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The synergy of yoga and naturopathy in chronic atopic eczema management: A case report

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Abstract

Atopic eczema is a relapsing inflammatory skin disorder marked by intense itching and lichenification. It is the most common skin disease that affects a significant proportion of the world population, with a prevalence of 20% in children and 2-5% in adults. Despite its high prevalence, the etiology remains unclear, and conventional treatments often have undesirable side effects. Many patients with eczema experience persistent symptoms and decreased quality of life. Yoga and naturopathy interventions were found to be beneficial in improving atopic eczema. This case study explored the effectiveness of yoga and naturopathy in managing eczema. A 43-year-old female was admitted to our inpatient ward with complaints of intense itching with scratching, blackish discoloration, and scaly patches on both the lower limbs and on the right wrist for the past 10 years. She was a known case of atopic dermatitis. During the 21 days of inpatient stay, the patient received Yoga and Naturopathy interventions which reflected positive outcomes in the Eczema Area and Severity Index (EASI), Scoring AD (SCORAD), and Dermatology life quality index, DLQI. These results demonstrated a positive response to treatment, evidencing the potential effect of yoga and naturopathy in treating eczema.

Keywords: Eczema, EASI, SCORAD, yoga and naturopathy

Introduction

Atopic dermatitis (AD) also known as atopic eczema, is a chronic, relapsing inflammatory skin disease characterized by scaly, pruritic, and erythematous lesions ^[1] affecting approximately 230 million individuals worldwide (3.5% of the population). Approximately 60% of the individuals with early onset of atopic dermatitis have remission in adulthood. The prevalence of AD has increased significantly over the past few decades, with a rising incidence in both developed and developing countries. Notably, females are disproportionately affected than males ^[2]. The economic burden of AD is substantial, with escalating costs reported in the United States and Europe ^[3]. The disease exhibits a complex and multifactorial pathogenesis, ^[1] ^[4] involving strong genetic predisposition, epidermal barrier dysfunction, immune dysregulation, skin microbiome abnormalities, and neuro-immune system interactions ^[4]. Notably, null mutations in the filaggrin (FLG) gene which codes for the protein filaggrin, a crucial component of the skin's natural moisturizing factor and skin-barrier function. Epidermal barrier dysfunction, characterized by impaired skin hydration and increased permeability, is a hallmark of AD. Immunological dysregulation, featuring a dominant Th2 response in both acute and chronic phases with dysregulated Th1 response in chronic AD is another key aspect. Elevated levels of interleukins (IL-4, IL-5, IL-13, IL-31) and other cytokines contribute to the inflammatory cascade, leading to skin inflammation and tissue damage ^[5]. The clinical presentation of AD is heterogeneous, occurring in three distinct phases: acute, characterized by vesicular & crusting eruptions; sub-acute marked by dry, scaly erythematous plaques and chronic presenting with lichenification due to repeated scratching ^[6]. AD has a profound impact on quality of life, with patients experiencing sleep disturbances secondary to severe itch and itch-scratch cycles, poor sleep hygiene, and potentially secondary effects of inflammatory cytokines on sleep regulation ^[5]. Notably, certain anti-hypertensive drugs as calcium inhibitors and diuretics can induce eczematous eruptions, particularly in elderly individuals ^[7].

Pharmacological management of AD includes topical corticosteroids, phototherapy, and immunosuppressive or immune-modulatory drugs. However, long-term use can lead to serious metabolic adverse effects,^[8] so treatment should aim to minimize pharmacological interventions and emphasize non-pharmacological approaches as lifestyle modifications.

Lumbar spondylosis is a common musculoskeletal condition affecting younger and older adults,^[9] ranking among the top five causes of disability-adjusted life-years (DALYs) in high-income countries^[10]. It is characterized by lower back pain and muscle tension, with or without sciatica^[9] and can be acute, sub-acute, or chronic^[11]. Chronic low back pain defined as lasting longer than three months,^[10] affects approximately 13% of adults, with one-third experiencing moderate-to high-impact chronic pain^[12]. The impact of back pain extends beyond individual health, causing significant work absenteeism, premature retirement, and economic burden^[13]. Annually, back pain accounts for 4.3 million years lived with disability, nearly twice the burden of any other health condition^[12]. Globally, over a half billion people are suffering from chronic low back pain which results in patients' disability, emotional distress, worsening health status, poor quality of life, and major societal welfare costs.^[10] Low back pain is the single most common cause of disability at the age of 45 years and the second most common reason for visiting a physician^[14].

Approximately, 40% of the reported chronic low back pain cases were found to be related to intervertebral disc disease^[9]. Lumbar disc degeneration is defined as the wear and tear of the lumbar intervertebral disc^[15] and it is mainly occurring at the level of L3-L4 and L4-S1 vertebrae. It leads to disc bulge, osteophyte formation, reduced disc space compression, and irritation of the adjacent nerves that result in degenerative spondylosis and canal narrowing also known as degenerative stenosis. Risk factors included advancing age, obesity, heavy lifting, trauma, torsional stress, socioeconomic status, smoking, vibration, immobilization, psychosocial factors, gender, height, hereditary and genetic factors^[14].

Atopic dermatitis is the most common condition in which complementary therapies are used. Yoga and Naturopathy is a drug-free medical approach that uses non-invasive intervention techniques to create a healing environment for the body^[16]. It is a holistic therapeutic approach targeting the root cause of disease with its effectiveness on both physical and mental health.

Case description

A 43-year-old female patient from Trichy was admitted to our Inpatient ward of Government Yoga and Naturopathy Medical College and Hospital on 07/12/2023 with complaints of intense itching with scratching, blackish discoloration, and scaly patches on both the lower limbs and on the right wrist for the past 10 years. She was under the medication of Chlorpheniramine 4 mg once a day. She has no satisfactory and lasting results in other treatment regimens. The patient had a family history of atopic dermatitis for her brother.

In addition, she reported severe lower back pain radiating to her right leg associated with numbness and tingling sensation for the past 2 years. She noticed that sitting & standing for an extended period and rising from lying & sitting posture aggravated her symptoms. She had steadily reduced her activities of daily living due to increased fear of pain. She reported that she was taking Aceclofenac 100mg and Neurobion 10 mg once a day and was giving temporary pain

relief. Her most recent MRI (30.11.2023) revealed lumbar spondylosis, posterior central disc protrusion at L3-4, L4-5 & L5-S1 associated with disc desiccation causing indentation on ventral thecal sac and bilateral chronic sacroiliitis.

The patient had no history of chronic lifestyle diseases. The patient was taking a mixed diet (both vegetarian and non-vegetarian) and did not have any history of other addictions. The appetite, bowels, and sleep habits of the patient were normal. She was menstruating normally. About her obstetric and gynecological history, all her three deliveries were cesarean section and urinary incontinence was noticed after giving the birth.

Clinical findings

On integumentary system examination, the skin lesion showed dark blackish discoloration, excoriation, and lichenification with irregular margins on the lower half of both lower limbs. There was no oozing in the skin. (Figure 1a, 2a, 3a).

Diagnostic Assessment

The diagnosis was made based on clinical presentation and associated history. The diagnosis was formed through the history of the present illness of the patient's age, gender, atopy history, the onset of lesions, appearance of the scaly patches, family history of atopy, dietary patterns, etc., The Hanifin-Rajka (H-R) criteria for AD were used as an assessment tool, in which scoring of 4 out of 4 in major criteria and 6 out of 23 in minor criteria was found.

Therapeutic intervention

This case report aimed to explore the effectiveness of yoga and naturopathy interventions in reducing the severity of lumbar spondylosis and atopic dermatitis, the intervention details are given in Tables 1, 2, 3, and 4.

Outcomes

The outcome measures utilized in this case report were the Oswestry low back disability questionnaire (ODQ), Visual analogue scale (VAS), Short form McGill pain questionnaire-2 (SF-MPQ-2), Patient health questionnaire (PHQ-9), Eczema Area and Severity Index (EASI), Scoring AD (SCORAD) and Dermatology life quality index (DLQI). In addition, blood pressure, pulse rate, and anthropometry measures were taken before and after the 22 days of intervention the details are given in Tables 5 and 6.

Results

Following a 3-week yoga and naturopathy intervention, significant improvements were observed in eczema symptoms and lumbar spondylosis severity. Eczema severity as assessed by EASI and SCORAD scores, demonstrated a substantial reduction, indicating a marked improvement in disease severity. Specifically, the EASI score decreased from 21 (severe) to 6.4 (mild), representing a 69.5% reduction in eczema severity. Concurrently, lumbar spondylosis severity showed a notable decline, transitioning from severe disability to mild disability (Figure 1b, 2b, 3b).

Discussion

The obtained results showed that 3 weeks of yoga and naturopathy interventions reduced the severity of Atopic dermatitis & Lumbar spondylosis. Plantain leaf bath or wrapping is regarded as one of the detoxification processes by inducing profuse sweating. Neem contains rich

phytochemicals such as beta-sitosterol, nimbolide, azadirachtin, and ascorbate which possess anti-oxidant properties help in scavenging free radicals and anti-inflammatory properties which help in reducing inflammation and its nuclear transcription factors [17]. Mud application to the eczematous areas has greater photoprotective activity and effect on natural cutaneous flora health [18]. Mud therapy decreases the pro-inflammatory cytokines and is shown to effectively improve atopic dermatitis. The significant improvement in the patient's skin condition may have occurred due to decreased levels of gut-derived toxins which can be attributed to the recommended raw diet intake and light vegetarian gluten-free diet [17]. Raw diet is rich in immune-enhancing nutrients such as beta carotene, vitamin C, zinc, selenium, copper, etc. which help in collagen formation, and proliferation of immune cells. Buttermilk enema which acts as a probiotic, promotes the activity of T-cells and Natural killer cells [19]. Steam bath can act as detoxification therapy causing increased oxidation and destruction of

nitrogen-containing wastes and toxins and eliminating them through the skin [17]. During yoga practice, core muscles get activated, and firing patterns vary [20]. Yogic exercises increase the tone of weak muscles and help with conscious control over the autonomic functions of the body. Yoga strengthens the weaker back muscles and corrects poor posture [21]. Back bending asanas and spinal twisting asanas in yoga improve the mobility of the spine, strengthen the back muscles, and prevent further degenerative changes resulting from overloading the intervertebral discs. Yoga improves the strength of abdominal oblique muscles and back muscles which in turn improves spinal flexibility. It increases the range of motion in the lumbar spine while bending, hip flexion, and extension in older people [22]. Heat and cold application improves blood circulation and induces anti-inflammatory cytokines, thus effectively reducing lower back pain [23]. Alternative compress improves muscle tonicity and produces restorative effects on the fatigue muscles [17].



Fig 1a: Pre wrist



Fig 2a: Post wrist



Fig 1b: Pre Ankle and feet



Fig 2b: Post Ankle and feet



Fig 3a: Pre Leg



Fig 3b: Post Leg

Table 1: Hanifin-Rajka (H-R) criteria

Major criteria	Present
Pruritis	✓
Typical morphology and distribution (flexural lichenification/linearity in adults)	✓
Chronic or chronically relapsing dermatitis	✓
Personal or family history of atopy	✓
Minor Criteria	
Xerosis	✓
Itch when sweating	✓
Course influenced by environmental or emotional factors	✓
White dermatographism	✓
Tendency toward nonspecific hand or foot dermatitis	✓
Intolerance to wool and lipid solvents	✓

Timeline of Patient information

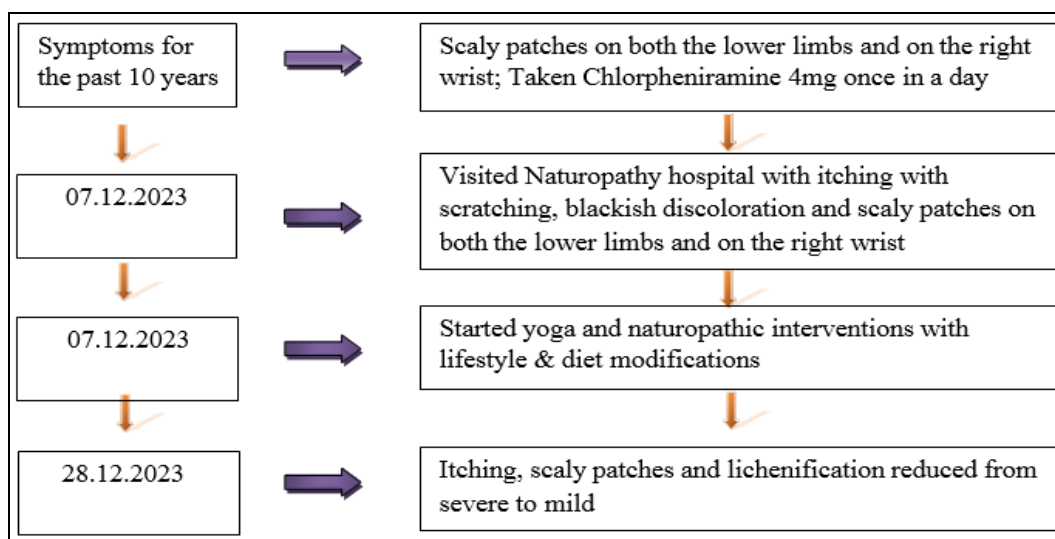


Table 2: Yoga Intervention

Name of the practices	Details	Duration
Loosening exercises	Pawanamuktasana series-1, Crocodile stretches, Piriformis stretch	10 minutes
Yogasanas	Standing: Tadasana, Ardha kati chakrasana, Kati chakrasana, Ardha chakrasana Sitting: Baddha konasana, Vakrasana, Chakki chalasana, Nauka sanchalanasana Supine lying: Ardha pawanamuktasana, Setubandasana, Marjariasana, Shava udharkarshanasana Prone lying: Saral bhujangasana, Triyaka bhujangasana, Bhujangasana, Ardha shalabasana	25 minutes
Breathing exercises	Hands in & out breathing, Hands stretch breathing	5 minutes
Pranayama	Nadishodhana pranayama, Sheetali pranayama, Bhramari pranayama	5 minutes
Relaxation techniques	Deep relaxation technique and yoga nidra (alternate days)	20 minutes

Table 3: Naturopathy Interventions

Days	Morning (between 10 am-12 pm)	Evening (between 3-4 pm)	Acupuncture points used (b/w 12-1 pm)
Day 1 st	Neutral enema, Mud pack to abdomen & eyes	Oil application to the lower back and both legs (20 mins)	Acupuncture (20 mins) UB-40, Sp-6, St-44, UB-23, UB-57, UB-62, LU-9, LU-7, LI-4.
Day 2 nd	Partial massage to low back with Infrared ray exposure (15 mins)	TENS to lower back (10 mins), Mud application to affected areas	
Day 3 rd	Full plantain (25 mins) Leaf bath	Alternate compress to lower back and right leg, Reflexology to palms and soles	
Day 4 th - 6 th	Mud pack to abdomen & eyes (20 mins), Partial massage to lower back and both legs with fomentation for 20 mins	Mud application to affected areas, Wax to lower back (10 mins)	
Day 7 th	Full body massage with Steam bath for 7 mins	TENS to lower back (10 mins), Partial plantain leaf pack to both the legs and right hand	
Day 8 th - 10 th	Partial massage to the lower back and right leg with fomentation Mud pack to abdomen and eyes	Alternate compress to lower back and right leg	
Day 11 th	Full body mud bath (40 mins)	Partial plantain leaf pack to both the legs and right hand	
Day 12 th	Neutral enema, Mud pack to abdomen and eyes (20 mins)	Wax to lower back, Partial plantain leaf pack to both legs and right hand	
Day 13 th - 15 th	Mud pack to abdomen and eyes (20 mins), Tens to low back	Partial massage to the lower back and right leg with fomentation for 10 mins	
Day 16 th	Full body massage with steam bath for 7 mins	Tens to lo back, Partial plantain leaf pack to both the legs and right hand	
Day 17 th - 18 th	Mud pack to abdomen and eyes	Tens to low back Partial plantain leaf pack to both legs and right hand	

Day 19 th	Full body mud bath for 40 mins	Alternate compress to lower back, Partial plantain leaf pack to both the legs and right hand
Day 20 th	Mud pack to abdomen and eyes, Partial massage to lower back and right leg with infra-red exposure for 10 mins	Partial plantain leaf pack to both the legs and right hand
Day 21 st	Buttermilk enema, Mud Pack to the abdomen and eyes	Partial plantain leaf pack to both the legs and right hand
Day 22 nd	Full-body plantain leaf bath for 25 mins	Alternate compress to low back and right leg

Herbal pack applied daily for 22 days

Herbal pack: Neem + turmeric application in morning and Kuppaimeni + betal leaf + Turmeric application in afternoon

Table 4: Diet given to the patient

Morning juice (7am)	Breakfast (9am)	Mid-morning juice (12pm)	Lunch (1.30 pm)	Evening juice (4pm)	Dinner (7pm)
Ash gourd/Lemon mint/Plantain pith/Bottle gourd/Curry leaves	Vegetable salad, Fruit Salad & Sprouts	Amla/beetroot/Curry leaf coriander mint /Grapes	Veg. salad, Fruit salad & sprouts	Muskmelon/watermelon/Curry leaves/ radish/Papaya/Lemon	Veg. salad, Fruit salad & sprouts

Table 5: Assessments

Variables	Baseline	Post-test
ODQ	30 (severe)	11 (mild)
VAS	8	2
SF-MPQ-2	59 (distressing)	14 (mild)
EASI	21.2 (severe)	6.4 (mild)
DLQI	25 (severe)	9 (mild)
SCORAD	21.3	8.5

Table 6: Anthropometric measurements

Parameters	Pre	Post
Height (m)	1.37	1.37
Weight (kg)	63.8	60.2
Blood pressure (mmHg)	142/92	138/91
Pulse rate (beats/min)	88	80
Hip circumference (cm)	87	86
Waist circumference (cm)	117	115
Waist/hip ratio	0.74	0.74
Mid arm circumference (cm)	31	28
Mid-thigh circumference (cm)	57	50

Conclusion

The findings of this study support the use of Yoga and Naturopathy as a holistic approach to treating eczema, addressing not only the physical symptoms but also the emotional and psychological aspects of the disease. Incorporating Yoga and Naturopathy into treatment protocols promotes overall well-being and enhances quality of life. Further research is warranted to explore the mechanisms underlying this therapeutic effect and to establish the long-term benefits of this intervention.

Conflicts of interest: None

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