality of life by mean of Evaluating Ankylosing Spondylitis Quality of Life (EASI-QoL) score was reduced 61/80 to 32/80. By these results we conclude Yoga and Naturopathy system of medicine can be effective in the management of patients with AS as a supportive or standalone treatment choice for managing the symptoms and severity of the disease.

Key words: Ankylosing spondylitis, Yoga and Naturopathy, Pain management, Quality of Life

Ankylosing spondylitis (AS) is a form of spondyloarthropathy (SpA), which is a family of immune-mediated chronic systemic inflammatory arthritis [1]. Superfluous kinds of arthritis include unclassified SpA, psoriatic arthritis, enteropathic arthritis, and reactive arthritis (Reiter syndrome) [2]. The axial skeleton (sacroiliac joints and spine) and the entheses are the main areas of the disorder's unidentified aetiology that are affected. Its defining feature is sacroiliac joint involvement (sacroiliitis). In the early stages of the disease, the course of AS might be marked with spontaneous remissions and exacerbations [3,4].

Intricate interactions among genetic predisposition, immunological response, microbial interaction, and endocrine abnormality result in the development of ankylosing spondylitis [5]. Approximately 0.2% of Indians have AS, and around 90% of those cases are attributed to a genetic component known as the major histocompatibility complex (MHC) class I allele HLA-B27 [6] Yet to some extent, the precise etiopathogenesis of AS is still unknown. In order to stop the occurrence of joint abnormalities, however at present no medications available for the radical treatment and control of ankylosing spondylitis [7].

Yoga and Naturopathy is a drug-free medical approach that uses non-invasive/ minimally invasive approaches to intervene in the body in a way that promotes healing [8]. This includes yoga therapy, hydrotherapy, mud therapy, massage therapy, magneto therapy, heliotherapy, physiotherapy, electrotherapy, diet therapy and acupuncture. Hydrotherapy can reduce the disease activity, severity of pain with AS [9]. A research paper provide evidence for reduction in proinflammatory mediators and an enhanced immune cell profile by adding fruits and vegetables in the daily diet [10]. Massage therapy can provide pain relief and relaxation, can support a patient's emotional well-being and recovery, and can ultimately aid in the healing process [11].

Acupuncture needling was effective as an intervention for AS [12]. Through acupuncture can relieve the pain and enhancing the healing process [13]. Back-shu meridian massage and Back-Shu points can regulate the sympathetic and the parasympathetic activities that affect visceral organs and strengthen the adjacent muscle of spine [14]. A study shown that yoga has positive effect on analgesic effect on patient with AS [15], and exercise also plays an important role in improving spinal mobility and muscle strength. Maintaining proper postural appears to play a key role in patients with AS [16]. Mud therapy also shows symptomatic improvements in AS [17]. Therefore, this study aims to evaluate the effectiveness of Yoga and Naturopathy in the management of AS.

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CASE REPORT

A 23-year-old patient with a body mass index of 24.5 kg/m² was admitted in the Government Yoga and Naturopathy medical college and hospital, Inpatient ward on 14th August 2023; he was previously diagnosed with Ankylosing spondylitis (known case since 2017) with complaints of intense pain in the neck, whole back, and pelvic area, particularly on the spine for the past 2 years; which radiates laterally to the sides of the body and associated with stiffness in whole spine, difficult to sit even for 10 minutes. Other complaints including irregular bowel movements, head ache (occipital area) and general weakness are present for the past five months before taking admission. Patient's own daily household work provokes the symptoms to get worse.

The patient was not under any regular allopathy medication during the course of intervention in Inpatient ward. His Investigation Report of MRI- whole spine on 9/8/2023 shows Cervical spine is within normal limits, dorsal spine shows inflammatory changes noted in left posterolateral aspect of D5/D6 vertebral bodies and right posterolateral aspect of D6/D7 vertebral bodies extending up to their respective pedicles, facet joints and costovertebral regions. On lumbar spine shiny corner sign noted in anterosuperior and anteroinferior aspect of L2 vertebral body. On the Hip joints marrow oedema at bilateral sacroiliac joints with subchondral sclerosis and articular erosions- bilateral sacroiliitis, and Para symphyseal bone marrow oedema at pubic symphysis with bony irregularities

and subchondral resorption- osteitis pubis are noted. He got admitted in the Inpatient ward for 10 days. The patient was educated with the nature of disease and treatment options, which helps to alleviate the pain, stiffness and prevent further disability and to enhance the quality of life.

The interventions; Naturopathy modalities such as Mud pack, Warm Hip bath, Massage, Full Mud bath, Alternate compress were given in the treatment period (**Table 1**), Yoga practices (Asana, Pranayama and Relaxation) were given everyday for 30 minutes in morning and 30 minutes in evening (**Table 2**). Raw diet was given during the period of intervention (**Table 3**). The patient was assessed with pre and post of the parameters following Body mass index (BMI), systolic blood pressure (SBP), diastolic blood pressure (DBP) and pulse rate (PR); (**Table 4**) and other assessments done to evaluate stiffness by Sit and Reach test, pain from visual analogue scale (VAS), and quality of life by Evaluating ankylosing spondylitis quality of life (EASI-QOL) (**Table 5**). After the intervention period the patient showed improvement in the post assessments, the sit and reach test score were improved from 8 to 11 inches, Pain in the visual analogue scale was reduced from 7 (moderate) to 3 (Good), which also showed improvement in the patient's Quality of life by mean of Evaluating Ankylosing Spondylitis Quality of Life (EASI-QoL) score was reduced 61/80 to 32/80. The patient felt good with the relief of his condition and he was advised to take a regular follow-up.

Table-1: Naturopathy Treatment Protocol for the Patient during the Stay in Hospital

Naturopathy modalities	Frequency	Acupuncture and Energy medicine	Frequency
Enema, Mud pack abdomen and eyes (20 minutes)	First day	Acupuncture points: UB-23, UB-25, UB-11, GB-34 (Local points bilaterally), LI-4, DU-20 (25 minutes)	Every day
TENS to lower back (10 minutes)	Every day	Back-shu meridian massage (5 mins)	Every day
Warm hip bath (20 minutes)	Every day	Auriculotherapy (Shen-men, kidney, buttock)	Alternate days
Full body oil application & steam bath (12 minutes) with cold compress to head	5 th day		
Partial massage to the whole back (10-15 minutes)	Every day		
Alternate compress to low back (12-15 minutes)	Alternate days		
Full mud bath (30 minutes)	8 th day		

Table-2: Yoga practices are given to the patient during the stay in the hospital

Day	Yogasanas: 20 minutes everyday per session	Pranayama: 10 minutes everyday per session
1 st -3 rd day	Pawanmuktasana series 1, Lying tadasana, Ardha kati chakrasana, Kati chakrasana, Savasana	Nadi suddhi pranayama, Bharamari pranayama, and Sectional breathing.
4 th -6 th day	Tadasana, Supta udharkarsasana, Sava udharkarshasana, Bujangasana, Ardha pawan muktasana, Savasana	
7 th -10 th day	Janu sirsasana, Pakchimuthanasana, Marjari asana, Vajrasana, Bujangasana, Triyaka bujangasana	

Table -3: A diet plan is given to the patient during his stay in the hospital

DAY	7.00 am	9.30 am	12.00 pm	1.30 pm	4.00 pm	7.00 pm
Day 1	Ash gourd juice	Veg salad + fruit salad+ sprouts	Guava juice	Fruit salad + sprouts	Lemon juice	Veg salad + fruit salad
Day 2	Bottle gourd juice	Veg salad + fruit salad+ sprouts	Curry leaf coriander mint juice	Fruit salad + sprouts	Water melon juice	Veg salad + fruit salad
Day 3	Plantain pith juice	Veg salad + fruit salad+ sprouts	Muskmelon juice	Fruit salad + sprouts	Mosambi juice	Veg salad + fruit salad
Day 4	Ash gourd juice	Veg salad + fruit salad+ sprouts	Beetroot juice	Fruit salad + sprouts	Carrot juice	Veg salad + fruit salad

Day 5	Bottle gourd juice	Veg salad + fruit salad+ sprouts	Amla juice	Fruit salad + Grabe juice sprouts	Veg salad + fruit salad
Day 6	Plantain pith juice	Veg salad + fruit salad+ sprouts	Watermelon juice	Fruit salad + Curry leaf coriander mint juice	Veg salad + fruit salad
Day 7	Bottle gourd juice	Veg salad + fruit salad+ sprouts	Ragi malt	Fruit salad + Amla juice sprouts	Veg salad + fruit salad
Day 8	Bottle gourd juice	Veg salad + fruit salad+ sprouts	Guava juice	Fruit salad + Beetroot juice sprouts	Veg salad + fruit salad
Day 9	Plantain pith juice	Veg salad + fruit salad+ sprouts	Amla juice	Fruit salad + Water melon juice sprouts	Veg salad + fruit salad
Day 10	Bottle gourd juice	Veg salad + fruit salad+ sprouts	Mosambi juice	Fruit salad + Grape juice sprouts	Veg salad + fruit salad

*150ml of Juice/servings, *250 grams salad/serving

Table-4: Parameters assessed pre and post of the treatment

Parameters	Pre-Assessment	Post-Assessment
Height (cm)	174	174
Weight (kg)	75	71
Body mass index (kg/m ²)	24.5	23.5
Systolic blood pressure [mm/Hg]	120	114
Diastolic blood pressure [mm/Hg]	80	74
Pulse rate (bpm)	78	76

Table-5: Pre and post assessment of symptoms of Ankylosing spondylitis

Assessment tool	Pre assessment	Post assessment
Sit and reach test (in inches)	8	11
Visual analogue scale (VAS)	7	3
Evaluating Ankylosing Spondylitis Quality of Life (EASI-QoL)	61/80	32/80

DISCUSSION

The present study demonstrated the effectiveness of Yoga and Naturopathy in the management of AS. The diet mainly constitutes of fruits and vegetables that prevent the progression of chronic conditions. The clear mechanism yet in debate, still there is numerous important nutrients such as carotenoids, vitamin C, vitamin E, flavonoids, and soluble fibre. Which all has anti-inflammatory properties in it. Individually these nutrients have protective effect against the systemic inflammation [10]. Hydrotherapy relieves the pain and soreness of the muscle. This may occur due to the effects of pressure and temperature on nerve endings. Which increase in methionine-enkephalin plasma levels and, suppresses the plasma β -endorphin, corticotropin, and prolactin levels [18].

Acupuncture and acupressure stimulate the anti-inflammatory effect through various neural - endocrine immune network such as somatosensory, vagal – adrenal anti-inflammatory, cholinergic anti-inflammatory, spinal sympathetic, brain-gut and HPA axis to lower cyclooxygenase-2 (COX-2) and prostaglandin E₂ (PGE₂) levels, which also improve local microcirculation via cyclic guanosine monophosphate (cGMP) by stimulating the nitric oxide (NO) in blood. It helps in enhancing the physical performance by suppressing fatigue inducing molecules in the blood [19,20]. Auriculotherapy with seeds presented positive effects as a therapeutic practice in reducing pain intensity in the chronic pain, by manipulating the spine area to strengthen the low back region and the spine, inducing analgesic and anti-inflammatory actions and assists in the production and release of natural hormones, such as endorphin, directly linked to pain reduction and well-being of individual through stimulating the kidney, and shen-men auricular point [21]. Back-Shu points can regulate the sympathetic and the parasympathetic

activities that affect visceral organs modulates immune function [14].

Yoga therapy help in improving spinal flexibility, posture and decrease in the pain, inflammation, stress through modulation in pain sensitivity and HPA axis [15]. Posture plays vital role in patients with ankylosing spondylitis. Muscle contraction stimulates and promotes the secretion of Interleukin-6 [IL-6] which is well known cytokines called myokines. This myokine also acts indirectly in tumour necrosis factor alpha (TNF- α) expression. Exercise improves quality of life, physical health, and symptoms related to ankylosing spondylitis [16,22]. Mud therapy positively affect the immune system through cenesthetic factors (endorphins), and the diencephalic-pituitary-adrenal axis [23]. These are the possible effects that could have helped in elivating the symptoms of AS.

CONCLUSION

Yoga and naturopathy interventions have shown to be giving valuable result in the reduction of pain, stiffness, and patient's quality of life with ankylosing spondylitis. While the results demonstrate promising improvements following the intervention period, further studies with larger sample sizes are warranted to validate these findings and elucidate the long-term effects of yoga and naturopathy in the management of ankylosing spondylitis.

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