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Comparative Effect of *Patra Pinda Swedana* and *Erand Mooladi Basti* in Lumbar Spondylosis: Research Article

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ABSTRACT

Lumbar Spondylosis has become a roaring complaint due to its chronicity, incurability, complications and morbidity and is expected to increase in magnitude in coming years. Lumbar Spondylosis refers to the anatomical changes to the spine and intervertebral disc spaces. In the present study comparative assessment of *Patra Pinda Swedana* and *Erand Mooladi Basti* in lumbar spondylosis has been attempted. Forty two patients of either sex between the age of 40-70 years, having signs and symptoms of lumbar spondylosis were selected and randomly divided into two groups. In Group A, 2 sittings of 15 days each of *Patra Pinda Swedana* at an interval of 15 days was done and in Group B, 2 sittings of 15 days each of *Erand Mooladi Basti* at an interval of 15 days was given. Both the groups showed statistically highly significant (P<0.001) results in improving *Katigraha, Katishula*, tenderness, flexion, extension, left lateral flexion, right lateral flexion and VAS. Group A showed highly significant (P<0.001) result in improving *Gridhrasivata Pida* while Group B showed statistically significant (P<0.05) result. Both *Basti* and *Patra Pinda Swedana* provide effective result in such an agonizing condition but on comparative evaluation *Basti* provides sustained release.

Key Words *Lumbar spondylosis*, *Patra Pinda Swedana*, *Erand Mooladi Basti*, *Katigraha*, *Katishula*

INTRODUCTION

Lumbar Spondylosis is a pain dominant disorder, seems to be apparently non-serious but cripples the patient if not treated properly, and may lead to catastrophic complication. It can be described as all degenerative conditions affecting the discs, vertebral bodies, and associated joints of the lumbar vertebrae[1]. It can be correlated to *Katigraha* based on its clinical manifestation.

Katigraha has not been explained as a separate disease entity in *Brihatrayees*. *Acharya Shodhala* explained *Katigraha*[2] as pain that is produced due to stiffness produced by *Saama* or *Nirama Vayu* movement into *Kati*. Lumbar Spondylosis affects approximately 60–85% of adults during some point in their lives[3]. It can affect people of all ages, from adolescents to the elderly[4]. Worldwide, Lumbar Spondylosis is the single

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leading cause of disability that prevents people from doing their work and other day to day activities[5]. The 2010 Global burden of disease study estimated Lumbar Spondylosis to be among the top 10 diseases.[6]

Despite technological and pharmacological advancement in modern system of medicine, the management of lumbar spondylosis is still a problem as no concrete gold standard treatment is available except some palliative measures. Epidemic of opioid overuse and abuse has already lead health fraternities to acknowledge other conservative measures and prescription of opioids or surgical intervention only under special circumstances. Chances of recurrence are high even after surgery. These treatments drain the patient physically and financially.

Lumbar Spondylosis is a *Vata* dominant degenerative disorder. Wide range of treatment modalities have been explained in the *Ayurveda* for *Vata Vyadhis*. *Patra Pinda Swedana* is widely used procedure which produces both *Snehana* and *Swedana* effect and causes *Samshamana* of *Vata* and *Kapha Dosha*. *Erand Mooladi Basti* was selected as *Basti* is a pioneer treatment for *Vata* as has been aptly said "*Basti Vataharanam Shrestham*" and *Erand*[7] is one among the best *Vatahara* drugs. An open label, randomized clinical trial (RCT) to evaluate the efficacy of *Patra Pinda Swedana* and *Erand Mooladi Basti* in Lumbar Spondylosis was initiated.

MATERIALS AND METHODS

Selection of patient:

Patients with features of the Lumbar Spondylosis attending the OPD and IPD of Panchakarma department of Rishikul Campus Hospital, UAU, Haridwar were selected randomly for this clinical study, irrespective of sex, religion, occupation, etc. Total 54 patients were screened, out of which 42 were enrolled and randomly divided into two groups.

Inclusion Criteria

➢ Age 40- 70 years

➢ Clinical features suggesting lumbar spondylosis

➢ X ray findings showing lumbar spondylosis

➢ Patient fit for *Patra Pinda Swedana & Basti* procedure.

➢ Willing to sign the consent for study participation

Exclusion Criteria

➢ Elevated CRP, Uric acid levels

➢ Positive rheumatoid factor

➢ Uncontrolled diabetes mellitus & hypertension.

➢ Known case of malignancy, IHD, CHF and any other vascular disorders.

➢ Patient suffering from ano-rectal ailments.

➢ Any infectious disease

Investigations: Following investigations were carried out before starting the treatment.

➢ CBC

➢ Blood glucose level

➢ Serum uric acid

➢ CRP

➢ Rheumatoid factor

➢ Urine analysis routine and microscopic

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➤ X- ray

➤ MRI (If required)

Selection of drug/medicine

1. ***Patra Pinda Swedana*:** Ingredients are Leaves of *Shigru, Chincha, Arka, Nirgundi, Varuna, Erand*; grated coconut, garlic, fenugreek seeds, *Saindhava Lavana*, *Moorchita Tila Taila*

2. Erand Mooladi Basti *Niruha Basti* was prepared according to table 1

Table 1 Composition of *Niruha Basti*[8]

Content	Quantity
Makshika	80 ml
Saindhav Lavana	5 gm
Moorchita Tila Taila	120 ml
Kalka (*Shatahva, Hapusha, Priyamgu, Pippali, Madhuka, Bala, Rasanjana, Vatsak, Musta*)	40 gm
Erandmooladi Kwath (*Erand Moola, Palash, Laghu Panchamoola, Ashwagandha, Atibala, Aragvadha, Guduchi, Punarnava. Devdaru, Madanphala*)	160 ml
Gomutra	80 ml

Anuvasana Basti-

Moorchita Tila Taila- 120 ml

Saindhava Lavana- 2.5 gm

Diagnostic and assessment criteria

Patients were diagnosed on the basis of signs and symptoms of Lumbar Spondylosis according to Ayurvedic and modern classics. The detailed examination to exclude other disease was carried out. The assessment was done on the subjective parameters shown in table 2 and objective parameters mentioned in table 3. Scoring was done before and after the treatment.

Subjective criteria:-

➤ *Katigraha*

➤ *Katishula*

➤ *Gridhrasivata pida*

➤ Tenderness

Objective criteria:-

➤ VAS (Visual Analogue Scale)

➤ Range of movement- Flexion, Extension, Right Lateral Flexion, Left Lateral Flexion

➤ SLR test- Left and Right leg

Table 2 Grading for subjective criteria

Subjective criteria	Parameters	Score
Katigraha	No stiffness or stiffness lasting upto 5 min	0
	Stiffness lasting for 5 min to 2 hrs	1
	Stiffness lasting for 2 to 8 hours	2
	Stiffness lasting for more than 8 hours	3
Katishula	No pain	0
	Localized, recurrent, mild pain in back, not radiating to legs, exaggerated by walking & lifting weight, completely relieved by rest	1
	Recurrent, mild but uncomfortable pain in back, radiating to one/ both leg,exaggerated by movements, subsided by rest.	2
	Moderate but dreadful pain in the back, with/ without radiation, exaggerated by bending, not relieved by rest, relieved by fomentation & massage, not disturbing sleep	3
	Severe (horrible) pain in the back with /without radiation to legs, unchanged by rest, disturbing the sleep, relieved by fomentation, lotions or lower analgesics.	4
	Severe (agonizing) continuous pain in the back, radiation to both legs, disturbs sleep, requires higher analgesics or major injections for spinal block.	5
	6- Intense degree of continuous pain not relieved by any measures.	6
Gridhrasivata Pida	No radiation of pain.	0
	Radiation of pain to *Sphik, Kati, Prishta and Uru Pradesha* of one leg only.	1
	Radiation of pain to *Sphik, Kati, Prishta, Uru Pradesha* and *Janu Pradesha* of one	2

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	leg or grade 1 condition at both legs	
	Radiation to *Sphik, Kati, Prishta Uru pradesha*, *Janu Pradesha* and *Jangha* in one leg or grade 2 condition at both legs.	3
	Radiation to *Sphik, Kati, Prishta, Uru pradesha, Janu Pradesha, Jangha* and *Pada* on one leg or grade 3 condition in both legs.	4
	Radiation of pain to *Sphik, Kati, Prishta, Uru pradesha, Janu Pradesha, Jangha* and *Pada* on both legs.	5
Tenderness	No tenderness	0
	Mild tenderness without any sudden response on pressure	1
	Wincing of face on pressure due to tenderness	2
	Wincing of face withdrawal of affected part on pressure	3
	Resists touch due to tenderness	4

Table 3 Grading for objective criteria

Objective criteria	Parameters		Score
VAS			
ROM	**Flexion (Schober's test)**	Upto 5 cm	0
		>4 cm(mild)	1
		2-4 cm(moderate)	2
		<2cm(severe)	3
	Extension	>=30 degrees	0
		20-29 degrees	1
		10-19 degrees	2
		<10 degrees	3
	RLF	>=30 degrees	0
		20-29 degrees	1
		10-19 degrees	2
		<10 degrees	3
	LLF	>=30 degrees	0
		20-29 degrees	1
		10-19 degrees	2
		<10 degrees	3
SLR (Left)		<=30 and >70	0
		61°- 70°	1
		51°- 60°	2
		41°- 50°	3
		31°- 40°	4
SLR (Right)		<=30 and >70	0
		61°- 70°	1
		51°- 60°	2
		41°- 50°	3
		31°- 40°	4

Research design:

✓ Study design- Randomized controlled parallel open arm clinical trial

✓ Ethical Clearance- UAU/RC/IEC/2019/04-02/16

✓ CTRI Number- CTRI/2020/05/025309

✓ Randomization and blinding- The patients were randomized on the basis of lottery method.

Blinding was not possible with the *Panchakarma* procedure, so the study is of open type.

Treatment protocol: Forty Two patients were randomly divided into two groups according to lottery method and were assigned the respective treatments. Twenty two patients were enrolled in Group A and 20 patients in Group B.

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GROUP A: *Patra Pinda Swedana***:** 2 sittings of 15 days each at an interval of 15 days.

GROUP B: *Kala Basti***:** 2 sittings of 15 days each at an interval of 15 days. It includes group of 15 *Basti,* 9 *Anuvasana* & 6 *Niruha Basti* as shown in table 4.[9]

Table 4 Schedule of *Kala Basti*

Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	N	A	N	A	N	A	N	A	N	A	N	A	A	A

Niruha Basti - *Erand Mooladi Basti*

Anuvasana Basti - *Moorchita Tila Taila*

Assessment – 60th day

DISTRIBUTION OF STUDY SAMPLE BY DEMOGRAPHICAL DATA

1. Age: Maximum patients belong to the age group of 40-50 years i.e. 50%.

2. Gender: Maximum patients were females i.e. 71.42 %.

3. Marital status: Maximum no. of patients i.e. 86% were married.

4. Religion: Maximum no. of patients were Hindu i.e. 90.48%

5. Education: Maximum patients were post-graduate i.e. 30.97%.

6. Socio-economic status: Maximum patients i.e.73.81% belonged to MIG.

7. Habitat: Maximum patients i.e. 66.67% resided in the urban habitat.

8. Occupation: Maximum no. of patients were housewives i.e. 57.14%

9. Diet: Maximum patients were vegetarian i.e. 61.9%.

10. Bowel habit: Maximum patients had irregular bowel i.e. 64.29%

11. *Koshtha*: Maximum patients had *Madhyama Koshtha* i.e. 50%

12. Sleep: Maximum patients had sound sleep i.e. 61.9%.

13. *Prakriti*: Maximum patients had *Vata-Pittaja Prakriti* i.e 45.24%.

14. Menstrual history: Among the 30 female patients, maximum no. of females had attained menopause i.e. 56.67%.

15. Addiction: Maximum patients i.e. 33.33% reported had addiction of caffeine.

16. Chief complaints: Maximum patients i.e. 100% complained of *Katishula* followed by 92.85% of *Katigraha*.

17. Onset: Maximum patients had gradual onset i.e. 59.5%.

18. Nature of disease: Maximum patients had chronic disease i.e. 78.58%.

19. Course of disease: Maximum patients had progressive disease i.e. 47.61%.

Table 5 Effect of (Group A) on subjective parameters

Parameters	Sample size	Mean		Mean difference	% change	W	SD	P	Result
		BT	AT						
Katigraha	17	1.47	0.35	1.11	76	-136.00	0.48	<0.001	HS
Katishula	20	3.9	1.45	2.45	62.82	-210.00	1.05	<0.001	HS
Gridhrasivata Pida	19	3.73	2	1.73	46.47	-105.00	1.28	<0.001	HS
Tenderness	17	1.58	0.94	0.64	40.74	-66.00	0.49	<0.001	HS

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	Parameters								
R	Flexion	20	2.1	1	1.1	52.38	-120.00	0.85	<0.001	HS
O	Extension	15	1.46	0.53	0.93	63.63	-78.00	0.59	<0.001	HS
M	RLF	15	1.6	0.8	0.8	50	-66.00	0.56	<0.001	HS
	LLF	18	1.44	0.5	0.94	65.38	-105.00	0.63	<0.001	HS
	SLR(LT)	14	2.07	1.28	0.78	37.93	-36.00	0.89	<0.05	S
	SLR(RT)	14	2.21	0.85	1.35	61.29	-55.00	1.00	<0.05	S

[**Note**: Flexion, extension, RLF, LLF, SLR are objective parameters but since observations are on ordinal scale (gradation), so Wilcoxon Signed Rank test was used to test the efficacy]

Effect on Subjective criteria: As shown in table 5, *Patra Pinda Swedana* provided highly significant (p <0.001) result in *Katigraha, Katishula*, *Gridhrasivata Pida,* tenderness, flexion, extension, RLF, LLF. Statistically significant result (p<0.05) was observed in SLR (Lt.) and SLR (Rt. leg).

Table 6 Effect of Group A on objective parameters

Parameters	Sample size	Mean BT	Mean AT	Mean difference	% change	T	SD	P	Result
VAS	20	8.1	3.8	4.3	53.08	10.461	1.83	<0.001	HS

Effect on Subjective criteria: Statistically highly significant (p <0.001) result was obtained in VAS as shown in table 6.

Table 7 Effect of Group B on subjective parameters

Parameters		Sample size	Mean BT	AT	Mean difference	% change	W	SD	P	Result
Katigraha		17	1.52	0.11	1.41	92.30	-153.0	0.50	<0.001	HS
Katishula		17	3.52	1.23	2.29	65	-136.0	0.98	<0.001	HS
Gridhrasivata Pida		10	3.7	1.8	1.9	51.35	-36.0	1.44	<0.01	S
Tenderness		14	1.85	0.78	1.07	57.69	-66.0	0.82	<0.001	HS
ROM	**Flexion**	17	2.17	0.70	1.47	67.56	-136.0	0.62	<0.001	HS
	Extension	17	1.52	0.23	1.29	84.61	-153.0	0.58	<0.001	HS
	RLF	15	1.8	0.53	1.26	70.37	-105	0.59	<0.001	HS
	LLF	16	1.68	0.43	1.25	74.07	-105	0.68	<0.001	HS
SLR(LT)		10	2.7	0.7	2	74.07	-45	0.94	<0.05	S
SLR(RT)		8	2.5	0.75	1.75	70	-28	0.88	<0.05	S

[**Note**: Flexion, extension, RLF, LLF, SLR are objective parameters but since observations are on ordinal scale (gradation), so Wilcoxon Signed Rank test was used to test the efficacy]

Effect on Subjective criteria: As shown in table 7, *Erand Mooladi Basti* provided highly significant (p <0.001) result in *Katigraha, Katishula*, tenderness, flexion, extension, RLF, LLF. Statistically significant result (p<0.05) was observed in *Gridhrasivata Pida*, SLR (Lt.) and SLR (Rt. leg).

Table 8 Effect of Group B on objective parameters

Parameters	Sample size	Mean BT	Mean AT	Mean difference	% change	T	SD	P	Result
VAS	17	7.58	3.41	4.17	55.03	10.569	1.62	<0.001	HS

Effect on Subjective criteria: Statistically highly significant (p <0.001) result was obtained in VAS as shown in table 8.

Table 9 Inter-group comparison of subjective parameters

Parameters	Group	N	Mean	% difference	Mann Whitney U	P value	Result

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Katigraha		Group A	17	1.11	76	258	>0.05	NS
		Group B	17	1.41	92.3			
		Total	34					
Katishula		Group A	20	2.45	62.82	320	>0.05	NS
		Group B	17	2.29	65			
		Total	37					
Gridhrasivata Pida		Group A	19	1.73	46.47	153	>0.05	NS
		Group B	10	1.9	51.35			
		Total	29					
Tenderness		Group A	17	0.64	40.74	257	>0.05	NS
		Group B	17	1.07	57.69			
		Total	34					
ROM	**Flexion**	Group A	20	1.1	52.38	375	>0.05	NS
		Group B	17	1.47	67.56			
		Total	37					
	Extension	Group A	15	0.93	63.63	214	>0.05	NS
		Group B	17	1.29	84.61			
		Total	32					
	LLF	Group A	18	0.94	65.38	315	>0.05	NS
		Group B	16	1.25	74.07			
		Total	34					
	RLF	Group A	15	0.8	50	189.5	>0.05	NS
		Group B	15	1.26	70.37			
		Total	30					
	SLR(LT)	Group A	14	0.78	37.93	170.0	<0.05	S
		Group B	10	2	74.07			
		Total	24	0.78				
	SLR(RT)	Group A	14	1.35	61.29	104.0	>0.05	NS
		Group B	8	1.75	70			
		Total	22					

Table 10- Inter-group comparison of objective parameters

Parameter	Group	N	Mean	% change	T	P value	Result
VAS	Group A	20	4.3	53.08	0.214	>0.05	NS
	Group B	17	4.17	55.03			
	Total	37					

On comparative assessment of both groups as represented in table 9,10:

❖ Significant result (p<0.05) was found in SLR (Lt. leg) test.

❖ Insignificant result (P>0.05) was found in *Katigraha, Katishula, Gridhrasivata Pida*, tenderness, VAS, SLR (Rt. leg) and range of

motion (flexion, extension, left lateral flexion and right lateral flexion.

❖ In terms of percentage change Group B was found to be more effective on all the subjective and objective parameters.

Table 11 Overall assessment of the therapy

Overall effect	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Complete resolution	00	00%	01	5.88%
Marked improvement	04	20%	05	29.42%
Moderate improvement	09	45%	07	41.17%
Mild improvement	06	30%	03	17.65%
No improvement	01	5%	01	5.88%
Total	20	100%	17	100%

DISCUSSION

Probable mode of action of *Patra Pinda Swedana:*

The leaves used in *Patra Pinda Swedana* bear *Ushna, Tikshna, Laghu, Kapha-Vatahara* properties. It helps in combating properties of *Vata* and symptoms of *Kapha* are also reduced. It altogether helps in relieving symptoms of *Vata* and *Kapha*. Due to *Sara* and *Sukshma Guna* of *Swedya* drugs *Lina Dosha* are liquefied in the body and expelled out through microspores present in the form of sweat glands. *Swedana Karma* stimulates the sympathetic nervous system leading to vasodilatation[10]. These properties help in clearing up of the obstructed *Srotas* of the body. Oil used in *Patra Pinda Swedana* is *Vatashamaka* in itself and has a synergistic effect in relieving aggravated *Vata* of the body. Oil acts as a medium through which absorption of the *Virya* of the drugs is enhanced. Heat application enhances metabolism and facilitate circulation by dilating blood vessels and improving the functions of enzymes. These actions lead to increased catabolism, excretion of lactic acid, free fatty acids, subcutaneous fat and other acidic waste products from muscle cells. By these mechanisms, heat therapy is thought to reduce fatigue and signs of aging, and to produce an analgesic effect.

Probable mode of action of *Erand Mooladi Basti*

Vata is the *Niyanta* (controller) and *Praneta* (motivator) of whole body. Pain is inherent quality of *Vata* and there is no other treatment better than *Basti* that relieves *Vata*. *Erand Mooladi Basti* normalizes the *Apana Vata* through both local and systemic effect. As a whole it acts as *Deepana, Lekhana, Amapachaka* and *Vata- Kapha Shamaka* which leads to removal of blockage. It removes various kinds of toxins from the body which leads to cleansing of body at cellular level, thus resulting in the free movement of *Vata* without obstruction. *Basti* stimulates enteric nervous system which in turn may stimulate certain parts of CNS and produce result accordingly like pain modulation or neuromuscular remodeling. Reduction in the intensity of pain is due to analgesic properties of drugs used in *Erand Mooladi Basti*, secretion of endogenous opioids, bowel clearance leading to

reduction of nerve irritation at gut and reduction in colonic loading.

CONCLUSION

From the clinical trial, observations and discussions it can be concluded that both *Erand Mooladi Basti* and *Patra Pinda Swedana* provide effective result in such an agonizing condition but on comparative evaluation *Erand Mooladi Basti* provides sustained release. No adverse events were observed during treatment.

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