

Effect of *Tikthadi Kashaya* in Rheumatoid Arthritis

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Abstract— Rheumatoid arthritis (RA) is a chronic, systemic, autoimmune inflammatory disorder primarily affecting synovial joints, leading to pain, stiffness, swelling, and progressive functional disability. In Ayurveda, the clinical presentation of RA closely resembles *Vatasonitam*, an *Avaranajanya Vyadhi* involving vitiation of *Vata Dosha* and *Rakta Dhatu*. Conventional management of RA mainly focuses on symptomatic relief and disease suppression, often associated with adverse effects on long-term use. Hence, there is a need for safe and effective alternative therapies. The present study aimed to evaluate the clinical efficacy of *Tikthadi Kashaya*, a classical Ayurvedic formulation described in *Yogachandrika Vatasonita Chikitsa Adhyaya*, in the management of Rheumatoid Arthritis. This was an open-label, single-arm interventional clinical study conducted on 26 patients diagnosed with RA, aged between 25 and 60 years. The intervention consisted of administration of *Tikthadi Kashaya* 48 ml twice daily, before food, for a duration of 30 days. Assessment was carried out before and after treatment using subjective parameters such as pain, swelling, tenderness, morning stiffness, and range of movement, along with objective laboratory parameters including ESR and RA factor. The results demonstrated statistically significant improvement in clinical symptoms and inflammatory markers. The study concludes that *Tikthadi Kashaya* is effective in reducing the signs, symptoms, and selected laboratory parameters of Rheumatoid Arthritis and can be considered a beneficial Ayurvedic therapeutic option in its management.

Keywords: Ayurveda, Kayachikitsa, Rheumatoid Arthritis, *Tikthadi Kashaya*, *Vatasonitam*

I. INTRODUCTION

Rheumatoid Arthritis (RA) is a chronic inflammatory autoimmune disorder characterized by persistent synovitis, symmetrical joint involvement, morning stiffness, and progressive joint destruction. It affects approximately 0.5–1% of the adult population worldwide, with a higher prevalence among women¹. The disease commonly manifests during the most productive years of life, leading to physical disability, psychological stress, and socioeconomic burden. Despite significant advances in modern medicine, the management of RA remains challenging. Long-term use of NSAIDs, corticosteroids, and DMARDs is often associated with adverse effects such as gastrointestinal complications, osteoporosis, immunosuppression, and hepatotoxicity². Therefore, exploration of alternative systems of medicine with holistic and safer approaches is warranted. In *Ayurveda*, RA closely correlates with *Vatasonitam*, a condition resulting from the mutual aggravation and obstruction of *Vata Dosha* by vitiated *Rakta Dhatu*, predominantly affecting the joints. Classical texts describe various formulations for the management of *Vatasonitam*. *Tikthadi Kashaya*, mentioned in *Yogachandrika*, is indicated for *Daha* and *Arti* in *Vatasonitam* and possesses *Tridosha Shamaka* and *Raktaprasadana* properties³. The present study was undertaken to scientifically evaluate its clinical efficacy in Rheumatoid Arthritis

II. OBJECTIVES

1. To evaluate the effect of *Tikthadi Kashaya* in reducing the signs and symptoms of Rheumatoid Arthritis in a time period of 30 days.

2. To evaluate the effect of *Tikthadi Kashaya* in reducing the blood parameters of Rheumatoid Arthritis in a time period of 30 days.

III. MATERIALS AND METHODS

Study Design

The present study was an open-label, single-arm, interventional clinical study with a pre-test and post-test design, conducted without a control group.

Selection of Patients

A total of 26 patients diagnosed with Rheumatoid Arthritis as per ACR/EULAR criteria were selected from the OPD and IPD of the Department of Kayachikitsa, Sree Narayana Institute of Ayurvedic Studies and Research Hospital, Kollam. Patients of both genders, aged between 25 and 60 years, fulfilling the inclusion and exclusion criteria were enrolled after obtaining informed consent.

Inclusion Criteria

- o Participants included both males and females aged between 25 - 60 years
- o Diagnosed as Rheumatoid Arthritis by satisfying 2010 ACR criteria

Exclusion Criteria

- o Participants with major structural deformity as a complication of Rheumatoid Arthritis
- o Participants with extraarticular manifestation of Rheumatoid Arthritis.
- o Participants diagnosed with SLE, Sjogren's disease, Gouty Arthritis, Osteoarthritis
- o Participants with NSAID'S, steroid therapy.

- o Pregnant and Lactating women
- o Known case of systemic Rheumatic disease

Intervention

Tikthadi Kashaya was prepared according to classical references. Each patient received 48 ml of Tikthadi Kashaya twice daily, morning and evening, half an hour before food, for a period of 30 days.



Fig. 1. Ingredients of Tikthadi Kashaya



Fig. 2. Processed Tikthadi Kashaya choornam

Assessment Criteria

Subjective parameters included pain, tenderness, swelling, warmth of joints, morning stiffness, and range of movement. Objective parameters included ESR and RA factor. Assessments were done before treatment (BT) and after treatment (AT).

Subjective Parameters

1. Pain

VAS was adopted in the study for quantifying the degree of pain experienced by the participant.

TABLE 1. Tenderness

Tenderness grading	Score
No tenderness	0
Patient say joint is tender	1
Tender and winces face	2
Tender winces and withdraw the joint	3
Patient will not allow to touch	4

Statistical Analysis

The collected data were analysed statistically using Paired ‘t’ test and Wilcoxon signed rank test to assess the significance of changes before and after treatment.

Treatment period – 30 days

Follow up – will be done on 45th day

TABLE 2. Morning Stiffness

Swelling	Score
No swelling	0
Slightly obvious swelling	1
Cover well on bony prominence	2
Much elevated so that joints are grossly deformed	3

TABLE 3. Warmth of joint

Warmth of joint	Score
Normal	0
Slight	1
Raised	2

TABLE 4. Range of Movement

Range of movement	Score
Full movement possible	1
>75% but not full movement	2
50%- 75% of movement	3
Up to 50% of movement	4
<50% of movement	5

IV. OBSERVATION AND RESULTS

The majority of participants belonged to the 55–60 years age group (53.85%, n=14), followed by 50–54 years (19.23%, n=5). Participants aged 35–39 years and 45–49 years constituted 11.54% (n=3) each, while 3.84% (n=1) were aged 40–44 years. No participants were below 35 years of age. Out of 26 participants, 84.6% (n=22) were females and 15.4% (n=4) were males, indicating a female predominance. Most participants belonged to the Hindu community (80.8%, n=21), followed by Muslims (11.5%, n=3) and Christians (7.7%, n=2). A majority of participants were married (88.5%, n=23), while 11.5% (n=3) were widows. None of the participants were unmarried. Most participants were from the Above Poverty Line category (76.9%, n=20), while 23.1% (n=6) belonged to the Below Poverty Line category. Educational analysis showed that 38.5% (n=10) had completed pre-degree education, 30.8% (n=8) were graduates, 23% (n=6) had secondary education, and 7.7% (n=2) were postgraduates. The majority were homemakers (65.38%, n=17), followed by manual labourers (19.24%, n=5) and professionals (15.38%, n=4). Most participants were from rural areas (84.62%, n=22), while 15.38% (n=4) were from urban areas. The disease onset was insidious in 96.15% (n=25) of participants, while only 3.85% (n=1) had a sudden onset. The highest proportion of participants had disease duration of 1–3 years (42.31%, n=11), followed by 3–5 years (26.92%, n=7), >5 years (19.23%, n=5), and <1 year (11.54%, n=3). A positive family history was present in 61.54% (n=16) participants, while 38.46% (n=10) had no such history. A history of chikungunya was reported in 23.08% (n=6) participants. A non-vegetarian diet was followed by 88.46% (n=23) participants, whereas 11.54% (n=3) were vegetarians. All participants predominantly consumed Katu rasa (100%), followed by Lavana (92.31%), Amla (76.92%), and Madhura (30.77%). Tikta and Kashaya rasa consumption was absent.

Reduced appetite was observed in 61.54% participants. Irregular bowel habits in 65.38%. Disturbed night sleep in 61.54%. Day sleep in 65.38%. Mild exercise in 53.85% participants. Symmetrical joint involvement was seen in 100% participants. Remission and relapse pattern was observed in all participants. Vatapitta prakriti was predominant (53.85%), followed by Vatakapha prakriti (42.3%).

TABLE 5. Effect of study drug on Pain score

Pain Wilcoxon Signed Ranks Test Ranks						
		N	Mean Rank	Sum of Ranks	Test Statistic, Z	P value
Pain Score AT - Pain Score BT	Negative Rank	26	13.50	351.00	4.572	0.000
	Positive Rank	0	0.00	0.00		
	Ties	0				
	Total	26				

Pain scores showed a highly significant reduction following treatment ($Z=4.572, p<0.001$). Severe pain reduced markedly, with most participants shifting to moderate or mild categories.

TABLE 6. Effect of study drug on joint count

Joint Count Wilcoxon Signed Ranks Test Ranks						
		N	Mean Rank	Sum of Ranks	Test Statistic, Z	P value
Joint Count AT - Joint Count BT	Negative Rank	26	13.50	351	4.522	0.000
	Positive Rank	0	0	0		
	Ties	0				
	Total	26				

Joint involvement significantly reduced after treatment ($Z=4.522, p<0.001$), with most participants moving from moderate/severe to mild joint involvement. Both Grade-1 and Grade-2 warmth showed statistically significant improvement after treatment ($p<0.001$), with marked reduction in the number of affected joints. Morning stiffness grades significantly improved ($Z=4.899, p<0.001$), with complete absence of Grade-4 stiffness post-treatment.

TABLE 7. Assessment of effect of study drug on Hb using paired t test

Hb	Mean	SD	Mean Difference	Test Statistic, t	P
BT	13.19	1.49	0.11	0.761	0.454
AT	13.08	1.63			NS

No statistically significant change was observed in Hb levels ($p>0.05$), indicating that the study drug did not adversely affect haematological status.

TABLE 8. Effect of study drug on ESR

ESR Wilcoxon Signed Ranks Test Ranks						
		N	Mean Rank	Sum of Ranks	Test Statistic, Z	P value
ESR AT - ESR BT	Negative Rank	20	12.13	242.50	3.188	0.001
	Positive Rank	3	11.17	33.50		
	Ties	3				
	Total	26				

TABLE 9. Effect of study drug on RA titre

RA Wilcoxon Signed Ranks Test Ranks						
		N	Mean Rank	Sum of Ranks	Test Statistic, Z	P value
RA AT - RA BT	Negative Rank	22	14.55	320	3.671	0.000
	Positive Rank	4	7.75	31		
	Ties	0				
	Total	26				

Both ESR and RA titre showed a statistically significant reduction after treatment ($p<0.05$), indicating reduction in inflammatory activity. Statistically significant improvement ($p<0.05$) was observed across all major joints—shoulder, elbow, wrist, knee, ankle, MCP, and IP joints—with respect to reduction in swelling, Reduction in tenderness, Improvement in range of motion. Most joints shifted from Grade 2–3 involvement to Grade 0–1, indicating marked clinical improvement.

V. DISCUSSION

Rheumatoid arthritis (RA) is a chronic, systemic autoimmune inflammatory disorder characterized by symmetrical polyarthritis, progressive joint destruction, pain, stiffness, and deformity. Persistent disease activity leads to irreversible damage of articular cartilage and bone, resulting in functional disability. Hence, early diagnosis and timely intervention are essential to prevent structural damage and preserve quality of life. From an Ayurvedic perspective, Rheumatoid Arthritis closely resembles Vatasonita, a condition caused by the vitiation of Vata and Rakta, with the involvement of Pitta and Kapha as Anubandha Doshas⁴. The presence of Agnimandya leading to Ama formation plays a crucial role in the initiation and progression of the disease. Therefore, the management of RA requires a comprehensive approach addressing Dosha imbalance, Ama, and impaired Agni. The principles of Vatasonita Chikitsa thus provide a rational and holistic framework for the management of Rheumatoid Arthritis, and evaluating the efficacy of Ayurvedic formulations such as Tikthadi Kashaya becomes clinically relevant. In the present study, the majority of participants belonged to the age group of 55–60 years, which aligns with the established epidemiology of Rheumatoid Arthritis, wherein disease onset commonly occurs in middle age and progresses over time. Although RA can occur at any age, its prevalence increases with advancing age due to cumulative immune dysregulation and chronic inflammation. A marked female predominance was observed, consistent with global data suggesting a higher incidence of RA among women. Hormonal influences, particularly estrogen, have been implicated in immune modulation; however, the precise mechanisms underlying female susceptibility remain unclear⁵. The majority of participants were married, which reflects the selected age group, and marital status itself has no direct etiological association with RA. Nevertheless, psychosocial factors such as family support can influence disease perception, coping ability, and overall quality of life in chronic inflammatory conditions⁶. Most participants belonged to the above poverty line category, supporting the Ayurvedic description of Vatasonita as

“Adhyaroga”, a disease commonly affecting individuals with affluent lifestyles. Sedentary habits, improper dietary patterns, stress, and lack of physical activity prevalent in higher socioeconomic groups may contribute to disease manifestation⁷. Educational status and occupation did not show a direct association with the occurrence of RA, although a large proportion of homemakers were affected. Factors such as reduced physical activity, repetitive household work, nutritional imbalances, and psychological stress may indirectly predispose individuals to disease development. A predominance of rural participants was observed, which correlates with WHO-COPCORD data indicating a higher prevalence of RA in rural populations in India, possibly due to delayed diagnosis, limited healthcare access, and physical strain⁸. With respect to disease-related parameters, the majority of participants exhibited an insidious onset, which is characteristic of Rheumatoid Arthritis, where symptoms gradually progress over weeks to months. Most participants had disease chronicity ranging from one to three years, highlighting the chronic and progressive nature of RA. Ayurvedic texts describe Vatasonita in two stages—Uthana and Gambheera—where the disease initially affects superficial tissues and later progresses to deeper Dhatus, resulting in joint deformity and functional impairment. A positive family history was observed in more than half of the participants, supporting the role of genetic predisposition in RA, with associations to genetic markers such as HLA-DRB1. Although chikungunya infection was present only in a minority of participants, viral infections are known to act as environmental triggers by initiating autoimmune responses in genetically susceptible individuals. Dietary analysis revealed that the majority of participants followed a non-vegetarian diet with predominant intake of Katu, Lavana, and Amla Rasa, along with frequent consumption of hot and spicy foods. Excessive intake of these Rasas is known to aggravate Vata and Rakta, leading to the manifestation of Vatasonita. Acharya Vagbhata has identified Vidahi and Virudhaahara as important Nidanas of Vatasonita, which correlate with modern dietary factors such as processed foods and red meat that promote systemic inflammation. Reduced appetite observed in most participants further supports the presence of Agnimandya and Ama, which play a central role in disease pathogenesis. Irregular bowel habits, disturbed sleep, day sleep, and lack of adequate physical activity were also commonly observed, all of which are recognized Nidanas for Vata and Rakta vitiation in Ayurvedic literature. Clinically, all participants demonstrated symmetrical joint involvement and a pattern of remission and relapse, which are hallmark features of Rheumatoid Arthritis. Ayurvedic texts describe a similar fluctuating disease course in Vatasonita as “Bhutwabhwta pranasanti muhuravirbhavanti cha⁹.” The predominance of Vata-Pitta Prakriti among participants suggests increased susceptibility to Vata and Rakta vitiation, predisposing individuals to the development of Vatasonita. Following treatment with Tikthadi Kashaya, a significant reduction in pain severity was observed. Pain in Vatasonita is primarily due to aggravated Vata; however, the Tridosahara properties of Tikthadi Kashaya help restore Dosha equilibrium. A substantial decrease in the number of affected joints was also noted,

indicating effective control of disease progression. Improvement in joint warmth can be attributed to the Deepana, Pachana, and Raktashodhana properties of the formulation, which reduce Rakta and Pitta Dushti and facilitate unobstructed circulation within the joints. Morning stiffness showed marked improvement in the majority of participants. Stiffness arises due to the Sheeta Guna of Vata and localized Kapha vitiation, and the Ushna Virya, Vata-Anulomana, and Raktaprasadaka actions of Tikthadi Kashaya effectively counteract these factors. Significant reduction in joint swelling was observed, which is consistent with the Tridoshaja nature of Shotha and the anti-inflammatory, Sophaghna properties of the formulation. Improvement in the range of motion of major joints reflects the reduction of Sthambhana, achieved through Ushna Virya and Vedanasamaka actions of the drugs. Tenderness also decreased significantly, attributable to the pacification of Vata and Pitta Dushti. Laboratory parameters further supported the clinical findings. ESR, an indicator of systemic inflammation, showed a significant reduction, confirming the anti-inflammatory effect of Tikthadi Kashaya. Haemoglobin levels remained stable, indicating the safety of the formulation. A notable reduction in RA titre was observed, suggesting a favourable influence on autoimmune activity and antibody production.

The therapeutic efficacy of Tikthadi Kashaya in Vatasonita can be explained based on its Rasa–Guna–Virya–Vipaka–Karma profile. Rasa analysis reveals the predominance of Tikta, Kashaya, and Katu Rasa, which play a pivotal role in correcting Agnimandya and digesting Ama, the key pathological factors in Vatasonita. Tikta and Amla Rasa exhibit Deepana–Pachana properties, while Madhura, Tikta, and Kashaya Rasa exert Pitta-Shamana effects and help alleviate Rakta Dushti due to the Asraya–Asrayi Bhava¹⁰. Katu Rasa facilitates Srotoshodhana, relieves Sandhigata Avarana of Vata, and reduces Shotha and Stambha, whereas Kashaya Rasa contributes through its Raktashodhana action. Guna analysis shows the dominance of Laghu and Ruksha Guna, which effectively counteract the Guru, Snigdha, and Pichila qualities of Ama, thereby relieving Srotorodha and promoting normal Dosha circulation. Virya analysis indicates a predominance of Ushna Virya, which antagonizes the Sheeta Guna of Vata and Ama, while the presence of Sheeta Virya in Amalaki prevents excessive Rakta aggravation, maintaining Dosha balance¹¹. Vipaka analysis demonstrates the presence of Madhura Vipaka, which supports Vata-Rakta Shamana, and Katu Vipaka, which aids in Ama reduction. The individual drugs further substantiate the formulation’s efficacy. Haritaki and Vibhitaki provide Deepana, Pachana, Anulomana, Shothahara, and Vedanasthapana effects; Amalaki offers Tridosha-Shamana with a predominant Pitta-Shamana action; Guduchi, recognized as an Agrya drug for Vatasonita, effectively pacifies Vata and Rakta while enhancing Agni; Katurohini and Patola contribute Deepana, Raktaprasadana, and Mridu Virechana actions, making them valuable in Raktaja and Pittaja disorders. Thus, Tikthadi Kashaya acts comprehensively by correcting Agni, eliminating Ama, pacifying Doshas, and alleviating joint inflammation and pain, supporting its rational use in the management of Vatasonita. Overall, the findings of this study suggest that Tikthadi Kashaya is effective in reducing clinical

symptoms, inflammatory markers, and autoimmune activity in Rheumatoid Arthritis, supporting the applicability of Vatasonita Chikitsa principles in its management. The formulation demonstrated both efficacy and safety, emphasizing the role of Ayurveda as a complementary and holistic approach in the management of chronic autoimmune disorders like Rheumatoid Arthritis.

VI. CONCLUSION

Rheumatoid Arthritis (RA) is a chronic, autoimmune multisystem disease characterized by symmetrical peripheral polyarthritis, primarily affecting synovial joints. Over time, it can involve other organs and significantly impair quality of life. The disease Vatasonita, as described in Ayurveda classics, shows notable similarities with RA in terms of clinical features and pathology. Demographic analysis revealed that the majority of participants were females aged between 55 to 60 years, Hindu, married, homemakers, residing in rural areas, and belonged to above-poverty-level socioeconomic status. However, due to the small sample size, broad generalizations cannot be made. The majority of participants followed a non-vegetarian diet and regularly consumed hot and spicy foods. The predominant prakriti among participants was Vatapitta. Many participants experienced disturbed sleep at night and had a habit of daytime sleep. Family history was identified as significant contributing factors. Based on the study's observations and results, the alternative hypothesis is accepted, and the null hypothesis is rejected, indicating that Thikthadi Kashaya has a significant effect in reducing the signs, symptoms, and blood parameters associated with RA. The study concludes that the drug is effective in alleviating pain, swelling, morning stiffness, tenderness, and in improving the range of motion. Therefore, Tikhthadi Kashaya is considered an

effective and safe formulation for the management of Rheumatoid Arthritis.

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