RESEARCH PAPER

An Open Labelled Randomized Controlled Clinical Study To Evaluate The Effect of Viddha Agnikarma in The Management of Snayugatha Vata Vis-à-Vis Tennis Elbow

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ABSTRACT

Introduction:

Background:

Tennis elbow (lateral epicondylitis) is a painful musculoskeletal disorder commonly associated with repetitive strain and overuse of the extensor tendons of the forearm. In Ayurveda, it can be correlated with Snayugata Vata, characterized by pain (Ruk), stiffness (Stambha), and restricted movements around the Kurpara Sandhi. Agnikarma has been described by Acharya Sushrutha as an effective modality in painful disorders involving Snayu, Sandhi, and Asthi. It is done using different Dahanopakaranas. Agnikarma with Panchaloha Shalaka is being extensively done and it has proved its efficacy. But as it involves burning of the skin & superficial tissues there may be discomfort to the patient and also skin scarring. The uniformity of heat is not maintained throughout the procedure. The present study was undertaken to evaluate the efficacy of Viddha Agnikarma in the management of Snayugata Vata vis-à-vis Tennis Elbow.

Objectives:

1.To evaluate the efficacy of Viddha Agnikarma in the management of Snayugata Vata vis-à-vis Tennis Elbow.
2.To compare the efficacy of Viddha Agnikarma with Panchaloha Shalaka Agnikarma.

Methods:

An open-labelled randomized controlled clinical study was conducted on 40 patients diagnosed with Tennis Elbow fulfilling the inclusion criteria. Patients were randomly divided into two groups comprising 20 patients each. Group A received Panchaloha Shalaka Agnikarma, while Group B received Viddha Agnikarma using sterile needles and diathermic cautery. Assessment was carried out based on subjective parameters such as pain and stiffness, and objective parameters including tenderness and range of movements. Statistical analysis was performed using Wilcoxon signed-rank test for within-group comparison and Wilcoxon rank-sum test for between-group comparison.

Results:

Both groups showed statistically significant improvement in pain, stiffness, tenderness, and range of movements after treatment ($p < 0.05$). Group B (Viddha Agnikarma) demonstrated comparatively better clinical improvement, particularly in pain reduction and tenderness relief. Post-treatment tenderness showed statistically significant difference between groups ($p = 0.0354$), favouring Viddha Agnikarma. Faster healing and better patient comfort were observed in the Viddha Agnikarma group due to minimal tissue scarring and uniform heat distribution.

Conclusion:

The study concludes that both Panchaloha Shalaka Agnikarma and Viddha Agnikarma are effective in the management of Snayugata Vata vis-à-vis Tennis Elbow. However, Viddha Agnikarma was found to be more patient-friendly, cosmetically acceptable, and clinically superior in reducing pain and promoting quicker healing.

Keywords:

Snayugata Vata, Tennis Elbow, Viddha Agnikarma, Panchaloha Shalaka, Agnikarma, Lateral Epicondylitis.

Sponsor:

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Introduction

Acharya Sushrutha has explained the importance of Agnikarma in cases of highly painful conditions precipitated by Vata affecting Sira, Snayu, Sandhi and Asthi . Pain is a distressing and unpleasant experience to man. Pain from the lateral aspect of the elbow was first described in1873 and has since then been given different names such as Tennis elbow (TE), lateral epicondylitis, epicondylosis, epicondylalgia and lateral elbow pain. The lateral epicondylitis from writers cramp. It was named lawn tennis arm by "Morries" shortly there after1.Lateral epicondylitis is the most common painful condition of the elbow2, however only 5% of people suffering from tennis elbow relate to tennis. It is estimated to affect 1–3% 3of the adult population each year suffer from tennis elbow and is more common in the dominant arm. Although it can occur as an acute injury (trauma to the lateral elbow), it's also seen in laborers who utilize heavy tools or engage in repetitive gripping or lifting task, who carryout repetitive, one-sided movements in their jobs like Electrician, carpenters, needle work, knitting, gardening.4 50% prevalence is repeated among tennis player older than 30 years with a peak between the ages of 35-50years. Tennis elbow is difficult to cure with conventional medicines . On the basis of signs and symptoms, tennis elbow can be correlated with Snayugata Vata described in 'Ayurveda Samhitha. Snayugata Vata is developed when the vata dosha aggravates due to atichesta, ativyayam5and gets localized in snayu of kurpara sandhi. The vayu responsible for this function is, vyanavayu. Ultimately unable to carry out the function of kurpara sandhi (elbow joint) and hasta pradesha (forearm) smoothly. The features such as pain, stiffness and restricted movements develop in this region. These symptoms may also develop due to kaphavritta vyana vayu6. Hence, it is also considered an important causative factor for manifestation of Snayugatha Vata. As far as Nidana are concerned, all the Vata Prakopaka Nidana can be taken as Nidana of Tennis Elbow and according to modem science overuse of tendon of extensor origin or sudden trauma leads to Tennis Elbow. Till date, no satisfactory treatment is available for tennis elbow.

In Ayurveda, Acharya Sushruta has advocated various treatment modalities such as Snehana, Upanaha, Agnikarma7 and Bandhana for Snayugatha Vata. Amongst these, Agnikarma seems to be more effective in providing distinct and instant relief. If it is done properly, disease does not reoccur8, Agnikarma which is an anusastrakarma is chosen as the treatment because it is superior to sastra, kshara and bhesaja9. Diseases which cannot be cured by any methods are curable with agnikarma and another benefit is that diseases cured by agnikarma will not reoccur. Agnikarma is indicated in painful conditions caused by vata. There are many instruments for doing agnikarma amongst which panchalohashalaka, loha,soochi have been used. The disease which are situated over Twak, Mamsa, Snayu, Asthi are treated with Agnikarma using different Dahanopakaranas10. Acharya Chakradattahas added Suchi also one among the Dahanopakaranas11. Bindu Roopi Agnikarma with Panchaloha Shalaka is being extensively done and it has proved its efficacy. But as it involves burning of the skin & superficial tissues there may be discomfort to the patient and also skin scarring. The uniformity of heat is not maintained throughout the procedure12. Viddha Agnikarma is selected because it goes deep into the fascia and spreads the heat uniformly and cosmetically good as there will be no scarring of tissues. Hence an attempt was made to evaluate the efficacy of Viddha Agnikarma in the management of Tennis elbow.

Aims And Objectives

1. To evaluate efficacy Viddha Agnikarma in the Management of Snayugata Vata Vis-À-Vis Tennis Elbow
2. To compare with Panchaloha Shalaka Agnikarma in the Management of Snayugata Vata Vis-À-Vis Tennis Elbow.

Methodology:

Source Of Data:

Literary Source – Classical text books of Ayurveda. Text books of contemporary sciences. Published articles from journals and authentic websites.

Drug Source – The genuine materials obtained from convenient and available source.

Source of Sample – Patient's fulfilling the criteria for diagnosis and inclusion visiting OPD and IPD of Shalayatantra , JSSAMCH, Mysuru were selected for the study

Materials And Methods

Study design: Open-labelled randomized controlled trial.
Sample: 40 patients (20 in each group).

Groups

Group A: 20 patients treated with Panchaloha Shalaka Agnikarma
Group B: 20 patients treated with vidha Agnikarma.
INVESTIGATIONS
HB%, TC, DC, ESR, RBS, HIV, HBsAg, X-ray

Inclusion Criteria

- Patients with Pain and stiffness
- Patients with Positive Mill's and Cozen's test
-Patient's Aged between 30–60 years

Exclusion Criteria

- Patients with Fracture, RA
- Patients with Pregnancy
- Patients with Severe systemic disease

Procedure:
Requirements
1. Gloves
2. Betadine and Guaze
3. Marking pen
4. Sterile needles
5. Diathermic cautery
6. Mixture of Madhu and Ghrita

Any surgical or para-surgical procedure involves three steps i.e. pre-operative, operative and post-operative steps. In Ayurveda they are explained as Purva Karma, Pradhana Karma and Paschat Karma.

Purva Karma:
•Painting the sites with betadine
•Points of maximum tenderness were marked using a marker pen.
•Inj.TT 0.5 cc IM STAT.

Pradhana Karma:
Group A:
•The points of maximum tenderness were marked using a marker pen.
•The Panchaloha Shalaka was heated to red ho
•Bindu Roopi Agnikarma was done over the marked sites.
•The sites were observed for Samyak Dagdha Lakshana.

Group B:
•The sterile acupuncture needles were pricked at the depth of 5mm-10mm at previously marked tender points.
•In different electrode will be placed below the subject. The active electrode will be gently touched to needles.
•Total 3 rounds of Agnikarma will be done with in 5-10 sec gap.
•After that the needles are removed

Paschat Karma:
•Mixture of Madhu & Sarpi was applied to the sites.
•Patient was also advised to maintain hygiene of the treated area.
•Patient was advised to avoid unwholesome diet and exertion.

Assessment Criteria
Subjective: Pain, Stiffness
Objective: Range of movement, Tenderness

Observations
Total 40 patients were registered in this study. Random allocation was done to divide subject into two groups i.e., 20 patients in each group. All 40 patients were studied and their observations were recorded as follow:
Group A Panchaloha Shalaka Agnikarma
Group B vidha Agnikarma.
Sample size:

Group	No of Patients		
	Included	Drop out	Studied
Group A	20	0	20
Group B	20	0	20
Total	40	0	40

Age (in years):

Table: -1 Age wise distribution

Age (in years)	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
20-25	2	10	1	5
26-30	4	20	5	25
31-35	3	15	5	25
36-40	8	40	6	30
41-45	2	10	2	10
46-50	1	5	1	5
Total	20	100	20	100

Economic status:

Table: -2 Economic status wise distribution

Economic status	Group A	Group B

	Frequency	Percentage	Frequency	Percentage
LMC	5	25	7	35
MC	14	70	11	55
HMC	1	5	2	10
Total	20	100	20	100

The above table shows the distribution of patients according to economic status in both groups.
In Group A, the largest proportion of patients belonged to the middle-middle class (MC), accounting for 70% of the total. This was followed by the lower middle class (lMC) at 25%, while the upper-middle class (UMC) constituted 5% of the group.
In Group B, the majority of patients were from the middle class (MC), comprising 55% of the total. The lower- middle class (LMC) accounted for 35%, whereas the upper class (UC) formed the smallest proportion at 10%.
Diet:

Table: -3 Diet wise distribution

Diet	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Vegetarian	7	35	10	50
Non Vegetarian	1	5	0	0
Mixed	12	60	10	50
Total	20	100	20	100

Interpretation: The above table shows the distribution of patients according to dietary habits in both groups.
In Group A, 60% of patients followed a mixed diet, while 35% were vegetarian and 5% non vegetarian.
In Group B, both vegetarian and mixed are 50%.
Prakruti:

Table: -4 Prakruti wise distribution

Prakruti	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
VP	8	40	5	25
VK	2	10	5	25
KP	1	5	1	5
KV	2	10	2	10
PK	7	35	7	35
Total	20	100	20	100

Interpretation: The above table shows the distribution of patients according to Prakruti (Ayurvedic body constitution) in both groups.

In Group A, the most common Prakruti was vata-Pitta (VP), seen in 40% of patients, followed by Pitta-Kapha(PK) in 35%, Vata-Kapha (VK) in 10%, Kapha-Vata (KV) in 10%, and Pitta-Kapha (PK) in 35%. No patients had Pitta-Vata (PV) constitution.

In Group B, Vata-Pitta (VP) amd Vata-kapha (VK) both were 25%. Kapha-Pitta (KP) for 5%, Kapha-Vata (KV) for 10%, and Pitta-Kapha (PK) highest for 35%.

Agni:

Table:-5 Agni wise distribution

Agni	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Mandagni	10	50	11	55
Vishamagni	10	50	9	45
Total	20	100	20	100

Interpretation: The above table shows the distribution of patients according to Agni in both groups.
In Group A, both mandagni and Vishamagni were equally distributed 50% each in group.
In Group B, the majority of patients (555) had aMandagni , and 45% were Vishamagni.

Work:

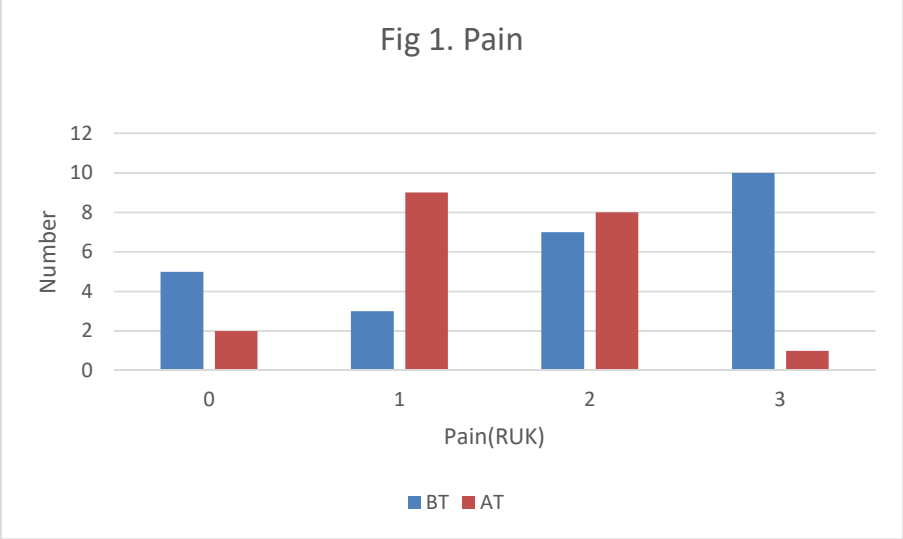
Table: -6 Work wise distribution

Work	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Moderate	9	45	12	60
Strenous	11	55	8	40
Total	20	100	20	100

Interpretation: The above table shows the distribution of patients according toWork in both groups.
In Group A, both moderate working people 45% and strenuous working people were 55%.
In Group B, the majority of patients (60%) had moderate work , and 40% were Strenous work .

Wilcoxon signed rank test was used for within group comparison
GROUP A Agnikarma with Panchaloha Shalaka

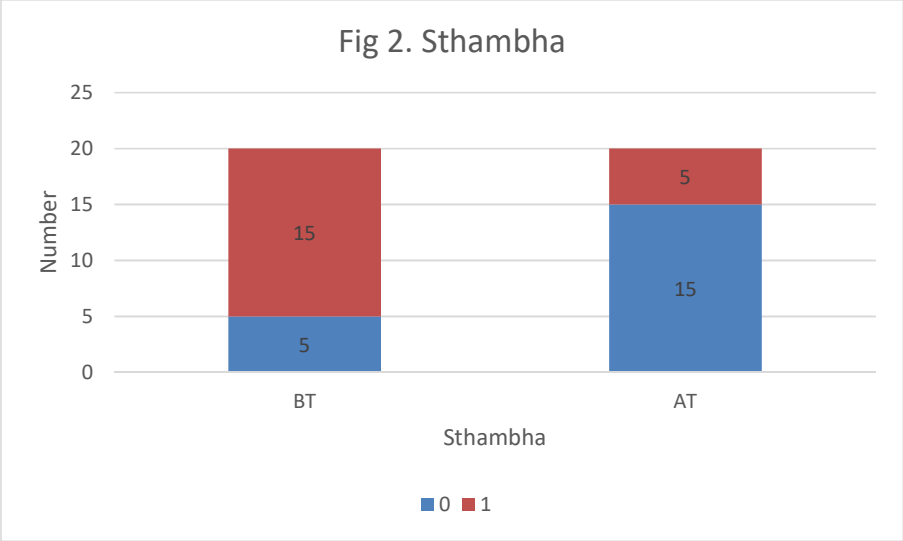
Pain	Median(IQR)	W-value	p-value
BT	2.5(2-3)	136	0.00019
AT	1(1-2)		



There was a marked reduction in pain scores after treatment. The median pain score decreased from 2.5 before treatment to 1 after treatment.

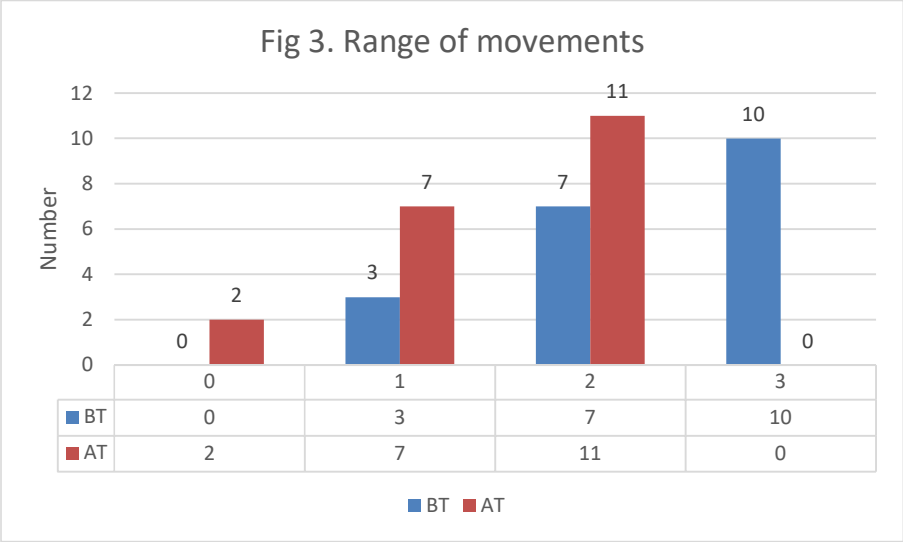
The p-value (0.00019) indicates a highly statistically significant improvement, suggesting that Agnikarma with Panchaloha Shalaka is effective in reducing pain.

STHAMBA	Median(IQR)	W-value	p-value
BT	1(0.75-1)	55	0.0019
AT	0(0-0.25)		



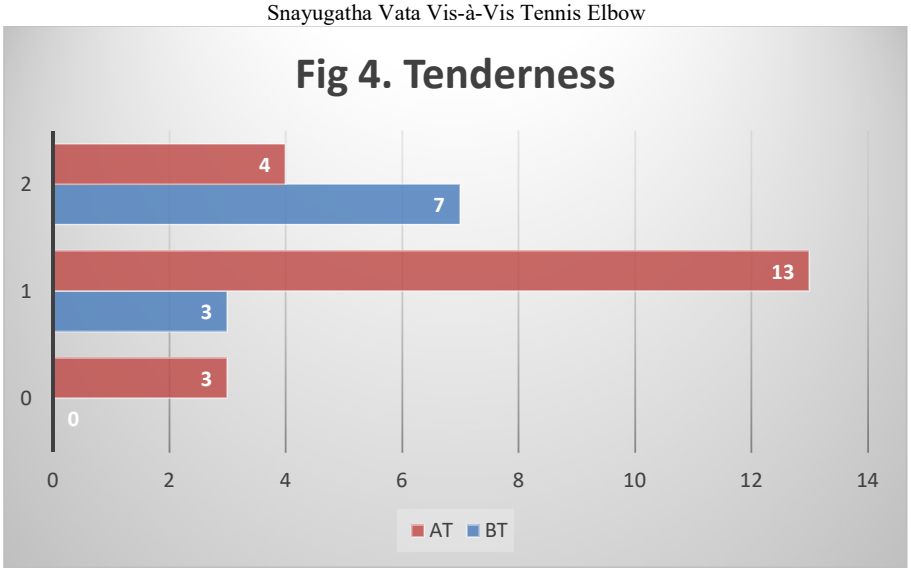
Stiffness significantly reduced after treatment. The median score dropped from 1 to 0. The p-value (0.0019) confirms that the reduction is statistically significant, indicating effective relief in stiffness.

RANGE OF MOVEMENTS	Median(IQR)	W-value	p-value
BT	2.50(2-3)	120	0.00032
AT	2(1-2)		



There was a significant improvement in range of movements. The median score improved from 2.5 to 2. The p-value (0.00032) indicates a highly significant improvement following treatment

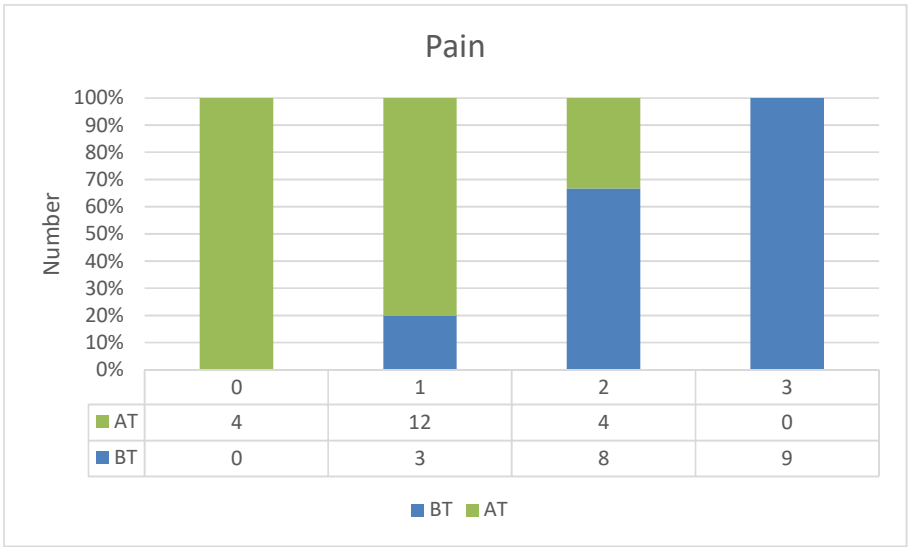
TENDERNESS	Median(IQR)	W-value	p-value
BT	2(2)	115	0.00018
AT	1(1)		



Tenderness reduced significantly after treatment. The median score decreased from 2 to 1. The very low p-value (0.00018) indicates strong statistical significance.

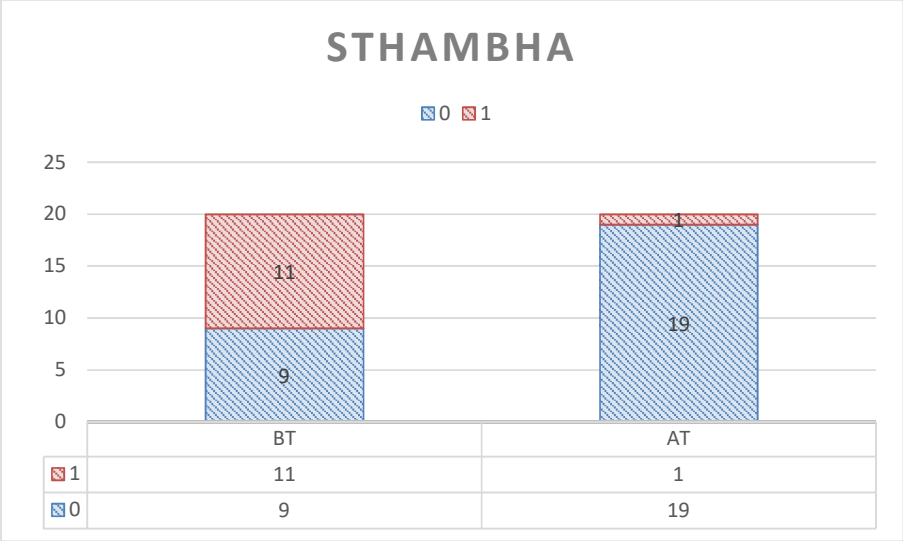
GROUP B (Viddha Agnikarma)

Pain	**Median(IQR)**	**W-value**	**p-value**
BT	2(2-3)	140	0.00030
AT	1(1)		



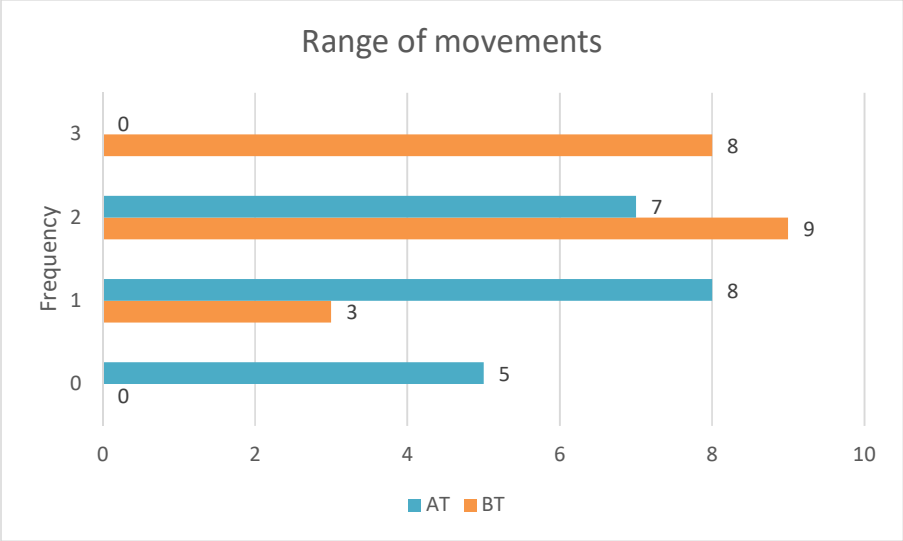
Pain significantly reduced after treatment. The median score decreased from 2 to 1. The p-value (0.00030) indicates a highly significant improvement.

STHAMBA	**Median(IQR)**	**W-value**	**p-value**
BT	1(0-1)	55	0.0019
AT	0(0)		



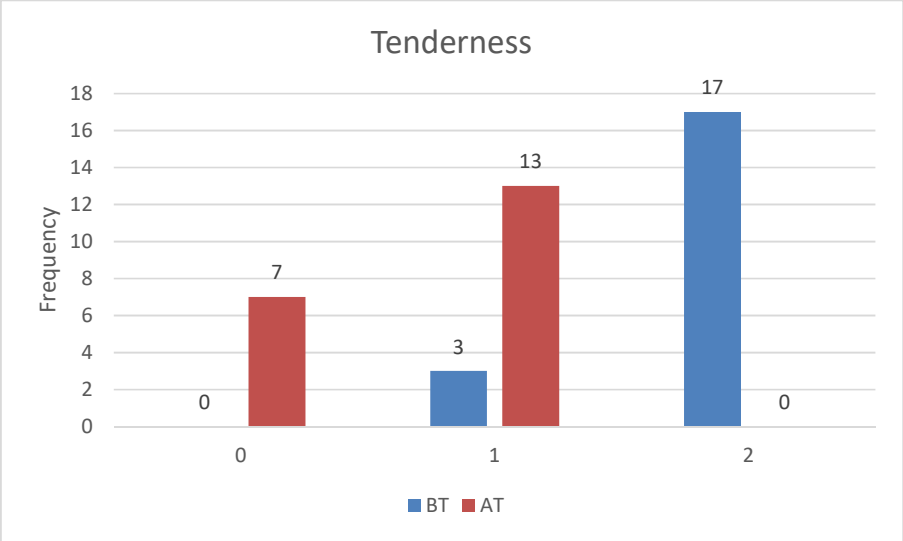
There was a significant reduction in stiffness following treatment. Median score reduced from 1 to 0, with statistically significant p-value (0.0019).

RANGE OF MOVEMENTS	Median(IQR)	W-value	p-value
BT	2(2-3)	190	0.000053
AT	1(0.75-2)		



Range of movement improved significantly after treatment. The median score improved from 2 to 1, and the very low p-value (0.000053) indicates strong statistical significance.

TENDERNESS	Median(IQR)	W-value	p-value
BT	2(2)	191	0.000063
AT	1(0-1)		



Tenderness showed a marked reduction after treatment. The median score decreased from 2 to 1, with a highly significant p-value (0.000063).

Wilcoxon rank sum test was used for between groups comparison

Pain(BT)	**Median(IQR)**	**W-value**	**p-value**
Group A	2.5(2-3)	208.3	0.813
Group B	2(2-3)		

Pain(AT)	**Median(IQR)**	**W-value**	**p-value**
Group A	1(1-2)	258	0.0869
Group B	1(1)		

There was no statistically significant difference between Group A and Group B in pain reduction both before and after treatment, indicating comparable effectiveness.

STHAMBA (BT)	**Median(IQR)**	**W-value**	**p-value**
Group A	1(0.75-1)	240	0.196
Group B	1(0-1)		

STHAMBA (AT)	**Median(IQR)**	**W-value**	**p-value**
Group A	0(0-0.25)	241	0.08415
Group B	0(0)		

No significant difference was observed between the groups regarding stiffness improvement.

RANGE OF MOVEMENTS(BT)	**Median(IQR)**	**W-value**	**p-value**
Group A	2.5(2-3)	217	0.6267
Group B	2(2-3)		

RANGE OF MOVEMENTS(AT)	**Median(IQR)**	**W-value**	**p-value**
Group A	2(1-2)	249.5	0.1508
Group B	1(0.75-2)		

Both groups showed similar improvements in range of movements, with no statistically significant difference.

TENDERNESS(BT)	**Median(IQR)**	**W-value**	**p-value**
Group A	2(2)	200	0.9999
Group B	2(2)		

TENDERNESS(AT)	**Median(IQR)**	**W-value**	**p-value**
Group A	1(1)	266	0.0354
Group B	1(0-1)		

Before treatment, both groups were comparable. However, after treatment, a statistically significant difference ($p = 0.0354$) was observed, suggesting slightly better improvement in one group (clinically interpret as needed).

Discussion

On Results:

• Effect of treatment on Pain: Pain is the Pradhana Lakshana of Tennis elbow and it is mainly attributed to Vata Dosha.. Agnikarma is having the Vatahara qualities and hence helps in relieving the pain by its Ushna Guna which is opposite to that of Vata Guna. In this study it was seen that by Agnikarma in both groups there was significant reduction of pain and though there was no significant difference seen between the two groups Clinically Group B showed better results when compared to Group A. This may be due to the reason that vidha Agnikarma is a type of Agnikarma which has higher latent heat capacity and retains the temperature for a longer time when compared to Shalaka.

Effect of treatment on Stambha: Stambha is a Lakshana of Snayugatha Vata. The heat produced by Agnikarma provides extensibility of collagen fibres hence relieving the muscle spasm.

Effect on Range of movements: There was significant improvement seen within the Group A. However, in between the groups there was no statistical significance. Range of movements can be compared to Sakthi Kshepa Nigraha. Utkshepa, Apakshepa etc are the functions of Vata and Agnikarma by its Ushna Guna may help in correcting the vitiated Vata, also as previously mentioned heat produced by Agnikarma provides extensibilty of collagen fibers hence relieving the muscle spasm. It may thereby help in improving the range of movement as observed by SLRT and Lassegue's sign.

Effect of treatment on Dagdha Vrana Lakshana: The Dagdha Vrana caused by Viddha agnikarma showed quicker healing when compared to Panchaloha Shalaka because in Agnikarma done by suchi there was no visible burning of tissue as seen in Agnikarma done by Panchaloha Shalaka, because as there will be no local burn of tissue it becomes easier to continue with other treatments like upanaha etc which is not possible with Panchaloha Shalaka as the burn caused by Shalaka may give local irritation to the patient.

PROBABLE MODE OF ACTION OF AGNIKARMA

• Effect on Vata and Kapha Dosha- Shoola and Shotha are mainly caused by the vitiation of Vata and Kapha Doshas and both the doshas having relatively similar properties like Sheeta, sthamba it can be pacified by Ushna Guna of Agnikarma.

• Effect of Ushna Guna of Agni- the Ushna Guna of Agnikarma acts as Vataghna and thus relieves pain. It improves Dhatwagni and helps in Amapachana, which inturns helps to removal of toxins from the body. It improves local circulation and nourishment of tissues and helps to reduce the pain and inflammation.

• Gate control theory of pain- Hypothetically it can be assumed that Agnikarma stimulates pain and touch sensations. When these impulses reach the spinal cord through posterior nerve root, the fibre of touch sensation send collaterals to the neurons of pain pathway i.e. cells of marginal nucleus and substantia gelatinosa. The impulses of touch sensation passing through these collaterals inhibit release of glutamate and substance P from pain fibres. This closes the gate and the pain transmission is blocked.

• Effect on viscosity of tissue fluid- heat increase of blood flow and lymphatic return because heat was found to reduce the viscosity of blood and lymph.

• Effect on blood flow- During the Agnikarma procedure the skin is heated by using various Dahanopakaranas, at that time the surface reddens and blood vessels become dilated leading to increased blood flow. Heat produces a direct effect on capillaries, arterioles etc causing them to dilate.

Effect on muscle tone- In our regular clinical practice it is noted that increased muscle tone, secondary to underlying pathology can sometimes be relieved through application of heat. Heating of tissues in a therapeutic temperature (40-450C) helps to reduction of muscle spasm.

• Cellular effects- The application of heat on body tissue is very helpful when applied within therapeutic limits. Chemical reactions which taken place during the metabolic activity is increased by a rise of temperature (Vant Hoff's law). Metabolic rate may increase by 13% for each 10 C rise in temperature. Increasing the tissue temperature helps in increasing of enzymatic activity to a peak value.

Conclusion

• From the above study it is evaluated that Viddagnikarma is effective in the management of Lakshanas of Tennis elbow like Ruk(pain), Stambha(stiffness), Sakthi Kshepa Nigraha etc. with a p-value of <0.05.

• The comparative study of Viddagnikarma and Panchaloha Shalaka revealed that Viddagnikarma is better in reduction of pain and quicker healing in dagdha vrana. Comparing to other parameters there is no statistical significance in between the two groups indicating that Viddhagnikarma is on par with Panchaloha Shalaka, but when clinically observed Viddhagnikarma is more convenient and patient friendly.

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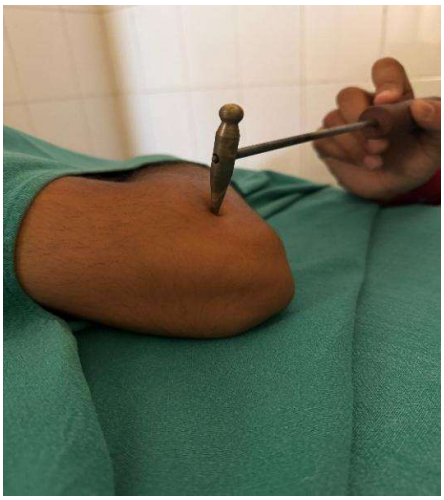
Shalaka Agnikarma



Vidha Agnikarma