

Role of *Jalaukavacharana* in Septic Arthritis: A Case Report

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Abstract—Introduction: Septic arthritis is an acute orthopedic emergency characterized by infection of the synovial joint, leading to severe pain, swelling, restricted movements and progressive joint destruction if left untreated. In Ayurveda, the condition can be correlated with *Kroṣṭukasirṣa*, where vitiated *Vata* associated with *Rakta* produces painful inflammatory swelling of the knee. *Jalaukavacharana* (Hirudotherapy), a procedure of *Raktamokṣaṇa*, may help reduce inflammation and improve joint function. **Methodology:** A 40-year-old male diagnosed with *Staphylococcus aureus* septic arthritis of the right knee was treated with two sittings of *Jalaukavacharana* at an interval of two days, along with conservative Ayurvedic medications. Clinical assessment was based on pain, swelling, tenderness, range of movement and laboratory inflammatory markers. **Results:** Following treatment, the patient showed marked reduction in pain, swelling and tenderness, with improvement in knee flexion and functional mobility. Laboratory parameters including ESR, CRP, total WBC count and neutrophil percentage also showed significant improvement. No treatment-related complications were observed. **Discussion:** The therapeutic benefits of *Jalaukavacharana* may be attributed to its *Raktasodhana* and anti-inflammatory actions, while bioactive constituents of leech saliva exert anticoagulant, analgesic, anti-inflammatory and microcirculatory enhancing effects, promoting recovery of the affected joint. **Conclusion:** *Jalaukavacharana*, combined with Ayurvedic conservative management, appears to be a safe and effective adjunctive therapy in selected cases of septic arthritis. However, larger clinical studies are needed to establish its efficacy.

Keywords—*Jalaukavacharana*; Septic Arthritis; *Kroṣṭukasirṣa*; Leech therapy; *Raktamokṣaṇa*; Case report.

I. INTRODUCTION

Septic Arthritis is usually a monoarthritis of acute onset due to antecedent infection, mainly involves major joint like knee or hip joint. It is considered as an orthopaedic emergency because delayed treatment can lead to irreversible cartilage destruction, joint deformity and permanent functional disability^[1]. Among the causative organisms, *Staphylococcus aureus* is the most frequently isolated pathogen in adults and is responsible for the majority of cases involving the knee joint.

In Ayurveda, based on the clinical features of severe pain (*Shoola*), swelling (*Shotha*), tenderness, warmth and restriction of movement of the knee joint, the condition can be correlated with *Kroṣṭukasirṣa*. The condition is characterized by painful swelling of the knee resembling the head of a jackal (*Kroṣṭuka*), resulting from the vitiation of *Vata* associated with *Rakta*, leading to inflammation and impairment of joint function^[2].

Among the treatment modalities described in *Ayurveda*, *Jalaukavacharana*, one of the procedures of *Raktamokṣaṇa*, is indicated in disorders associated with *Rakta Duṣṭi* and *Pitta Dusti*^[3]. According to *Acharya Susruta*, *Jalaukavacharanam* can be performed in patient having symptoms like *Ruk*, *Toda*, *Raga*^[4]. The beneficial effects of *Jalaukavacharana* can be attributed to the combined influence of Ayurvedic therapeutic

principles and the pharmacologically active constituents of medicinal leech saliva. Leech saliva contains numerous bioactive molecules, including anticoagulant, thrombolytic, anti-inflammatory, analgesic and vasodilatory agents, which improve local blood flow, reduce edema and inflammation, relieve pain and promote tissue repair.

Considering these therapeutic properties, this case study was undertaken to evaluate the efficacy of *Jalaukavacharana* in the management of Septic Arthritis.

II. CASE

A 40-year-old male patient who is a manual labourer presented to the outpatient department of *Salyatantra* with presenting complaints of pain on right knee joint for 1 month, associated with swelling and limbing gait.

Patient had a history of fever 1.5 months back; he took allopathic medications and got relief. After 1 week he felt severe pain on right knee joint associated with swelling and was diagnosed as Septic Arthritis after synovial fluid culture showed *Staphylococcus aureus* by an orthopaedic surgeon. He received symptomatic treatment with analgesics; however, there was no significant improvement. So he opted for alternative management.

General Examination

- Pallor, Icterus, Oedema, Clubbing – Absent

- Blood Pressure -120/90mmHg.
- Pulse rate -70/min
- Respiratory rate -16/min
- Temperature -37.6°C
- Weight -55 kg.
- Height- 170 cm

2. *Amritharishtam*-30 ml BD after food
3. *Tab Suryaprabha*- 1 tablet BD with *Arishtam*

Local Examination

Right Knee Joint

On Inspection:

- Swelling present (Grade 2)
- Synovitis noted on suprapatellar region
- No discolouration
- No scar marks

On Palpation

- Slight rise of temperature
- Tenderness noted in medial joint line (Grade 2)
- Crepitus present (Grade 1)
- Pateller Tap Test – Positive
- Bulge Sign Test – Positive

Range Of Movement

- Flexion – Possible upto 400
- Extension – Possible with pain

III. METHODS

- Patient was conscious, well oriented, vitals were within normal limit.
- After examination and relevant investigations, *Jaloukavacharana* was planned as a first line of treatment.

Pre-operative

- Written informed consent obtained
- Vitals were monitored and recorded
- Patient positioned in supine
- The area from right mid-thigh to mid-calf was exposed and was wiped with *Aragwadha Kashayam*
- Leech was activated by immersing it in a solution of *Haridra* (turmeric) and water, followed by rinsing in clean water for approximately 5 minutes.

Operative

Under aseptic precaution, the activated leech was applied directly over right knee joint and allowed to attach spontaneously. Thereafter, the leeches were covered with a gauze piece to keep it moist over the gauze piece; few drops of water were poured often. After adequate bloodletting, the leech detached naturally and was subsequently removed.

Post - operative

- After detachment of leech the wound was cleaned with antiseptic solution.
- Pressure bandage was done with murivenna.
- Patient shifted in good condition after monitoring vitals.

Follow up

Jaloukavacharana was done for 2 sittings on an interval of 2 days.

Follow up was done on third day and Sixteenth day

Conservative Management

1. *Punarnavadi Kashayam*- 60 ml TDS before food

TABLE I. Laboratory investigation

Investigations	Before Treatment	Third day	Sixteenth day
ESR	85 mm/hr	60 mm/hr	10 mm/hr
CRP	28 IU/L	16 IU/L	5 IU /L
WBC	14,900 cu.mm	11,700 cu.mm	9,200 cu.mm
Neutrophil	78%	72%	62%



Fig. 1. Initial condition



Fig. 2. During treatment



Fig. 3. After treatment

IV. OBSERVATION AND RESULT

The patient demonstrated significant clinical improvement following *Jalaukavacharana* along with conservative Ayurvedic management. Before treatment, the patient had severe pain (VAS score 8), Grade 2 tenderness, Grade 2 swelling and painful knee flexion restricted to 40°. After treatment, pain was reduced to a VAS score of 2, tenderness improved to Grade 1, swelling decreased to Grade 1 and the range of knee flexion improved to 60° with minimal pain. Mild crepitus persisted throughout the treatment period without any progression. Clinical photographs showed a marked reduction in knee swelling and improvement in the overall appearance of the joint. These findings indicate significant symptomatic relief and improved functional mobility following treatment. No treatment-related complications or adverse events were observed during the follow-up period.

V. DISCUSSION

The clinical improvement observed in the present case may be attributed to the combined effects of *Jalaukavacharana* and the supportive Ayurvedic management. According to *Ayurveda*, Septic Arthritis can be correlated with *Kroṣṭukasirṣa*, where vitiated *Vata*, *Pitta* and *Rakta* lead to severe pain (*Shoola*), swelling (*Shotha*), tenderness and restriction of joint movements. *Jalaukavacharana* is indicated in disorders involving vitiated *Rakta* and *Pitta* because of its blood-purifying and anti-inflammatory properties. Removal of vitiated blood helps reduce local congestion, swelling and pain while promoting tissue healing. Here *Punarnavadi Kashayam* (Sarvangasophaharam)[5], *Amritharishtam* (Jwarakulanthakrit) [6] and *Sooryaprabha* tablet (Mahajwarahari, Soolapaharamparam) [7] help to reduce the inflammatory condition.

From a modern perspective, the therapeutic effect of leech therapy is attributed to the bioactive substances present in leech saliva, including hirudin, calin, bdellins, eglins, hyaluronidase and vasodilatory compounds. These substances possess anticoagulant, anti-inflammatory, analgesic and microcirculatory enhancing properties, thereby reducing edema, improving blood flow, relieving pain and promoting healing of the affected joint^[8,9]. In the present case, these mechanisms may have contributed to the reduction in pain, swelling, tenderness and improvement in joint mobility without any treatment-related complications. The favorable outcome suggests that *Jalaukavacharana* can serve as a useful adjunctive therapy in selected cases of Septic Arthritis managed under appropriate medical supervision.

VI. CONCLUSION

Septic Arthritis is a serious inflammatory joint disorder that requires timely intervention to prevent joint damage and functional impairment. The present case demonstrated significant clinical improvement following *Jalaukavacharana* along with Ayurvedic management, with marked reduction in pain, swelling, tenderness and improvement in joint function. *Jalaukavacharana* appears to be a safe, minimally invasive, and cost-effective therapeutic procedure that may help reduce

inflammation and enhance recovery in selected cases. However, further well-designed clinical studies with larger sample sizes are required to establish its efficacy and therapeutic role in the management of Septic Arthritis.

Consent

The patient gave documented consent after being informed about the procedure and its risks.

*Fund - Self**Conflict of Interest*

The study was conducted without any financial or personal conflict of interest.

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