

ROLE OF ASTHISHRINKHALA LEPA (*CISSUS QUADRANGULARIS*) ALONG WITH IMMOBILIZATION IN THE MANAGEMENT OF ASTHIBHAGNA (FRACTURE): A CASE STUDY

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ABSTRACT

Fracture is a very common condition we see in day-to-day surgical practice. Due to increasing road traffic accidents and trauma, fracture cases are rising. For proper healing, a fracture needs anatomical reduction, good immobilization and good blood supply. Even after proper plaster, many patients complain of persistent pain, swelling and delayed healing. In *Ayurveda*, fracture is called *Asthibhagna*. *Acharya Sushruta* has described its management as *Bhagna Sthapana* - reduction of fracture fragments, *Kushabandha* - proper immobilization with splints and bandages, and *Lepa* and internal medicines for faster healing. One such important drug is *Asthishrinkhala* (*Cissus quadrangularis* Linn.) which is famous as *Hadjod* or bone setter. *Acharya Sushruta* and *Bhavaprakasha* have mentioned *Alepa* as one of the important measures in *Bhagna Chikitsa* for reducing swelling and pain and for early *Sandhana*. The local application of *Asthishrinkhala* in the form of *Lepa* is thought to provide direct anti-inflammatory, analgesic and bone healing benefits at the fracture site. The present case study documents the clinical outcome of *Asthishrinkhala Lepa* along with immobilization helps in reducing pain, swelling and accelerates fracture healing. It is safe, simple, cost-effective and can be used as an external supportive therapy.

KEYWORDS: *Asthibhagna*, *Asthishrinkhala Lepa*, *Cissus quadrangularis*, Fracture, *Kushabandha*.

INTRODUCTION

Bone gives strength and support to our body. When this continuity breaks, it is called a fracture. Nowadays fracture is very common due to accidents, falls and osteoporosis. Modern management is mainly based on reduction and immobilization by plaster or surgery. Though these give mechanical stability, patients still suffer from pain, swelling and stiffness for many days. In *Ayurveda*, *Acharya Sushruta* has given detailed explanation of *Bhagna*. He has explained its types and its treatment in *Bhagna Chikitsa Adhyaya*. The treatment includes *Anchana* (traction), *Peedana* (pressure), *Sankshepa* (proper apposition) and *Bandhana* (immobilization). For immobilization, splints of

Madhuka, *Udumbara*, *Ashwattha* barks were used. Along with this, *Sushruta* has given great importance to *Lepa Chikitsa*. *Lepa* is the local application of medicinal paste over the affected area. It helps in reducing *Shotha* (swelling), *Vedana* (pain) and helps in early *Sandhana* (union). *Asthishrinkhala* is a well-known plant for bone joining. Its stem is quadrangular with nodes, hence named *Asthishrinkhala*. It is called *Hadjod* in Hindi. It has *Madhura Rasa*, *Laghu Ruksha Guna*, *Ushna Virya* and *Vatahara*, *Shothahara*, *Vedanasthapaka* and *Sandhaniya* properties. It contains calcium, Vitamin C, ketosteroids, flavonoids and triterpenoids. These constituents have anti-inflammatory, analgesic and osteogenic actions. When applied as *Lepa*, its active

principles get absorbed through skin, improve local blood circulation, reduce inflammation and stimulate callus formation. The concept of external *Lepa* is also very practical because many patients avoid taking internal medicines for long time and there is no risk of gastric irritation. Therefore, we planned this single case study to observe the role of *Asthishrinkhala Lepa* along with standard immobilization in the management of fracture in a simple, safe and *Ayurvedic* way.

AIM AND OBJECTIVES

AIM

To evaluate the clinical efficacy of *Asthishrinkhala Lepa* along with immobilization in the management of *Asthibhagna* (Fracture) through a single case study.

OBJECTIVES

Primary Objectives

1. To evaluate the efficacy of *Asthishrinkhala Lepa* in reducing pain and swelling in fracture.
2. To evaluate the efficacy of *Asthishrinkhala Lepa* in accelerating fracture healing along with standard immobilization.

Secondary Objectives

1. To study the effect of *Asthishrinkhala Lepa* on tenderness and functional disability in fracture.
2. To study the effect of *Asthishrinkhala Lepa* on radiological callus formation and clinical union of fracture.
3. To observe any adverse effects or skin irritation due to local application of *Asthishrinkhala Lepa*.
4. To assess recurrence of symptoms during a one-month follow-up period.

CASE STUDY

A 52-year-old male patient presented to the Shalya Tantra outpatient department of our college.

Main complaints with duration

1. Severe pain in lower back region since 15 days
2. Inability in standing and walking since 15 days
3. Tenderness over lower back since 15 days
4. Stiffness and restricted movements of lumbar spine since 15 days

History of Present Illness

Patient was apparently normal 15 days ago. Then he had a history of fall from height (about 8 feet) while working at his workplace. After fall, he developed sudden severe pain in lower back. He was unable to get up immediately. He was taken to local hospital where X-ray and MRI of lumbo-sacral spine was done and diagnosed as Compression fracture of L1-L2 vertebra. He was advised bed rest and painkillers but pain was not reduced. Hence he came to our hospital for further *Ayurvedic* management. No history of loss of consciousness, vomiting, bowel-bladder incontinence, weakness in lower limbs.

Past History

- No history of similar trauma in past
- No history of Diabetes Mellitus / Hypertension / Tuberculosis
- No history of any major surgery in past
- No history of long term steroid use
- No history of known drug allergy
- Bowel and bladder habits were normal before trauma

Family History

- No family history of similar illness
- No family history of Asthma, Diabetes, Hypertension
- Family is of mixed diet pattern
- No history of osteoporotic fractures in family members

Personal History

- Diet: Mixed, predominantly vegetarian
- Appetite: Reduced after trauma due to pain
- Sleep: Disturbed due to pain
- Bowel: Constipated since 10 days due to bed rest
- Bladder: Normal, no incontinence
- Addiction: No tobacco, no alcohol, occasional tea
- Occupational: Heavy labour work, farming

General Examination

- General Condition: Fair
- Pulse: 82/min
- BP: 130/80 mmHg
- Temperature: Afebrile
- Respiratory Rate: 20/min
- Weight: 68 kg
- Pallor / Icterus / Cyanosis / Clubbing / Edema / Lymphadenopathy: Absent

Systemic Examination

- CNS: Conscious, oriented
- CVS: S1 S2 normal
- RS: Air entry bilateral equal
- P/A: Soft, no tenderness
- Locomotor System: Tenderness present over L1-L2 region, paraspinal muscle spasm present

Local Examination (Lumbar Spine)

- Inspection: No open wound, swelling present over lower back
- Palpation: Severe tenderness over L1-L2 spinous process, local temperature slightly raised
- Movement: Flexion, extension, lateral flexion severely restricted due to pain

Neurological Examination

- Motor power in both lower limbs - 5/5
- Sensory examination - Intact
- SLR - Negative bilateral
- No bladder-bowel involvement
- No saddle anaesthesia

Investigations

- X-ray Lumbar Spine AP/Lateral: Compression fracture of L1-L2 vertebra with ~30% loss of anterior vertebral height
- MRI Lumbar Spine: Acute compression fracture of L1-L2 body, no retropulsion into canal, no cord

compression

- Routine Blood Investigations: Hb - 12.8 gm%, CBC, BSL, RFT, LFT - Within normal limits.

**Diagnosis**

L1 – L2 Vertebral Compression Fracture - Kati Prishtha Asthibhagna (Stable fracture)

Treatment Given**A) Immobilisation**

- Strict bed rest on hard bed for 6 weeks
- Lumbo-sacral belt (Taylor's brace) after pain reduces
- Advised to avoid forward bending, lifting weight, jerky movements

**B) Asthishrinkhala Lepa Chikitsa**

- Formulation: Fresh Asthishrinkhala stem paste / Dry powder + lukewarm water
- Site: Over lower back region (L1-L2 area) leaving spine midline, on paraspinal area
- Duration: Once daily in morning, kept for 30-45 min, for 21 days
- After Lepa: Gentle wash with lukewarm water.

Asthishrinkhala

(Cissus quadrangularis)

C) Supportive Treatment

- Tab. Asthishrinkhala Ghana Vati 500mg BD with milk
- Tab. Gandha Taila / Calcium support

- Koshta Shodhana with Eranda Bhrishta Haritaki at night for constipation.

Pathya – Apathya**• AHARA - DIET**

Sr. no.	Pathya (Wholesome / Do's)	Apathya (Unwholesome / Don'ts)
1	Godugdha + Ghrita – Best calcium, Asthi Sandhanakara	Ati Lavana - Excess salt – demineralization of bone
2	Shali Rice, Moong Dal, Daliya – Laghu, Balya	Ati Amla, Ati Katu - Excess sour, spicy food - increases inflammation
3	Ragi/Nachani, Til, Soya, Paneer, Makhana - Natural calcium	Viruddha Ahara - Milk + Salt, Milk + Non-veg
4	Mamsa Rasa (Aja Mamsa) – For strength and protein	Ruksha, Fast Food - Biscuit, Kurkure, Cold drinks, Bakery items
5	Fruits: Dadima, Draksha, Kharjura, Amla,	Madya, Dhumpana - Alcohol, Smoking, Tobacco -

	Orange - Vit C for callus formation	delays union, causes non-union
6	Shaka: Shigru, Methi, Palak – Calcium and Iron	Masha (Urad) in excess, Excess Tea, Coffee, Cola
7	Plenty of lukewarm water	Vishamashana, Adhyashana - Irregular eating habits

• **VIHARA – LIFESTYLE**

Sr.no.	Pathya (Do's)	Apathya (Don'ts)
1	Strict bed rest on hard bed in supine position for 6 weeks	Forward bending, Weight lifting, Jerky movements
2	Use Taylor's Brace / LS Belt while sitting/walking after 21 days	Two-wheeler driving, Long travel for 3 months
3	Keep pillow under knees while lying	Sitting on soft sofa, low chair, long sitting
4	Change position every 2 hours carefully - to avoid bed sores	Diwaswap (Day sleep), Ratrijagarana (Night awakening)
5	Ankle-toe movements, Deep breathing, Anulom-Vilom after 2 weeks	Ativyayama, Ati Vyavaya - Excess exercise, Excess sexual activity
6	Maintain straight back posture, Meditation	Massage / Hot fomentation over back without medical advice
7	Positive mindset, Light reading	Cold exposure, Cold water bath on back

• **ASTHISHRINKHALA LEPA – SPECIFIC**

Sr. No.	Pathya (Do's)	Apathya (Don'ts)
1	Keep back area clean and dry before Lepa	Do not apply Lepa on open wound or cut skin
2	Wear loose cotton clothes	Do not apply very hot or very thick Lepa
3	Wash Lepa with lukewarm water after 30-45 min	Do not keep Lepa overnight
4	Inform doctor if itching / burning occurs	Do not apply oil / balm over Lepa
5	Apply once daily at same time	Do not do self-medication, change Lepa drugs

Assessment Criteria

Assessed on Day 0, 7th, 14th, 21st and 42nd day on basis of:

- Pain (VAS Scale 0-10)
- Tenderness (Grade 0-3)
- Swelling / Muscle Spasm
- Difficulty in walking / standing
- X-ray - Callus / Vertebral height

OBSERVATION AND RESULT



Day 21



Day 0



Day 42

A) SUBJECTIVE PARAMETERS

Sr. No.	Parameter	Day 0 (Before Treatment)	Day 7	Day 14	Day 21	Day 42 (After Treatment)
1	Pain (VAS Scale 0-10)	8 – Severe pain, unable to stand	6 – Moderate pain	4 – Mild to Moderate pain	2 – Mild pain only on movement	0-1 No pain at rest, negligible 0-2 on movement
2	Tenderness over L1 (Grade 0-3)	Grade 3 – Severe Tenderness, Patient does not allow touch	Grade 2 - Moderate Tenderness	Grade 1 - Mild Tenderness on deep pressure	Grade 1 – Mild Tenderness	Grade 0 – No Tenderness
3	Swelling / paraspinal muscle spasm	Present ++ Severe spasm	Present + Spasm reduced	Mild swelling, Spasm minimal	Absent, Muscles relaxed	Absent
4	Difficulty in walking / standing	Unable to stand / walk	Standing with severe pain and support	Standing with support, walking with brace	Standing and walking with brace with minimal pain	Walking without support, comfortable

Grading of Tenderness
 Grade 0 - No tenderness,
 Grade 1 - Mild tenderness on deep pressure,

Grade 2 - Moderate tenderness on moderate pressure,
 Grade 3 - Severe tenderness on slight touch

B) OBJECTIVE PARAMETERS

Sr. no.	Parameters	Day 0	Day 21	Day 42
1.	Range of Movement (Lumbar Spine)	Severely restricted - Flexion, extension not possible	Partially improved, flexion possible with mild pain	Near normal movements, able to bend
2	SLR Test	Painful due to back pain	Negative, painless	Negative
3	X-ray Lumbar Spine	Compression fracture L1 body, ~30% loss of anterior height, no callus	Early signs of healing, no further collapse, sclerotic margins seen	Good consolidation, no further height loss, fracture line hazy
4	Neurological Deficit	Absent	Absent	Absent

After 7 days of Lepa, pain reduced from VAS 8 to 5, spasm reduced After 14 days, patient able to sit with support, tenderness reduced.

After 21 days, pain VAS 2, able to stand and walk with brace, no fresh complaints.

After 42 days, X-ray showed good healing, patient able to walk without support, stiffness minimal No skin irritation or allergy due to Lepa.

DISCUSSION

Fracture of vertebra is a common spinal injury we see

after fall from height. In present case, a 52-year-old male had fall from height and sustained compression fracture of L1-L2 vertebra. L1-L2 is the most common site for thoracolumbar junction fracture because it is a transition zone between fixed thoracic spine and mobile lumbar spine. So stress comes more at this level. In modern science, stable compression fracture of L1-L2 without neurological deficit is managed conservatively with bed rest and brace immobilization. Healing takes 6 to 12 weeks. During this period patient suffers from severe pain, muscle spasm and stiffness. Painkillers give temporary relief but long term use causes gastric problems. So we need a therapy which reduces pain

locally and helps in early healing.

In *Ayurveda*, this condition can be correlated with *Kati Prishtha Asthibhagna* - a type of *Bhagna*. *Acharya Sushruta* has given four principles of ***Bhagna Chikitsa*** - ***Anchana, Peedana, Sankshepa and Bandhana***. For L1-L2 fracture, *Sankshepa* and *Bandhana* are not possible like long bone fracture. Here Bed rest itself is *Bandhana* and Brace is *Kushabandha*. Along with this, *Acharya Sushruta* has emphasized *Lepa* as external treatment for *Shotha* and *Vedana* in *Bhagna*. We used *Asthishrinkhala Lepa* in this case.

Asthishrinkhala Lepa

Ayurvedic Properties: *Asthishrinkhala* has *Madhura Rasa, Laghu-Ruksha Guna, Ushna Virya, Vatahara, Shothahara, Vedanasthapaka* and *Asthi Sandhaniya* properties. In L1-L2 fracture, *Vata* is aggravated and causes severe pain and stiffness. *Ushna Virya* and *Vatahara* property of this drug pacifies *Vata* and reduces pain.

Modern Pharmacology: *Cissus quadrangularis* contains **ketosteroids, flavonoids, triterpenoids, Vitamin C and high calcium**.

Ketosteroids act on osteoblasts and increase bone mineralization. Flavonoids have anti-inflammatory and analgesic action.

When applied as *Lepa*, its active principles are absorbed through skin, increase local blood circulation, reduce local inflammation and muscle spasm.

Why Lepa and not only internal medicine?

In this patient who is 52 years old, bed rest causes constipation and gastric problems. Internal painkillers would increase it. *Lepa* is *Sthanika Chikitsa* - acts directly at fracture site without systemic side effects. It is safe, cheap and patient can feel immediate soothing effect. No risk of gastritis.

Discussion on Clinical Features: In this case, pain was very severe (VAS 8) on day 0. After 7 days of *Lepa*, pain reduced to 6 and muscle spasm reduced. This shows *Vedanasthapaka* and *Shothahara* effect of *Lepa*. By day 14, patient could sit with support. By day 21, pain was only 2/10. This early functional recovery is not usually seen with only bed rest and brace.

Discussion on Radiological Findings: On day 0, X-ray showed 30% loss of anterior height of L1-L2. On day 42, there was no further collapse and fracture margins became sclerotic, indicating healing. This suggests that *Asthishrinkhala Lepa* helped in early stabilization and prevented further vertebral collapse by improving local osteogenic activity.

Discussion on Immobilisation: We gave strict bed rest for 6 weeks on hard bed which is itself a type of

immobilization for spine. Along with *Lepa*, we used LS belt after 21 days. Immobilization gives mechanical stability, while *Lepa* gives biological support for healing. So combination is more beneficial than immobilization alone.

Safety of Lepa: During 21 days of application, no skin irritation, redness or allergy was observed. This shows *Lepa* is safe for external use even in elderly.

Limitations of Study: This is a single case study. No control group. Fracture healing is also natural process. So we cannot say 100% that early healing is only due to *Lepa*. To prove statistically, we need to do study on larger sample with control group.

From this single case, we can say that *Asthishrinkhala Lepa* along with immobilization is effective in reducing pain, spasm and helps in early fracture healing in L1-L2 compression fracture. It can be used as a simple, cost-effective, external supportive therapy in stable vertebral fractures without neurological deficit.

CONCLUSION

The present single case study was conducted to evaluate the role of *Asthishrinkhala Lepa* along with immobilisation in the management of fracture, with special reference to L1-L2 vertebral compression fracture.

A 52-year-old male patient with stable compression fracture of L1-L2 vertebra was treated with strict bed rest, lumbar spine belt and local application of *Asthishrinkhala Lepa* for 21 days. From this case study we can conclude that: ***Asthishrinkhala Lepa* is effective in reducing pain, tenderness and paraspinal muscle spasm in vertebral fracture.**

- Pain VAS was reduced from 8 to 1 within 42 days. It helps in early functional recovery. Patient was able to sit, stand and walk with brace early as compared to routine healing time. It helps in fracture healing.
- X-ray showed good consolidation without further collapse of L1-L2 vertebra. *Lepa Chikitsa* is safe and has no systemic side effects.
- No skin irritation, allergy or adverse reaction was observed during treatment.
- It avoids long-term use of oral painkillers.
- Immobilisation provides mechanical stability while *Lepa* provides biological support.
- The combination of both gives better and faster results than immobilisation alone.
- The drug is easily available, cost-effective and easy to apply.

Hence, *Asthishrinkhala Lepa* can be used as an effective, safe and simple external supportive therapy along with standard immobilisation in the management of stable L1-L2 vertebral compression fracture without neurological deficit. It incorporates the *Ayurvedic* principle of *Sthanika Chikitsa* in *Bhagna* management. However, as

this is a single case study, further study on a larger sample with a control group is required to establish its efficacy on a scientific basis.

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