

UTILIZATION OF YOGARAJA GUGGULU RASAYANA COMBINED WITH EXTERNAL THERAPIES IN KNEE OSTEOARTHRITIS: A CASE SERIES STUDY

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ABSTRACT

Objectives: To evaluate the efficacy of Ayurveda treatments in managing Knee Osteoarthritis (OA) symptoms, including pain, stiffness, and functional impairment. **Methods:** Four patients with bilateral knee OA underwent treatment at SDM Ayurveda Hospital, Udupi. The regimen included external therapies—*Veshtana* with *Vishagarbha Taila* and *Matra Basti* with *Panchatikta Guggulu Ghrita*—and a 38-day *Yogaraja Guggulu Rasayana* course with a gradually increasing dosage. The WOMAC scale assessed pain, stiffness, and physical function outcomes. **Results:** Significant symptomatic relief was observed in the patients with reduced WOMAC scores. These results suggest that the combined Ayurvedic approach may effectively manage knee Osteoarthritis symptoms. **Conclusion:** In conjunction with external Ayurvedic treatments, *Rasayana* therapy showed promise in managing knee Osteoarthritis symptoms. However, more extensive sample studies must confirm these interventions' applicability and effectiveness.

Keywords: Knee joint Osteoarthritis, *Janu Bheda*, *Rasayana*, Case Series, *Vata Vyadhi*

INTRODUCTION

Osteoarthritis is a disease in which all structures of the joint have undergone pathologic changes, often in concert.^[1] According to WHO, it is defined as a degenerative joint condition causing pain, swelling and stiffness, affecting a person's ability to move freely. It commonly affects the joints such as cervical and lumbosacral spine, hip, knee and first metatarsal phalangeal joints. The osteoarthritis of the lower limbs is mainly seen in the weight-bearing joints such as the knees.^[2] Osteoarthritis of the knee is the second most common problem and is the most frequent joint disease, with a prevalence of 22% to 39% in India. It is more common in women than men, but the prevalence increases dramatically with age; nearly 45% of women over the age of 65 years have symptoms, while radiological evidence is found in 70% of those over 65 years.^[3] It is one of the significant causes of mobility impairment; it was estimated to be the 10th leading cause of nonfatal burden. Mobilising around traditionally larger rooms such as the kitchen, driving a car, walking, climbing stairs and lifting objects appears to be more impeded by knee osteoarthritis, thus hampering daily activities.^[4] The risk factors for Osteoarthritis are numerous, with some of the key ones including Obesity, physical injury, nutritional deficiencies and advanced age. The diagnosis is based on the presenting complaints of persistent knee joint pain, difficulty in daily activities and limited morning stiffness, which are recommended by the EULAR (European League Against Rheumatism) for the diagnosis of Knee Osteoarthritis.^[5] Numerous treatment protocols for managing osteoarthritis are detailed in Ayurveda, which can be classified as *Janu Bheda*, a specific type of *Vata Vyadhi*. When vitiated *Vata* is located in joints; it leads to *Vatapurna Dhruti Sparsha* (palpatory feeling of air inside the joints), *Shotha* (swelling) along with *Prasarana Akunjanayo Vedana* (painful flexion and extension of the joints).^[6] The general approach to treating *Vata Vyadhi* includes *Bahya Snehana*(external oleation),

Swedana(sudation therapy), *Mridu Shodhana* (mild detoxification), *Basti Prayoga*(enema therapy), *Rasayana*(rejuvenation therapy), and *Shamana Prayoga*(internal medications).^[7] Among them, *Rasayana Chikitsa* is the crux of the principal treatment for *Vata Vyadhi*. *Vyadhihara Rasayana* (therapeutic rejuvenation) is administered to use a drug with a larger dosage form, maximum efficacy, and minimum duration.

In clinical trials, case series studies are defined as patients with common characteristics that describe some clinical, pathophysiological or operational aspects of a disease, treatment or diagnostic procedures.^[8] A case series is also appropriate for describing new treatments, previously unknown medication adverse events, and rare diseases.^[9] So, the present study is on a series of four cases managed for Knee Osteoarthritis using *Rasayana* and *Bahya Chikitsa* as a small sample attempt to study the efficacy of the said treatments.

MATERIALS AND METHODS-

From March 2024 to June 2024, patients diagnosed with Osteoarthritis of the knee joint were selected from the Inpatient department (IPD) of SDM College of Ayurveda, Hospital and Research Centre, Udupi. The patients were assessed using the WOMAC scale^[10] for Osteoarthritis of the Knee.

CASE 1

A 66-year-old female patient presented to the outpatient department with bilateral knee joint pain, which began after she gained weight over the past three years. The pain was accompanied by swelling, difficulty while walking, and challenges in performing daily activities. Despite being on medications previously, the patient experienced only minimal relief, and the pain in her right knee was notably more severe. Additionally, the patient has a medical history of Hypertension and type II Diabetes Mellitus, for which she is currently receiving treatment. The patient was stable on general

examination, and no other systemic abnormalities were detected.

CASE 2

A 67-year-old male patient presented to the outpatient department with a primary complaint of bilateral knee joint pain that had persisted for the past four years. The pain was reported to worsen with walking and improve with rest. In addition to his knee pain, the patient has also experienced lower back pain for the past 15 days. He has no known history of systemic illnesses. The patient was found stable upon general examination, and no additional systemic abnormalities were observed.

CASE 3

A 60-year-old female patient, who had been healthy until two years ago, presented to the outpatient department with gradually developing pain in both knees. This pain worsened seven months ago, accompanied by swelling and tenderness. Despite visiting several hospitals, she found little relief. Additionally, the patient reported experiencing low back pain that radiates to the left lower limb,

especially after prolonged standing. She has a known history of Bronchial Asthma and Hyperlipidaemia. The patient was stable upon general examination, and no other systemic abnormalities were detected.

CASE 4

A 65-year-old male patient visited the outpatient department with complaints of bilateral knee joint pain that had persisted for one year, attributed to his nature of work. The pain worsened with activities such as walking, climbing stairs and squatting but was relieved by rest. Despite previous treatment, he did not experience significant relief. Additionally, the patient reported pain in the hip region following excessive walking. The knee pain had intensified five days prior, prompting his visit to our hospital. He has no known history of systemic illnesses. The patient exhibited a Varus deformity of the lower limbs on general examination. He was stable, and no other systemic abnormalities were observed.

Table 1: Demographic data

	Case 1	Case 2	Case 3	Case 4
Gender	Female	Male	Female	Male
Age (in years)	66	67	60	65
Occupation	Homemaker	Fisherman	Teacher	Farmer
Affected side	Bilateral (increased on the right knee)	Bilateral	Bilateral	Bilateral
Duration of the disease (in years)	3	4	2	1

Table 2: BMI-

HEIGHT (in cm)	157	182	158	165
WEIGHT (in kg)	90	72	64	68
BMI	36.5	25.7	21.7	25

Table 3: Knee joint examination- inspection

On inspection	Case 1	Case 2	Case 3	Case 4
Swelling	Present	Absent	Absent	Absent
Discoloration	Absent	Absent	Absent	Absent
Scars	Absent	Absent	Absent	Absent
Varicosity	Absent	Absent	Absent	Absent
Deformity	No	No	No	Genu Varum

Table 4: knee joint examination- palpation

On Palpation	Case 1	Case 2	Case 3	Case 4
Temperature	Not raised	Not raised	Not raised	Not raised
Tenderness	Present	Absent	Present on the medial aspect	Left knee- present
Crepitus	Present	Present	Present	Absent
Fluid effusion	Absent	Absent	Absent	Absent

Table 5: Range of motion

	Case 1	Case 2	Case 3	Case 4
Flexion and extension (active)	Restricted	Restricted	Possible with pain	Possible with pain

The WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index) is a widely used tool to assess the severity of Osteoarthritis symptoms and their impact on daily life. The scoring system of WOMAC is designed to quantify pain, stiffness and physical function.

- **Pain Score (0-20):** Higher scores indicate more pain.
- **Stiffness Score (0-8):** Higher scores indicate greater stiffness.
- **Physical Function Score (0-68):** Higher scores indicate more incredible difficulty in physical function.

Table 6: WOMAC Scale

WOMAC SCALE	Case 1		Case 2		Case 3		Case 4	
	BT	AT	BT	AT	BT	AT	BT	AT
Pain	12	7	9	5	8	3	11	7
Stiffness	4	2	3	1	2	1	4	2
Physical function	33	20	28	16	23	17	36	30

THERAPEUTIC INTERVENTIONS-

External therapies-

1. *Veshtana* to bilateral knees with *Vishagarbha taila*
2. *Matra basti* with *Panchatikta Guggulu Ghrita*

Internal therapy-

Yogaraja Guggulu Rasayana course - The treatment was administered over 38 days. On the first day, the patient was instructed to take two tablets of *Yogaraja Guggulu* (750mg each) on an empty stomach in the morning. Each subsequent day, the dose was increased by two tablets until it reached a maximum of 16. Once the 16-tablet dose was reached, it was maintained consistently for the remaining 30 days of the treatment.

OBSERVATION AND RESULTS-

With the demographic evidence (Table 1), few conclusions can be drawn about the aetiology of the disease.

1. Age- Age is a primary risk factor for the development of OA, likely due to ageing changes in cells and tissues that make the joint more susceptible to damage and less likely to maintain homeostasis. OA is characterised by an imbalance between catabolic and anabolic activity driven by the local production of inflammatory mediators in the cartilage and surrounding joint tissues. The senescent secretory phenotype likely contributes to this imbalance through the increased production of cytokines and MMPs and a reduced response to growth factors.^[11] This most likely occurs in people aged 60 years and above.
2. Weight- the prevalence and severity of knee lesions are positively associated with BMI, with a

nearly four-fold increase in meniscal tears and more than two-fold increase in high-grade cartilage defects in obese individuals relative to normal-weight subjects.^[12]

3. Occupation—Heavy physical workload is one of the most common occupational risk factors for knee OA. Other risk factors include frequent exposure to several biomechanical stressors, such as knee bending, kneeling or squatting, standing for long hours (≥ 2 hours per day), walking ≥ 3 km/day, regular stair climbing, heavy lifting (≥ 10 kg), etc.^[13] One or more of these factors was observed in each of the patients mentioned above.

In each case, significant relief from pain and improvement in daily activities were observed. The range of movements also mildly improved in cases 1 and 2. In each case, stiffness was reduced. A significant reduction in the WOMAC scoring indicated the therapeutic efficacy of the treatments given.

DISCUSSION

Osteoarthritis develops through three main processes: mechanical wear-and-tear, breakdown of joint structures, and joint inflammation. It is mainly caused by joint overuse and ageing, though increased levels of specific molecules in the joint suggest inflammation is also involved. Stress on the cartilage causes cells called Chondrocytes to multiply and become active, producing enzymes that break down the joint's matrix. As the disease progresses, these cells eventually die off, reducing their numbers in the joint.^[14] Pain in Osteoarthritis arises from the innervated structures of the joint, such as the synovium, ligaments, joint capsule, muscles, subchondral bone, and bursa. Most of these are not visualised on the X-ray, and the severity of the X-ray, as well as the pain severity, cannot be correlated.^[15] Using *Rasayana* is the measure to improve the quality of *Rasadi Dhatu*. Through *Rasayana* therapy, Osteoarthritis enhances joint health, reduces inflammation, and improves overall well-being. This approach relieves the symptoms and potentially slows the disease's progression. *Vardhamana Rasayana*

Chikitsa is a specific rejuvenation therapy; *Vardhamana* implies growth or increase, while *Rasayana* refers to rejuvenation or treatment aimed at revitalising the body and mind. It has been mentioned that a slow and gradual increase in the dosage of stronger medications gives maximum benefit without causing distress to the patient.^[16] The same principle has been adopted in this *Vardhamana Yogaraja Guggulu Rasayana* course.

Probable mode of action-

Yogaraja guggulu^[17] has its main therapeutic action as *Vedana Stapaka* and *Shothahara*, which is attributed to the presence of *Guggulu* as the significant ingredient. Mainly, the drugs have properties like *Tikta*, *Kashaya*, *Katu Rasa* and *Ushna*, *Ruksha Guna*, *Ushna Virya* and act as *Kaphavatahara*. Due to its *Lekhana* property, *Guggulu* scrapes away the excessive *Aamatva*, which has accumulated in the joints. *Ushna Guna* helps bring the vitiated *vata* back to normalcy. *Triphala* added it will reduce the *Ushnata* and *Ugrata* of *Guggulu*. Most of the drugs of the compound act as *Vata Shamaka*. These drugs also act as *Vedana Stapaka*, *Shulashamaka*, and *Shothahara*, which are essential in promoting symptomatic relief in *Vatavyadhi*. Plumbagin, an alkaloid present, is a known stimulant of muscle tissue. *Dipana* and *Pachana* dravya, like *Shunti*, *Pippali*, and *Pippalimula*, help the medicine metabolise wholly and efficiently.^[18] Several animal studies have demonstrated the effectiveness of *Guggulu* extract in standard Osteoarthritis (OA) models. The results confirm the anti-inflammatory and antiarthritic activities of *Guggulu*.^[19]

The term *Veshtana* can be seen in the context of *Vatasypakrama*.^[20] The treatment principle aligns with that of the management of pain and swelling in musculoskeletal disorders. The bandages are soaked in warm *Vishagarbha Taila* and wrapped around the affected joints. *Veshtana* provides the *Snigdha Sweda* effect and helps with joint stability. *Vishagarbha Taila* has *Vatahara*, *Vedana Sthapana*, *Ushna* and *Snigdha* properties, all of which aid in mitigating the pain in the knee joints.^[21]

Basti is considered as *Ardha Chikitsa*.^[22] *Matra Basti* is *Balya*, *Brimhana* and *Vatarogahara*. The benefits of *Matra basti* are that the quantity is less, it can be given without complications, and it is easy to administer. Considering the age factor of the subjects, *Matra basti* is one of the ideal options for adopting *Basti chikitsa* without any restrictions.^[23]

CONCLUSION

This case series highlights the effects of *Yogaraja Guggulu Rasayana* in managing pain, a debilitating factor for patients suffering from knee Osteoarthritis, alongside external therapies aimed at strengthening the joint and alleviating other symptoms like stiffness and muscle weakness associated with this degenerative disease. Overall, the patients exhibited marked improvement with minimal treatment time.

LIMITATION OF THE STUDY-

One drawback of case series is the risk of selection bias, where selection is based on the outcome or selection criteria. The number of cases needs to be increased to generalise the treatment of a larger population. A significant number of patients need to be enrolled to properly assess the therapeutic effect in a larger population and establish the efficacy of the treatment. A randomised comparative clinical trial will help properly assess *Yogaraja Rasayana* in patients with knee Osteoarthritis.

Descriptive statistics cannot be used as there are only four cases; thus, the data has been tabulated and presented.

STRENGTH OF THE STUDY-

Rasayana has not yet been explored as a primary treatment for this condition. The study's strength lies in its innovative approach to addressing a longstanding ailment through various Ayurvedic modalities. Improving patient conditions is compelling evidence of *Rasayana's* efficacy in managing the disease.

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