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Therapeutic Effect of Jaloukavacharana in Carpal Tunnel Syndrome: A Case Report

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ABSTRACT

Carpal Tunnel Syndrome (CTS) is the most common entrapment neuropathy, caused by compression of the median nerve beneath the flexor retinaculum.In Ayurveda, the signs and symptoms of CTS closely resemble *Raktāvṛta Vāta*, described in *Suśruta Saṃhitā, Nidāna Sthāna*. Acharya Suśruta recommends *Raktamokṣaṇa* for *Raktāvṛta Vāta*

A 44-year-old female presented with right wrist pain, nocturnal numbness, and functional difficulty for four months. Nerve conduction study confirmed bilateral CTS (moderate on right). She underwent *Jalaukāvacaraṇa* over the volar wrist.

Pain reduced from VAS 8 to 2, nocturnal symptoms improved, BCTQ score decreased, Phalen's test and tinels became negative, and functional activities normalized.

Jalaukāvacaraṇa provided clinically meaningful improvement without adverse effects, suggesting its potential role as a safe integrative conservative therapy for CTS.

Keywords: Carpal Tunnel Syndrome, Jalaukāvacaraṇa, Raktamokṣaṇa, Ayurveda, CTS.

I. INTRODUCTION

Carpal Tunnel Syndrome (CTS) is a common compressive neuropathy in the upper extremities. It causes paraesthesia and pain in the volar aspect of the radial three and a half digits.[1] CTS occurs when the median nerve is compressed as it passes through the carpal tunnel beneath the flexor retinaculum. It is most common among middle-aged women[2]. If left untreated, CTS typically worsens over time, making early diagnosis and intervention crucial. Persistent pressure on the median nerve can lead to irreversible nerve damage and progressive functional impairment.

Conservative management options include wrist splinting, activity modification, physiotherapy, and systemic or topical analgesics. More invasive approaches include local steroid injections into the carpal tunnel and surgical decompression.[3]

In Ayurveda, the signs and symptoms of CTS closely resemble *Raktāvṛta Vāta*, described in *Suśruta Saṃhitā, Nidāna Sthāna*.[4]Acharya Suśruta recommends *Raktamokṣaṇa* for *Raktāvṛta Vāta*. Among the *Anuśastra* procedures, *Jalaukāvacaraṇa* is considered especially suitable due to its safety, painless nature, and efficacy in conditions involving localized *Śotha*, *Rūkṣa*, *Stambha*, and *Vāta-kapha* predominance. Therefore, *Jalaukāvacaraṇa* was selected in this case to evaluate its therapeutic effect in CTS management.

PATIENT INFORMATION

A 44-year-old right-hand–dominant female homemaker, performing moderate repetitive hand activities, presented with a four-month history of right wrist and hand pain associated with nocturnal numbness, tingling sensations, and disturbed sleep. The symptoms had gradually progressed, leading to difficulty in performing routine household tasks such as buttoning clothes, writing, opening jars, and lifting objects.

She reported that the pain **worsened with physical activities, exposure to cold weather, and particularly during evenings and nighttime**. Despite restarting conventional treatment, she experienced **no significant relief**.

Her past medical history included **hypertension** (on amlodipine for the past three years), **dyslipidemia**, and a **hysterectomy performed four years ago** for uterine fibroids. She had **no known allergies**.

Prior to seeking Ayurvedic care, the patient had consulted a modern medical hospital, where **surgical decompression for Carpal Tunnel Syndrome was advised**. However, she was unwilling to undergo surgery. Seeking non-surgical management, she came to our hospital

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II. CLINICAL FINDINGS

General Examination

Moderately built
Stable vitals
No systemic abnormalities

Ashtavidha pariksha (~eight-fold examination of the patient)

Nadi (~pulse) was Vata-pittaja, Mala (~bowel) was Badha (~constipated), Mutra (~urine) was Prakrita (~normal), Jihva (~tongue) was upaliptaha(~coated), Shabda (~voice) was Prakrita, Sparsha (~tactile examination) was ushna (~hot), Drik (~eye and eyesight) was vyaktha, and Akriti (~body stature) was madhyama (~moderate built)

Dashavidha pariksha (~ten-fold examination of the patient)

Prakriti (~physical constitution) was Vata-pittaja, Vikriti (~morbidity) was pittaa,raktha and vata and Sara (~excellence of tissue elements), Samhana (~compactness of tissues or organs), Pramana (~measurement of body constituents), Satmya (~homologation), Satva (~psychic condition), Aahara shakti (~food digesting power), Vaya (~age) was Madhyama (~moderate), and Vyayama shakti (~power of performing exercise) was Avara (~low).

Local Examination (Right Wrist)

Tenderness over volar wrist
Mild swelling
Reduced grip strength

Provocative Test

Phalen's Test: Positive
Tinel's Sign: Positive

Boston's questionnaire for CTS

Function status scale : 26/40
Symptom severity scale : 40/55

TIMELINE

Date / Duration	Event
4 months prior	Onset of wrist pain and paraesthesia
1–2 months prior	Worsening night symptoms, sleep disturbance
Neurology consult	NCS confirmed bilateral CTS
0th day	First *Jalaukāvacaraṇa* session
7th day	Follow up ,marked relief
14th day	Follow-up; sustained improvement

III. DIAGNOSTIC ASSESSMENT

On **local examination of the right wrist**, there was **tenderness over the volar aspect**, **mild swelling**, and **reduced grip strength**. Provocative tests for Carpal Tunnel Syndrome were positive, including **Phalen's test** and **Tinel's sign**. Functional assessment using the **Boston Carpal Tunnel Questionnaire** revealed a **Function Status Score of 26/40** and a **Symptom Severity Score of 40/55**. Nerve Conduction Studies showed a **prolonged distal latency of the right median nerve**, **mild sensory delay in the left median nerve**, and **delayed SNAPs bilaterally**, while both ulnar nerves were normal. Differential diagnoses such as **cervical radiculopathy** (absence of neck pain or radiating symptoms) and **diabetic neuropathy** (normal glycemic parameters) were ruled out. Based on the clinical and electrophysiological findings, the **final diagnosis was bilateral Carpal Tunnel Syndrome**, moderate on the right and mild on the left. The Ayurvedic assessment correlated this presentation with **Raktāvṛta Vāta involving the Mañibandha Sandhi**.

IV. THERAPEUTIC INTERVENTION

1. Jalaukāvacaraṇa (Medicinal Leech Therapy)

Leech type: *Hirudo medicinalis*
Site: Volar aspect of wrist (region of carpal tunnel)

Procedure

PURVAKARMA

* Informed consent will be taken.
* Explain the procedure briefly to the patient.
* Assure the patient.
* Patient will be comfortably seated for the procedure.
* Site for jaloukavacharana –below distal palmar crease just lateral to flexor carpi radialis,will be marked
* Jalouka will be examined carefully and cleaned in haridra choorna.

PRADHANA KARMA

* The patient is made to sit in comfortable position.
* Head segment of jalouka is placed on the previously marked site to do raktha moksha.
* If it doesn't bite the site, prick with a needle and then jalouka is made to bite.
* Jalouka should be covered with moist cotton when its mouth becomes horseshoeshape and lifts neck steadily.
* Observation will be made for samyak lakṣhaṇa.
* Jalouka will be allowed to stay till it detaches by itself or tōdakaṇḍu prāduṛbhāva (till the patient start

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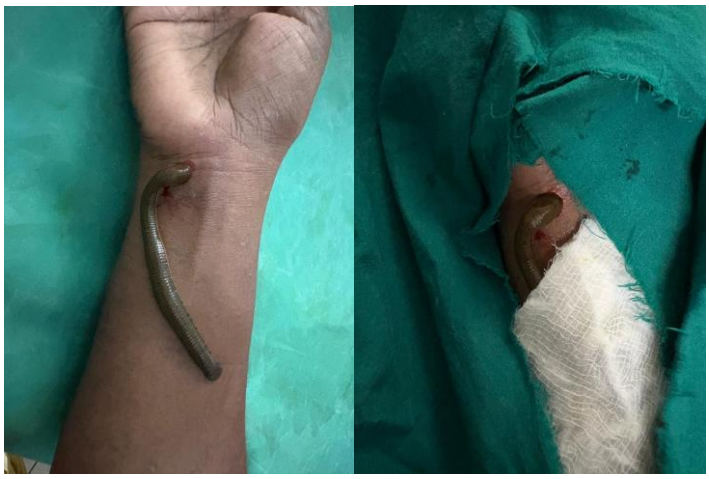
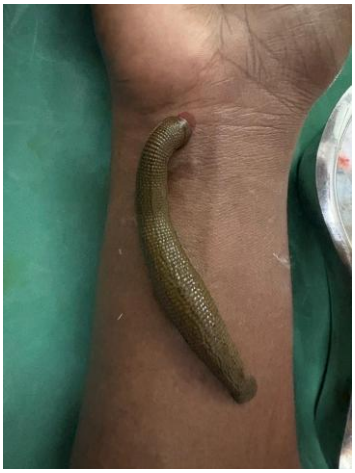
experiencing pain and itching) or for a maximum of 45 minutes and then it will be transferred to the kidney tray.
* If jalouka didn't detach by itself ,it will be removed by sprinkling haridra choorna/saindhava over it's mouth

PASCHAT KARMA

* Site will be cleaned
* Satadoutha gritha is applied over the site and dressing will be done
* Haridra choorna will be sprinkled on the mouth of jalouka and it will be gently pressed from tail to head so as to vomit the sucked blood. Jalouka will be cleaned and transferred to clean wter.



A)Jalouka applied over wrist



Jalouka after sucking blood

FOLLOW-UP AND OUTCOMES (CARE)

During follow-up, the patient demonstrated marked symptomatic improvement. **Pain intensity**, assessed using the Visual Analog Scale, reduced from **8 before treatment to 2 after jaloukavacharana**. Re-evaluation with the **Boston Carpal Tunnel Syndrome Questionnaire (BCTQ(table)** showed substantial improvement, with a **Symptom Severity Score of 13/55** and a **Functional Status Score of 11/40**. Provocative tests reflected clinical recovery: **Phalen's test turned negative**, and **Tinel's sign revealed only mild residual tingling**. Sleep quality improved significantly—from waking **3–5 times nightly due to numbness** to sleeping **through the night**, with only occasional minimal tingling. Functionally, she regained the ability to perform all household tasks comfortably, with **notable improvement in grip strength**. No adverse reactions were reported during or after treatment.

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Boston CTS Questionnaire – Before vs After Treatment

Part 1: Functional Status Scale (FSS)

Activity	**Before Treatment**	**After Treatment**
1. Writing	Intense difficulty (4)	**No difficulty (1)**
2. Buttoning of clothes	No Difficuty (1)	**No difficulty (1)**
3. Holding a book while reading	Intense difficulty (4)	**Mild difficulty (2)**
4. Gripping a telephone receiver	Intense difficulty (4)	**Mild difficulty (2)**
5. Opening jars	Mild Difficulty (2)	**No difficulty (1)**
6. Carrying a grocery basket	Cannot perform the activity at all (5)	**Mild difficulty (2)**
7. Household chores	Intense difficulty (4)	**No difficulty (1)**
8. Bathing & dressing	Mild Difficulty (2)	**No difficulty (1)**

Part 2: Symptom Severity Scale (SSS)

Symptom / Question	**Before Treatment (from your data)****	**After Treatment (Tick Marked)**
1. Night pain severity	Very serious(5)	Normal(1)
2. How often pain wakes at night	4–5 times/night(4)	Normal(1)
3. Day pain severity	Medium(3)	Normal(1)
4. Frequency of day pain	1-2 times/day(2)	Normal(1)
5. Duration of daytime pain	10–60 min(3)	Normal(1)
6. Numbness in hand/wrist	Very serious(5)	**Slight (2)**
7. Weakness in hand/wrist	Medium(3)	Normal(1)
8. Tingling in hand	Medium(3)	Normal(1)
9. Severity of numbness/tingling	Very serious(5)	**Slight (2)**
10. Night awakening due to tingling/weakness	3–5 times(4)	Normal(1)
11. Difficulty grasping small objects	Moderate difficulty(3)	**Without difficulty (1)**

V. DISCUSSION

Carpal Tunnel Syndrome develops due to increased pressure within the carpal tunnel, resulting in reduced microcirculation, ischemia, and consequently impaired conduction of the median nerve.[5] This pathophysiology explains the characteristic pain, paresthesia, nocturnal symptoms, and functional limitations observed in affected individuals. In the present case, the patient exhibited typical features of CTS and had been advised surgical decompression at a modern medical facility, which she declined.From an Ayurvedic perspective, the clinical presentation closely resembles **Rakthāvṛtta Vāta**, a condition described by Ācārya Suśruta resulting in pain, stiffness, tingling, and restricted function.Suśruta recommends **Raktamokṣaṇa**, particularly **Jalaukāvacaraṇa**, for conditions where vitiated Rakta causes localized obstruction and inflammation. . The biological actions of leech saliva—anti-inflammatory enzymes, vasodilators, anticoagulants, and agents that enhance microcirculation[6]—directly counteract the pathogenic mechanisms of median nerve compression. Consistent with these principles and with existing evidence supporting Jalaukāvacaraṇa in inflammatory and neuropathic disorders, the patient demonstrated marked improvement in pain, nocturnal symptoms, nerve-provocative test outcomes, and overall hand function. These results highlight the potential of Jalaukāvacaraṇa as a safe, minimally invasive conservative therapy for early or moderate CTS, Following three weekly sessions of Jalaukāvacaraṇa, Pain scores decreased, provocative tests improved, nocturnal symptoms reduced considerably, and functional tasks such as writing, lifting objects, and performing household chores became easier. These changes were clinically significant, sustained on follow-up, and occurred

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without any adverse events, indicating that the therapy was both effective and safe for this patient.

Medicinal leech therapy has shown documented benefit in disorders involving inflammation, venous congestion, and microcirculatory impairment—including osteoarthritis, postoperative venous congestion, and certain neuropathic conditions. Overall, this case illustrates how an integrative, minimally invasive Ayurvedic intervention can produce meaningful symptomatic and functional improvement in a patient with moderate CTS, particularly when surgery is declined. While the results cannot be generalized from a single case, they provide a rationale for further controlled studies evaluating the role of Jalaukāvacaraṇa as a conservative management option for early and moderate CTS.

VI. CONCLUSION

Jalaukāvacaraṇa led to significant symptomatic and functional improvement in this patient with moderate CTS. It appears to be a safe, minimally invasive Ayurvedic intervention suitable for early and moderate CTS, especially where patients wish to avoid surgery.

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