

AYURVEDIC MANAGEMENT OF EXTRA-ARTICULAR CALCANEAL FRACTURE (KANDA BHAGNA): A SINGLE CASE STUDY

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ABSTRACT

Calcaneal fractures are complex injuries that significantly affect gait and quality of life. In *Ayurveda*, fractures are described under *Bhagna*.^[1] and calcaneal fractures can be correlated to *Kanda Bhagna* based on the clinical features.^[2] This case study documents the successful conservative management of an extra-articular calcaneal fracture using classical *Ayurvedic* principles. A 42-year-old male presented with pain and swelling of the right heel following trauma. Radiological evaluation confirmed a calcaneal fracture with callus formation. The *Ayurvedic* treatment protocol including *Parisheka*, *Alepa*, *Bandhana*, Internal medications, dietary regulation, and immobilization was adopted. Significant reduction in pain, swelling, and improvement in functional mobility were observed. This case highlights the role of classical *Ayurvedic* management in fracture healing.

KEYWORDS: Calcaneal fracture, *Kanda Bhagna*, *Abhigata*,

Bandhana.

INTRODUCTION

Calcaneal fractures constitute approximately 2% of all fractures and are commonly caused by

axial loading following a fall from height. These fractures often lead to prolonged morbidity if not managed appropriately. Conventional management includes immobilization or surgical intervention depending on fracture type.^[3]

In *Ayurveda*, fractures are described under *Bhagna* in *Sushruta Samhita*, where detailed guidelines for trauma-induced injuries (*Abhighata*) are provided. The Classical texts emphasize *Sheeta Pradeha*, *Pariseka*, *Bandhana*, *Pathya Ahara*, and strict immobilization for optimal healing.^[4] This case study aims to document the clinical outcome of *Ayurvedic* management in an extra-articular calcaneal fracture.

MATERIALS AND METHODS

Study Design

Single case observational study.

CASE REPORT

- A male patient aged 42yrs, came to SKAMCH & RC with the complaints of swelling & pain in right foot since 3 months.
- Patient also complaints of difficulty in walking since 3 months.
- Patient is not a known case of any co-morbidities.

The patient sustained trauma after falling forcefully on his right heel while climbing a tree. Patient took self medications from nearby medical shop, without consulting any expert. Despite temporary pain relief, swelling persisted because of continuous trauma to the fractured site. After a month, he consulted nearby hospital, suggested to get x-ray which revealed a calcaneal fracture, hence was advised to put on cast for a month. The patient refused plaster immobilization and approached our institution for further management.

Personal history

Diet : Vegetarian, 3 times a day
Appetite : Good
Sleep : Sound (8 – 10 hrs per day)
Micturition : 5-6 times per day and 1-2 times at night
Bowel : Regular, Formed stools, once in a day
Habits : Tea / coffee – Thrice a day.

Family history : Nothing contributory

General examination

✓ Temperature	-	97.4° F
✓ Pulse	-	85 bpm
✓ Blood pressure	-	120/80 mm hg
✓ Respiratory rate	-	18 cycles/min
✓ Height	-	165 cm
✓ Weight	-	62 kg
✓ BMI	-	22.8 kg/m ²
✓ Gait	-	limping gait

Systemic examination

- **RS** - Normal vesicular bronchial sounds, no added sounds.
- **CVS** - S1, S2 heard and no murmurs heard.
- **Per Abdomen** - Soft, Non tender in all the quadrants.
- **CNS** - Higher mental functions intact. Patient is oriented to time, place and person.

Local examination (Locomotor)

- **Site** : Right heel
- **Inspection** : swelling +++, Limping gait, no deformity, no scarring, no discoloration were seen.
- **Palpation** : tenderness-9 in heel (acc to VAS), local rise in temperature +, Calcaneal squeeze test +
- **ROM** : Dorsiflexion - restricted with pain
Plantarflexion - restricted with pain
Inversion - restricted with pain
Eversion - restricted with pain

Investigations

Xray of right heel (28/8/25)



Xray revealed fracture of calcaneum bone (extra articular type).

Roga pareeksha

- *Nidana* - *patana, abhighata*
- *Poorvarupa* - *nil*
- *Roopa* - *Shvayathu, Sparsha asahishnuta, Vividha Vedana, sarva Avastha na shrama labha*
- *Upashaya* – resting, sleeping
- *Anupashaya* – walking

Diagnosis: Extra-articular calcaneal fracture

Ayurvedic diagnosis: *Kanda Bhagna*

Chikitsa sutra

- ❖ आञ्छनैः पीडनैश्चैव सङ्क्षेपैर्बन्धनैस्तथा ॥
सन्धीञ्छरीरे सर्वास्तु चलानप्यचलानपि ।
एतैस्तु स्थापनोपायैः स्थापयेन्मतिमान् भिषक् ॥.^[5]
- ❖ अभ्यज्य सर्पिषा पादं तलभग्नं कुशोत्तरम् ।
वस्त्रपटेन बृन्नीयान्न च व्यायाममाचरेत् ॥.^[6]

Chikitsa**□ Local treatment****Day 1- Day 7**

- ✓ *Sthanika taila dhara* with *murivenna taila* to right heel
- ✓ *Sthanika dashamoola kshaya dhara* to right heel
- ✓ *Manjistadi lepa* to right heel

Day 8- Day 17

- ✓ *Murivenna taila pichu* to right heel
- ✓ *Manjistadi lepa* to right heel

□ Oral medications (for one month)

- ✓ Cap. Bonton 1tid (a/f)
- ✓ *Gandha taila* 10 drops with milk once daily
- ✓ T. Myostaal forte 1tid (a/f)

Pathya^[7] & Apathy^[8]

- **Pathya** : *Shali, Ksheera, Mamsarasa, Sarpi*, not to bear weight, immobilization
- **Apathya** : *lavana, katu, amla rasa, maithuna, atapa sevana*

RESULTS

The symptoms got completely subsided and range of movements significantly improved in 17 days.

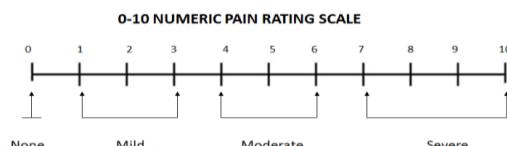


Table no. 1: Assesment before & after treatment.

Feature	Before treatment	After treatment
Pain	9	1
Swelling	Present	Reduced
Dorsiflexion	Restricted with pain	Possible without pain
Plantarflexion	Restricted with pain	Possible without pain
Inversion	Restricted with pain	Possible without pain
Eversion	Restricted with pain	Possible without pain
Gait	Limping gait	Improve



Day 1,

Day 4



Day 7

Day 14

DISCUSSION

Trauma-induced fractures aggravate *Vatadi Dosha*, leading to pain, swelling, and impaired healing. Acharya Sushrutha has described fractures in *Bhagna nidana* and their treatment in

bhagna chikitsa. As calcaneum is one of the bone in the foot, as mentioned in classics it can be considered as *nalakasthi*.^[9] The clinical features exhibited by calcaneum fracture can be correlated to the symptoms of *kanda bhagna* in classics. The treatment here focused on *Vedanahara*, *Shothahara*, and *Asthi Sandhana* principles. *Kashaya parisheka*, *Taila dhara*, *Taila pichu* and *Alepa* all helped reduce inflammation and pain, while *Gandha taila*.^[10] promoted bone healing. Dietary *Brimhana* supported tissue regeneration. Immobilization played a crucial role in preventing further injury and facilitating callus formation. The observed clinical improvement validates classical *Bhagna Chikitsa* principles described by *Acharya Sushruta*.

CONCLUSION

This case demonstrates that conservative *Ayurvedic* management can be effective in treating extra-articular calcaneal fractures. Early diagnosis, strict immobilization, appropriate external therapies, internal medications, and dietary regulation are key factors in successful fracture healing. Larger clinical studies are recommended to substantiate these findings.

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