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Effect of *Kolakulaththadi Upanaha* in the Management of *Janu Sandhigatavata*: A Case Series Study

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ABSTRACT

Sandhigatavata is a degenerative joint condition that affects approximately 16% to 23% of the global population. In Ayurveda, it is characterized by the symptoms such as joint pain, swelling, crepitus, and pain during movements. *Janu Sandhigatavata* can be corelated with knee osteoarthritis according to the modern medicine. Currently, there is no satisfactory, comprehensive, and time-bound treatment protocol available for osteoarthritis. This study aims to assess the effectiveness of *Upanaha Sweda* treatment for *Janu Sandhigatavata*. Five patients aged between 40 and 70 yeas, of either sex, who presented to the Outpatient Department of the National Ayurveda Hospital, were selected by using a purposive sampling method. Data were collected by using a relevant proforma. The *Upanaha Sweda* was applied for 12 hours per day and treatment continued for two weeks. Assessment was done statically based on the detailed proforma, adopting and patients were assessed on before and after the treatments. After 14 days of treatment, it was observed that 100% reduction in swelling and 90% improvement in pain during extension, flexion and crepitus. However, further research with a larger sample size is recommended to validate these findings.

Keywords: Ayurveda*, Kolakulaththadi Upanaha, Sandhigatavata*

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Introduction

Osteoarthritis (OA) is the most common musculoskeletal condition and a major cause of disability among the elderly population globally, including in Sri Lanka (Peat, 2001). Currently an estimated 30.8 million adults have osteoarthritis. As the world's population continues to age, it is estimated that degenerative joint diseases such as OA will impact at least 130 million individuals by the year 2050 (United Nations, 2019). The symptoms of OA correlate with *Sandhigatavata* (Thakral, 2020).

Sandhivata is first described by Acharya Charaka as *Sandhigata Anila,* with symptoms of *Shotha* (Swelling) which on palpation feels like a bag filled with air, and *Shula* during joint movement (*Tripathy*, 2020). Acharya Susrutha also mentioned *Shula* and *Shotha* in this disease leading to the diminution (*Hanthi*) of the movement at joint involved (Thakral, 2020). Furthermore, Madhavakara adds *Atopa* (Crepitus in the joint) as an additional clinical feature of it (*Upadhya*, 2009). The disease *Sandhigatavata* is more prone to be affected to knee joint because it is most frequently involved joint in daily routine work. Osteoarthritis of the knee, which is highly prevalent globally affecting approximately 250 million people, accounting for about 3.6% of the population *(Cross et al.,2014*). Therefore, this research will be focus on patients suffering from *Janu Sandhigatavata.*

In Ayurvedic classics, Acharyas have mentioned various therapeutic and para surgical procedures and also many *Vatahara* Yogas, for the management of *Sandhigatavata* like *Snehana* (Oleation), *Swedana* (Sudation), *Agni karma* (Cauterization) and *Bandhana* (Bandage) etc. (*Shastri*, 2001). *Upanaha Sweda* (*Trikamji,* 2001) is one of the modalities of *Swedana karma* used widely in the management of *Sandhigatavata,* which is found to be helpful clinically. Clinically, this therapy has demonstrated efficacy due to its *Vatahara*, *Shothahara*, and *Shoolagna* actions. In this study *Kolakulaththadi Upanaha—a* formulation mentioned in *Charaka Samhita and Bhaisajja Ratnavali* (Govind, 2014) has been selected for the therapeutic application.

The economic impact is significant, with earning losses estimated at $80 billion annually between 2008 and 2011, according to the Osteoarthritis Research Society International (OARSI). Despite various treatments, there is no comprehensive, effective schedule for managing osteoarthritis, and existing options have limitations in improving quality of life. In this context, the study explores the application of *Kolakulaththadi Upanaha Sweda* as a potential treatment option for osteoarthritis. Based on classical references, it is proposed

to enhance the quality of life for osteoarthritis patients with low cost and minimal side effects. This aligns with the need for more affordable, accessible treatments that improve overall well-being for those suffering from this chronic condition.

Objective of the study

The objective of the study is to evaluate the clinical efficacy of *Kolakulaththadi Upanaha Sweda* in the management of *Sandhigatavata.*

Methods/Materials

Study setting: The study was conducted at the Ayurveda National Hospital, Borella located in the Western Province of Sri Lanka.

Study population: The study population consisted of patients diagnosed with *Janu Sandhigatavata* who were registered for treatment at the both Outpatient Department (OPD) and Indoor Patient Department (IPD) of the National Ayurveda Hospital, Borella.

Study design: This research was designed as a case series study, focusing on the clinical outcomes observed in selected patients undergoing treatment with *Kolakulaththadi Upanaha Sweda*.

Case Report: A Total number of five patients, both males and females within the ages 40-70 years were included in the study. Patients presenting with symptoms with pain, swelling and restricted movement of knee joints were considered as eligible for the study. Informed written consent was obtained from all participants prior to the commencement of the study. Clinical features including pain, swelling, and restricted range of movements were measured and recorded before and after the treatment. The Pain Assessment Scale and Oedema Grade Score were used to evaluate the respective parameters objectively. The treatment duration for each patient was fourteen days.

Table 1: Demographic profile of patients with *Janu Sandhigatavata*

	Patient 01	**Patient 02**	**Patient 03**	**Patient 04**	**Patient 05**
Age	61-70	41-50	51-60	61-70	51-60
Gender	Female	Female	Female	Female	Female

Nature of Occupation	Active	Active	Labour	Sedentary	Active
Affected site	B/L Knee joint	B/L Knee joint	B/L Knee joint	B/L Knee joint	B/L Knee joint
Duration	02 years	07 months	01 year	03 years	06 months

Note: Data represent individual patient details. Duration indicates the period since onset of symptoms as reported by patients.

Assessment Criteria

Table 2: Assessment Criteria (Mishra & Shrivastava, 2020)

Symptoms	**Grading parameters**
Shoola (pain)	0 – No Pain 1 – Mild Pain (nagging, annoying, interfering little with activities of daily livings) 2 – Moderate Pain (interferes significantly with activities of daily livings) 3 – Severe Pain (disabling; unable to perform activities of daily livings)
Shotha (Swelling)	0 – No Swelling 1 – 2mm or less: slight pitting, no visible distortion, disappears rapidly 2 – 2-4 mm indent: somewhat deeper pit, no disappears in 10-25 sec. 3 – 4-6mm: pit is noticeably deep. May last more than a minute. Dependent extremity looks swollen and fuller
Hanti Sandhi (Restricted movements)	0 – Can do work unaffectedly 1 – Can do strenuous work with difficulty

	2 – Can do daily routine work with great difficulty
	3 – Cannot do any work

Note: Table adapted from Mishra & Shrivastava (2020). Grading parameters are based on severity of symptoms.

Therapeutic intervention

Patients were advised to follow the treatment for a period of fourteen days Clinical signs and symptoms were recorded before and after the treatment and weekly during the treatment of fourteen days.

Table 3: Ingredient of *Kolakulaththadi Upanaha Sweda* (Trikamji, 2004)

Se. No	**Sanskrit**	**Botanical Name**	**Part Used**	**Quantity**
01	*Kola*	*Zizyphus jujube*	Fruit	01 part
02	*Kulaththa*	*Dolichos biflorus*	Seed	01 part
03	*Suradaru*	*Cedrus deodara*	Bark	01 part
04	*Rasna*	*Pluchea lanceolata*	Rhizome	01 part
05	*Masha*	*Phaseolus radiatus*	Seed	01 part
06	*Uma*	*Linum ustitissimum*	Seed	01 part
07	*Kusta*	*Saussurea lappa*	Stem	01 part
08	*Vacha*	*Acorus calamus*	Rhizome	01 part

09	*Satahva*	*Anethum sowa*	Seed	01 part
10	*Yawa*	*Hordeum vulgare*	Seed	01 part
11	*Eranda*	*Ricinus communis*	Seed	01 part

Note: Ingredients of *Kolakulaththadi Upanaha Sweda* are presented as per the classical text (Trikamji, 2004). Each ingredient is used in equal proportion (01 part).

Method of preparation of *Kolakulaththadi Upanaha*

Figure 1: Preparation steps of *Kolakulaththadi Upanaha*

- According to Bhaisajja Ratnavali, took 10g of each ingredient of Kola, Kulaththa, Suradaru, Rasna, Masa, and oil seeds of Uma, Kushta, Vacha, Satahva, Yawa and Taila Phala were in powder form in equal quantity and mixed with 50ml of Kanji (Tamarind juice) and 5g of Saindhava Lavana (Rock salt).
- Paste heated with light flame. Warmed paste was applied over the Janu sandhi (Knee joint). Then covered with Eranda Patra (Castor leaf) and it was firmly bandaged.
- *Upanaha* was retained for 12 hours, and then it removed and the part was cleaned with warm water.

Table 4: Pharmacodynamics of *Koladi Lepa* (None Rameshwari et al., 2022)

Herb	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Dosha Karma*
Kola	*Katu*	*Ushna, Theekshna*	*Ushna*	*Katu*	*KaphaVatahara*
Kulaththa	*Kashaya*	*Laghu, Ruksha, Theekshna*	*Ushna*	*Katu*	*VataKaphahara*

Suradaru	*Tiktha, Katu, Kashaya*	*Snigdha, Laghu*	*Ushna*	*Katu*	*VataKaphahara*
Rasna	*Tiktha, Katu*	*Laghu, Ruksha, Theekshna*	*Ushna*	*Katu*	*VataKaphahara*
Masha	*Madhura*	*Guru, Snigdha*	*Ushna*	*Madhura*	*Vatahara*
Athasi	*Madhura, Tiktha*	*Guru, Snigdha*	*Ushna*	*Katu*	*Vatahara*
Kushta	*Tiktha, Katu, Madhura*	*Laghu, Ruksha, Theekshna*	*Ushna*	*Katu*	*KaphaVatahara*
Vacha	*Tiktha, Katu*	*Laghu, Theekshna*	*Ushna*	*Katu*	*KaphaVatahara*
Shatahva	*Tiktha, Katu*	*Laghu, Theekshna*	*Ushna*	*Katu*	*KaphaVatahara*
Yawa	*Kashaya, Madhura*	*Guru, Ruksha*	*Sheeta*	*Katu*	*VataPittahara*
Thail Phala	*Madhura, Katu, Kashaya*	*Snigdha, Theekshna*	*Ushna*	*Madhura*	*VataKaphahara*

Note: Pharmacodynamic properties (Rasa, Guna, Veerya, Vipaka, and Dosha Karma) of *Koladi Lepa* ingredients are adapted from None Rameshwari et al. (2022). Terms are used in accordance with Ayurvedic pharmaceutics.

Results and Discussion

The assessment was conducted based on before and after treatments. After 14 days of treatment, it was observed that 100% relief on swelling and 90% relief on pain during extension and flexion and restricted movements.

Table 5: Assessment of Pain during the treatment

Parameter	Before Treatment	After 7th Day	After Treatment
Shoola (Pain)			

Case 01	3	2	0
Case 02	2	1	0
Case 03	3	1	0
Case 04	3	2	1
Case 05	3	2	0

Note: Values represent the severity of *Shoola* (pain) assessed on a numerical grading scale. A progressive reduction in pain was observed from baseline to post-treatment, indicating the effectiveness of the intervention.

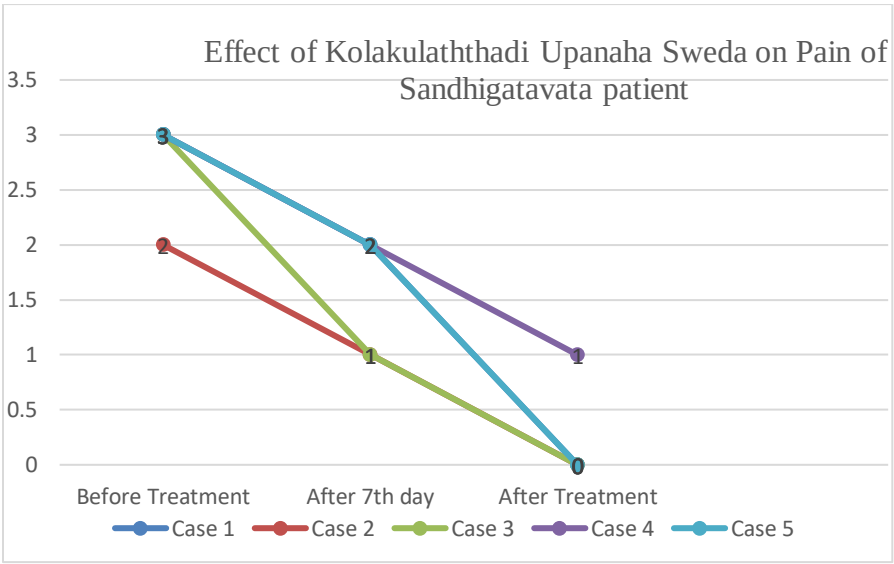

Figure 2: Effect of *Kolakulaththadi Upanaha Sweda* on Pain of *Sandhigatavata* patient

Table 6: Assessment of Swelling during the treatment

Parameter *Shotha* (Swelling)	Before Treatment	After 7th Day	After Treatment
Case 01	3	2	0
Case 02	1	0	0
Case 03	2	1	0
Case 04	3	2	0
Case 05	3	1	0

Note: Values represent the severity of *Shotha* (swelling) assessed on a numerical grading scale. A consistent reduction was observed from baseline to the end of treatment, indicating therapeutic effectiveness.

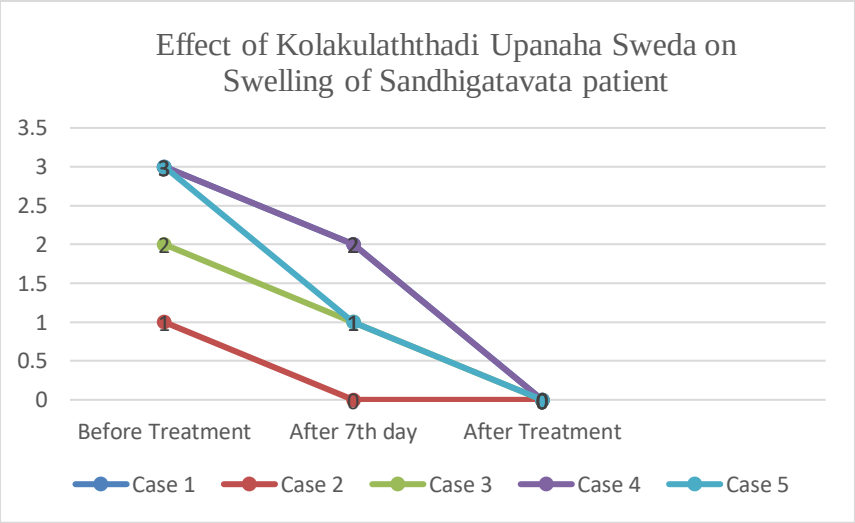

Figure 3: Effect of *Kolakulaththadi Upanaha Sweda* on Swelling of *Sandhigatavata* patient

Table 7: Assessment of Restricted movements during the treatment

Parameter Hanti Sandhi (Restricted movements)	Before Treatment	After 7th Day	After Treatment
Case 01	2	1	0
Case 02	2	1	0
Case 03	3	2	1
Case 04	1	1	0
Case 05	1	0	0

Note: Values indicate the severity of *Hanti Sandhi* (restricted movements) graded numerically. Progressive improvement was observed across cases from baseline to post-treatment, suggesting enhanced joint mobility due to the intervention.

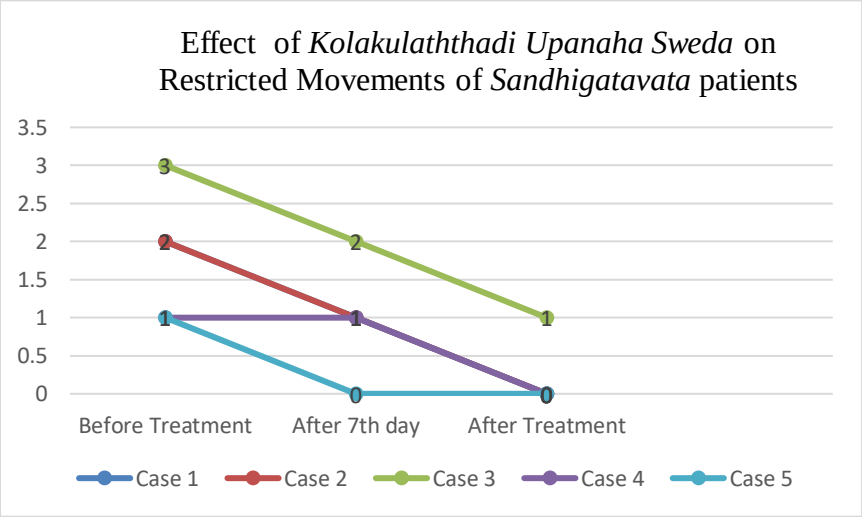

Figure 4: Effect of *Kolakulaththadi Upanaha Sweda* on restricted movements of *Sandhigatavata* patient

Discussion

The present study was designed to evaluate the efficacy of *Kolakulaththadi Upanaha Sweda* in the management of *Janu Sandhigatavata* (knee osteoarthritis). The findings demonstrated remarkable clinical improvement in pain (*Shoola*), swelling (*Shotha*), and restriction of movement (*Hanti Sandhi*) among all five patients after 14 days of therapy. Quantitative assessment showed complete (100%) relief in swelling and approximately 90% reduction in pain and stiffness, indicating the high therapeutic potential of this treatment modality.

The therapeutic effects observed in this study can be explained through both Ayurvedic and modern perspectives. According to Ayurveda, *Sandhigatavata* occurs due to vitiation of *Vata Dosha* and depletion of *Shleshaka Kapha*, leading to dryness, roughness, and degeneration in the joints (*Sandhi*). *Upanaha Sweda* is a form of fomentation (*Swedana Karma*), which pacifies aggravated *Vata Dosha* by its *Snigdha* (unctuous) and *Ushna* (hot) qualities, thereby relieving pain and stiffness while promoting flexibility.

The ingredients of *Kolakulaththadi Upanaha* are specifically selected for their *Vata-Kapha hara*, *Shothahara* (anti-inflammatory), and *Shoolahara* (analgesic) actions. *Kulaththa* (*Dolichos biflorus*) and *Rasna* (*Pluchea lanceolata*) are classical *Vatahara* drugs that alleviate joint pain and stiffness. *Suradaru* (*Cedrus deodara*) and *Kushta* (*Saussurea lappa*) exhibit strong anti-inflammatory and analgesic properties, contributing to the reduction of swelling. *Masha* (*Phaseolus radiatus*) and *Athasi* (*Linum usitatissimum*) are *Snigdha* in nature, nourishing the tissues and counteracting dryness in the joint. The heating process and topical application enhance drug absorption through transdermal pathways and increase local circulation, which aids in the removal of inflammatory mediators and metabolic waste.

The results are consistent with earlier studies demonstrating the efficacy of *Upanaha Sweda* in managing *Sandhigatavata*. Mishra and Shrivastava (2020) reported significant relief in joint pain and stiffness with *Upanaha Sweda* using similar formulations. Rameshwari et al. (2022) also observed notable anti-inflammatory and *Vatahara* effects in patients treated with *Koladi Lepa*, a closely related preparation. These findings support the hypothesis that the combination of *Ushna*, *Snigdha*, and *Theekshna Guna* of the ingredients provides synergistic relief in degenerative joint disorders.

In the modern biomedical context, the observed improvement can be correlated with enhanced microcirculation, muscle relaxation, and reduction in local inflammation due to the thermal and phytochemical effects of the formulation. The warmth of *Upanaha* improves synovial fluid viscosity and joint lubrication, leading to smoother movements and reduced friction within the knee joint.

Conclusion

The findings of this case series indicate that *Kolakulaththadi Upanaha Sweda* is highly effective in alleviating the cardinal symptoms of *Janu Sandhigatavata* — namely pain, swelling, and restricted movement. The therapy acts through *Vata-Kapha Shamana* and *Shothahara* mechanisms, enhancing joint mobility and improving overall functional capacity. The treatment is simple to administer, cost-effective, and well-tolerated by patients, making it a viable option for both outpatient and inpatient care in Ayurvedic practice.

This study reinforces the clinical importance of *Upanaha Sweda* as a potent external therapy in degenerative joint disorders and highlights its potential integration into routine management of knee osteoarthritis. To establish stronger scientific evidence, further research with larger sample sizes, randomized controlled trials, and objective outcome measures is strongly recommended.

Overall, *Kolakulaththadi Upanaha Sweda* may serve as a promising, safe, and economical Ayurvedic therapeutic modality for improving the quality of life in patients suffering from *Janu Sandhigatavata.*

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