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Research Article

A CLINICAL STUDY OF *KOPURANTHANGI CHOORANAM* IN THE MANAGEMENT OF *THANDAGAVATHAM* (LUMBAR SPONDYLOSIS) AMONG PATIENTS ATTENDING OPD, GSMC, PALAYAMKOTTAI

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ABSTRACT

Lumbar spondylosis is a degenerative spinal condition that causes severe pain, stiffness, and functional disability. It has a major impact on daily activities of affected individual. Conventional management usually focus on relieving symptoms, but they provide temporary benefits and are associated with adverse reaction. Certain Siddha formulations offer a potential alternative due to their anti-inflammatory and rejuvenating properties. **Objective**: To evaluate the efficacy of *Kopuranthangi chooranam* in the management of *Thandagavatham* (lumbar spondylosis) among patients attending OPD in GSMC, Palayamkottai. **Methods**: A prospective, open-label, single arm clinical study was conducted among 20 patients diagnosed with lumbar spondylosis (*Thandagavatham*) based on clinical and radiological findings. *Kopurathangi Chooranam* (2 grams) was administered twice daily with ghee as *Anubanam* for 45 days. Outcome measures included Pain likert scale, Oswestry Disability Index (ODI), and range of spinal movements. Statistical analysis was performed using paired t- test, with $p<0.05$ considered significant. **Results**: The mean pain score significantly reduced from 4.85±1.03 to 1.45±0.51($p<0.001$). The mean ODI score improved from 60.6±9.29 to 47.1±8.39 ($p<0.001$), indicating a significant reduction in functional disability. Progressive improvement was observed throughout the treatment period. No adverse effects were reported. **Conclusion**: *Kopurathangi Chooranam* demonstrated significant clinical efficacy in reducing pain and improving functional ability in patients with *Thandagavatham* (lumbar spondylosis). Further, large-scale randomized controlled trials are needed to validate these findings.

INTRODUCTION

Lumbar spondylosis is a chronic degenerative disorder of the lumbar spine involving the intervertebral discs, vertebral bodies, facet joints, and associated ligaments. It is classified under musculoskeletal disorder, unspecified ICD-11 FA8Z and represents a significant global health concern, particularly among middle-aged and elderly population. It is estimated that up to 80-85% of individuals experience low back pain at some point in their life time, with lumbar spondylosis being a major contributing factor.

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Clinically, it presents with persistent low back pain, morning stiffness, restricted movements, and in severe cases, radiculopathy due to nerve root compression.[2]

In contemporary clinical practice, the management of lumbar spondylosis primarily involves nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxants, physical therapy and surgical intervention in refractory cases. Although these treatment modalities provide symptomatic relief, their long-term use is often associated with adverse effects, high costs and recurrence of symptoms. These limitations necessitate the exploration of safer and more sustainable therapeutic alternatives.

The Siddha medicine, one of the traditional systems of medicine originating from South India, offers wide range of herbo-mineral formulations for the management of chronic diseases. According to The Siddha system of medicine, the diseases are caused by

the imbalance of three fundamental humors– *Vatha*, *Pitha* and *Kapha.* The medicines were also formulated accordingly. The symptoms of Lumbar spondylosis can be correlated with clinical pictures of *Thandagavatham*, a type of *Vatha* disease. *Thandagavatham* is characterized by pain, stiffness, restricted mobility and radiating pain affecting lower limbs, closely resembling the clinical presentation of lumbar spondylosis.

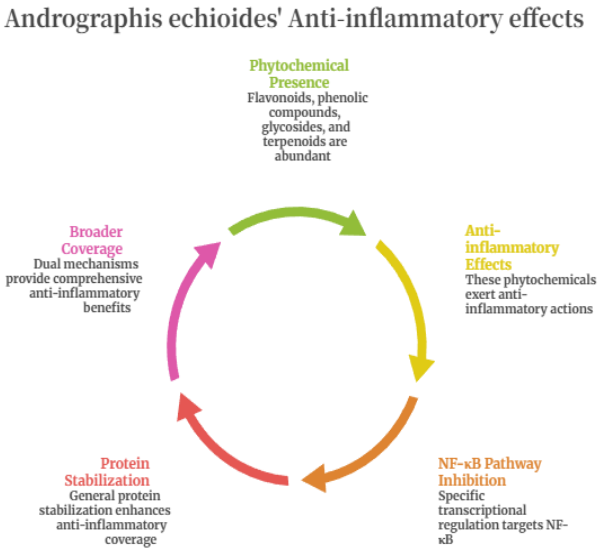
Classical literature such as *Yugi Vaithya Sinthamani* described *Thandagavatham* in detail, emphasizing its pathophysiology and clinical features. The management of *Vatha* disorders in Siddha Medicine focuses on restoring the balance of *Vatham* through appropriate internal and external therapies. It is described in *Yugi Vaithiya Sinthamani*

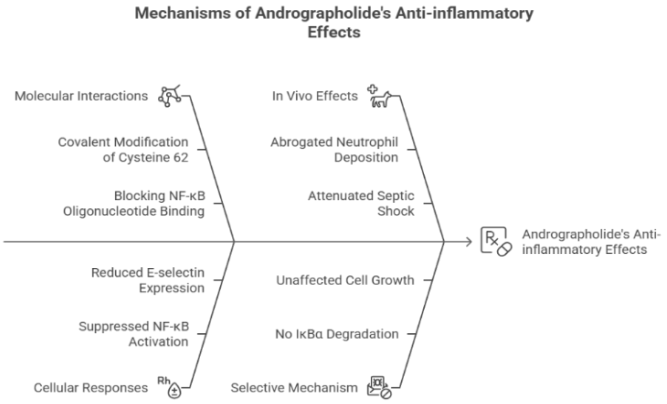
Kopuranthangi Chooranam, a Siddha herbal formulation, contains Andrographis echioides as its primary ingredient. In conformity with *Agathiyar Gunavagadam*, the plant is traditionally known for its bitter and astringent taste, cold potency and therapeutic efficacy in *Vatha* – related disorders.

Based on these traditional claims and emerging scientific evidence, the present study was undertaken to evaluate the clinical efficacy of *Kopuranthangi Chooranam* in the management of *Thandagavatham.*

Pharmacological insights of *Andrographis echioides*

Recent studies suggest that *Andrographis echioides* exhibits anti-ulcer, antibacterial, antifungal, and anti-inflammatory activities by its flavonoid, tannin, terpenoid, and phenolic constituents. It exhibits its anti- inflammatory effects through dual mechanism NF-κB pathway inhibition and protein stabilization. Moreover, it has gastroprotective effects that overcome the adverse effects of NSAIDs.[1,5-6]





AIM

To evaluate the efficacy of *Kopuranthangi chooranam* in the management of *Thandagavatham* (lumbar spondylosis) among patients attending OPD in GSMC, Palayamkottai.

OBJECTIVES

Primary Objective

To assess the efficacy of *Kopuranthangi chooranam* in the management of *Thandagavatham* (Lumbar spondylosis) using Pain likert scale among patients attending OPD in GSMC, Palayamkottai.

MATERIALS AND METHODS

Study Design and Setting

A prospective, open-label, single-arm clinical trial was conducted to evaluate the efficacy of *Kopurathangi Chooranam* in patients diagnosed with *Thandagavatham* (lumbar spondylosis). The study was carried out at the Outpatient Department of PG-Noinadal, Government Siddha Medical College, Palayamkottai, Tirunelveli, Tamil Nadu, India from September 2025 to December 2025.

Ethical Considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee (IEC No: [GSMC/5676/P&D/Res/IEC/2014]). The study was registered in the Clinical Trials Registry of India (Registration No: CTRI/2025/09/095322). Written informed consent was obtained from all participants prior to their inclusion in the study.

Sample Size

A total of 20 patients who fulfilled the inclusion and exclusion criteria were enrolled in the study.

Inclusion Criteria

- Age between 30 to 70 years.
- Both Male and Female.
- Patients presenting with symptoms of:
  - Low back pain that radiates to both lower legs.
  - Stiffness
  - Limited range of motion
  - Tingling or numbness in the legs
  - Weakness in lower limbs

- Difficulty walking or standing for long periods.

- Radiological evidence such as showing disc degeneration, osteophyte formation or disc bulge.

Exclusion Criteria

- Pregnant women and lactating women.
- Patients with history of renal diseases.
- Severe systemic illness like malignancy.
- Ankylosis spondylosis
- Spinal tuberculosis

Intervention

Drug used: *Kopuranthangi Chooranam*

Ingredient: *Kopuranthangi* (*Andrographis echioides*)

Dosage: 2 grams

Duration: 45 days (BD after food)

Anubanam: Nei

Drug Authentication and Preparation

The raw drug, *Kopuranthangi* (*Andrographis echioides*) was authenticated by Department of Gunapadam, Government Siddha Medical College. The drug was processed into *Chooranam* (fine powder) following standard Siddha pharmaceutical procedure and stored in airtight containers.

Data Collection

Baseline data including demographic details, clinical history, duration of illness were recorded using a structured proforma. Patients were assessed at baseline and at regular intervals (10^{th}, 20^{th}, 30^{th}, 40^{th} day)

Clinical Assessment

Clinical evaluation included physical examination and specific tests such as straight leg raising test, femoral nerve stretch test and FABER test to assess nerve root involvement and mechanical dysfunction.

Outcome Measures

Primary outcome: Reduction in pain assessed using the Pain Likert Scale.

Secondary Outcomes

Functional disability assessed using the Oswestry Disability Index (ODI).

Improvement in range of spinal movements.

Statistical Analysis

Data were entered into Microsoft Excel and analysed using SPSS version 25.0. Descriptive statistics were expressed as mean±standard deviation (SD). The paired t- test was used to compare pre- and post-treatment values. A p-value of <0.05 was considered statistically significant.

RESULTS

Demographic characteristics

A total of 20 patients were included in the study. The majority of participants belonged to 41-50 years age group(n=9), followed by 51-60 years (n=6), 61-70 years (n=3), and 30-40 years (n=2). The mean age of the study population was 51±8.99 years.

Among 20 participants, 13(65%) were female and 7(35%) were male.

Figure:1 Age distribution

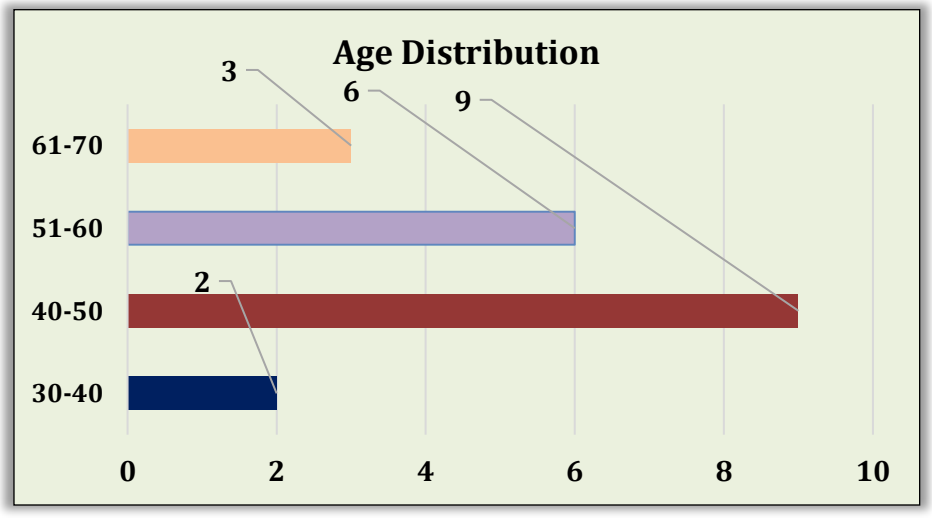


Table 1: Age distribution

S.No	Age group	No. of Participants
1.	30-40	2
2.	40-50	9
3.	51-60	6
4.	61-70	3

Figure 2: Sex distribution

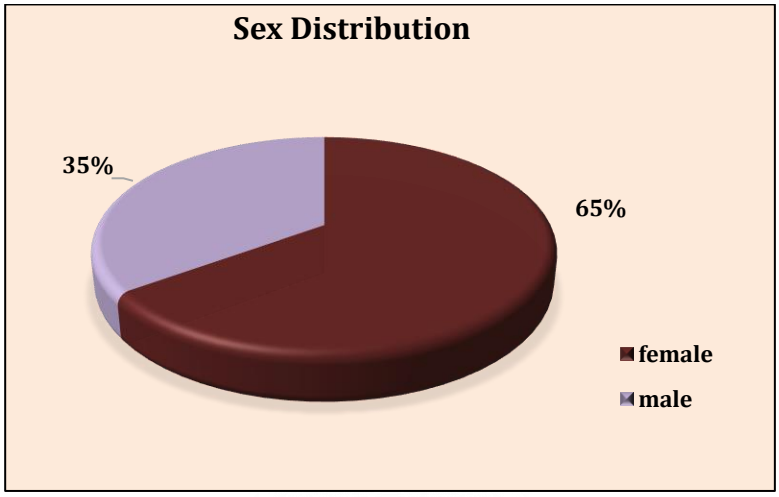


Table 2: Sex distribution

S.No	Sex Distribution	No. of Participants
1	Female	13
2	Male	7

Table 3: Distribution of patients based on symptoms (Before and After Treatment)

Symptoms	Before Treatment (n=20)	After Treatment (n=20)
Low back pain	20	6
Stiffness	18	7
Numbness	15	6
Restricted movement	17	8
Radiating pain	14	5

A significant reduction in the frequency of clinical symptoms was observed after treatment. Low back pain was reduced in majority of participants (n=14) followed by stiffness (n=11), numbness (n=9), restricted movement (n=9) and radiating pain (n=9).

Table 4: Distribution of patients based on SLR test (Before and After Treatment)

SLR test	Before Treatment	After treatment
Positive	14	6
Negative	6	14

There was a noticeable reduction in the number of patients with positive SLR test after treatment.

Table 5: Distribution of patients based on Faber test (Before and After Treatment)

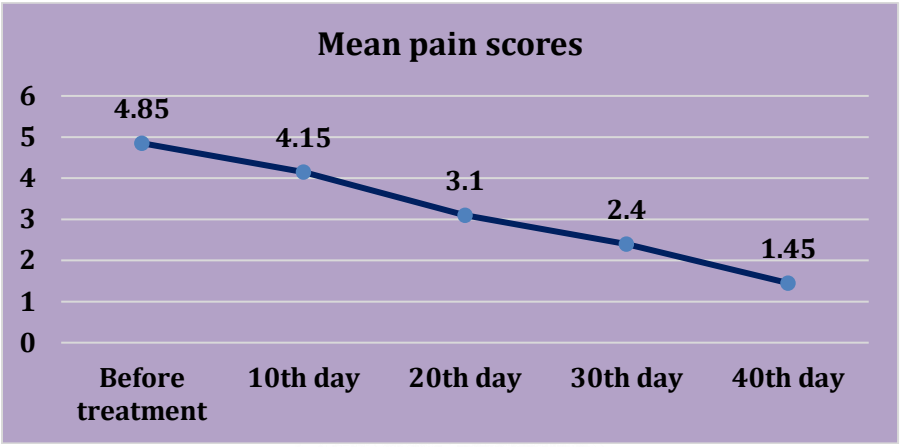
Faber test	Before Treatment	After treatment
Positive	12	5
Negative	8	15

Pain score (Mean comparison)

Table 6: Mean pain scores during treatment

Time period	Mean ± SD
Before treatment	4.85 ± 1.03
10th day	4.15 ± 0.98
20th day	3.1 ± 1.02
30th day	2.4 ± 0.59
40th day	1.45 ± 0.51

Figure 3: Mean pain scores



Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	before_treatment - after_treatment	3.40000	.88258	.19735	2.98694	3.81306	17.228	19	.000

The mean pain score showed a statistically significant reduction from 4.85±1.03 at baseline to 1.45±0.51 at the end of the treatment period ($p<0.001$). A progressive reduction in pain scores was observed at each follow-up interval (10th, 20th, 30th, 40th day) indicating sustained therapeutic effect.

Oswestry Disability Index

The Oswestry Disability Index (ODI) is a self-administered questionnaire used to measure functional disability in patients with low back pain. It consists of 10 components such as pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life, traveling. Each scored 0-5. Total scores were multiplied by 2 to get percentage of functional disability. The clinical outcome was also measured using this index.

- 0–20% (Minimal)
- 21–40% (Moderate)
- 41–60% (Severe)
- 61–80% (Crippled)
- 81–100% (Bed-bound)

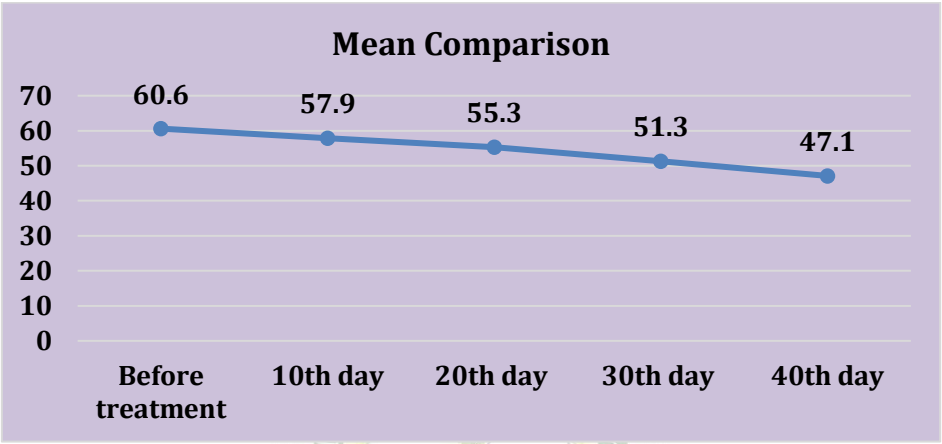
Table 7: Mean ODI scores

Time period	Mean ± SD
Before treatment	60.6 ± 9.29
10th day	57.9 ± 9.30
20th day	55.3 ± 9.25
30th day	51.3 ± 9.43
40th day	47.1 ± 8.39

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	before_treatment - after_treatment	13.50000	4.71839	1.05506	11.29173	15.70827	12.795	19	.000

The Oswestry disability index was used to assess the functional disability. The lower percent values are indicative of lesser functional disability and higher values are indicative of higher functional disability. The mean Oswestry disability index (ODI) scores were significantly decreased from 60.6±9.29 at baseline to 47.1±8.39 after treatment (P<0.001), indicating marked improvement in functional disability.

Figure 4: Mean ODI scores



DISCUSSION

The present study evaluated the clinical efficacy of *Kopuranthangi chooranam* in the management of *Thandagavatham* (lumbar spondylosis). The findings demonstrated a statistically significant reduction in pain intensity and functional disability following 45 days of treatment, indicating the therapeutic potential of this Siddha formulation.

The significant reduction in mean pain scores and improvement in Oswestry Disability Index (ODI) suggest both symptomatic relief and enhanced functional capacity among the study participants. These findings are consistent with the expected clinical outcomes in the management of degenerative spinal disorders, where reduction in inflammation and restoration of mobility are key therapeutic goals.

Lumbar spondylosis is characterized by degenerative changes in the spine associated with chronic inflammation and mechanical stress. The observed clinical improvement in this study may be attributed to the pharmacological properties of Andrographis echioides, the primary ingredient of *Kopuranthangi Chooranam*. Previous studies have reported its anti- inflammatory, antioxidant and analgesic activities which are mediated through the inhibition of pro- inflammatory pathways such as nuclear factor– *Kappa* (NF-kB) and stabilization of cellular proteins. These mechanisms may contribute to the reduction of inflammation, pain in lumbar spondylosis.

From a Siddha perspective, *Thandagavatham* is a Vatha disorder characterized by *Vatha* derangement presenting with symptoms of pain, stiffness and restricted movements. *Kopuranthangi chooranam*, with its bitter and astringent taste may help in pacifying the aggravated *Vatham*. The use of ghee as *Anubanam* may further enhance drug absorption and help to alleviate dryness, one of the characters of *Vatham*.

The progressive improvement observed at regular intervals throughout the study indicates a sustained effect of the formulation. Further, absence of adverse reaction suggests that the drug is well tolerated and safe.

Limitations

The small sample size, absence of control group and open–label design may limit the generalizability of the findings. Moreover, short duration of follow up may limit the assessment of long-term outcomes or recurrence. Further studies with larger sample size, randomized controlled trials and longer follow -up are needed to validate these findings.

CONCLUSION

The findings of the present study indicate that *Kopuranthangi Chooranam* is effective in reducing the symptoms of *Thandagavatham* (lumbar spondylosis). Statistically significant. improvements were observed in both pain scores and Oswestry Disability Index following 45 days of treatment. Given the limitations of the study, further large- scale randomized controlled trials are needed to establish the long-term benefits of *Kopuranthangi Chooranam*.

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