

Role of Ayurveda in the Rehabilitation of Vertebral Fracture: A Case Report

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ABSTRACT:

Vertebral fractures commonly result from high-impact trauma such as falls, vehicular accidents, and sports injuries, often producing severe pain, functional limitation, and neurological symptoms. Conventional emergency management focuses on stabilization, but persistent low back pain and disability frequently require long-term rehabilitation. This case report presents a 40-year-old male who developed low back pain with radiation to the right lower limb associated with numbness over buttock, following a fall from a height of 20 feet tree, 2 months back, later diagnosed radiologically as chip fractures of L2, L3, and L4. Assessment suggested a correlation with *Kateekaserukasthi Bagnam* in Ayurveda with associated *Vata* aggravation. A comprehensive Ayurvedic treatment protocol was implemented, including *bandhana*, *abhyanga*, *ooshma sveda*, *mrdu virechana*, *kayaseka*, *matra vasti*, and *shashtika pinda sveda*, along with supportive internal medications for a period of 37 days IP management and 1 month follow up. Over the course of therapy, the patient demonstrated significant reductions in pain (VAS Scale), numbness, and tenderness, with improved range of motion and functional ability. At one-month follow-up, symptoms did not recur, and the patient resumed occupational activity. This case highlights the potential of Ayurveda-based rehabilitation in vertebral fractures by addressing pain, promoting tissue healing, and restoring musculoskeletal strength through *Vata*-pacifying and *Brihmana* therapies.

KEYWORDS: *Bagna chikitsa*, *Brihmana chikitsa*, *Kateekaserukasthi bagnam*, *Vatavyadhi chikitsa*, Vertebral fracture.

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INTRODUCTION:

Fractures of the spine have a reported incidence of 24–90 cases per 100,000 inhabitants.^[1] High prevalence of vertebral fractures (17.9% over all; 18.8% male and 17.1% female) was observed in 808 free – living residents of Delhi, India, aged more than 50 years.^[2] Spine are the principal weight bearing structure and forms the axial skeleton, providing structural support, enabling movement, and protecting the spinal cord.^[3] It has three parts, cervical, thoracic and lumbar spine. Vertebral fractures are mainly caused by fall from height, motor vehicle trauma, sports injuries and penetrating gunshot injuries.^[4] Main mechanisms of spinal injuries are due to compression force, hinging force, shearing force and direct force. Injury is common at the cervicothoracic and thoracolumbar regions. Spinal fractures are stable and unstable. When the ligaments and muscles attached to the vertebrae are involved in the injury fracture must be the unstable type and demands more care. Spinal cord injury could result in death, quadriplegia or paraplegia and injury to vital organs. Wedge compression fracture, Burst fractures, Avulsion fractures, Clay-Shoveller's fracture, Chip fractures, etc are some vertebral fractures. Compression fracture is the most common among them. Chip fracture of lumbar spine is a small avulsion type fracture where a tiny piece of bone is pulled off from the edge of vertebra. Occurs due to sudden force, twisting, fall or ligament pull etc. Radiological investigation reveals small chip fragments. Consequently, spine fractures are frequently associated with a significant impact on daily living activities, leading to a considerable primary and secondary socioeconomic cost burden^{[4][5]}. The treatment of spinal fractures aims to restore or maintain neurologic function and

achieve biomechanical stability^[1]. Rehabilitation has an important role in improving the quality of life of the injured persons.

Here is presenting the case of Vertebral fracture associated low back pain and numbness to right lower limb.. As per Ayurvedic guidelines, this condition may be correlated with *Bagnam* (more specifically *kateekaserukasthi bagnam*- fracture in the lumbar vertebra) and its *anubandha vikara* having *lakshanas* like *vedana*(*kateepradesam* and *asthi*), *sandhivedana*, *angamardam*, *stambam* or *karmabani*(*vivartana asabishnuta*). Also, in *bagnanubandha avastha* increased *vata dosha* get lodged in *kateepradesa*. Hence the treatment was planned with Ayurveda intervention followed the protocol of *Baghnachikitsa* and *vataryadhi chikitsa*

CASE REPORT:

40 year old male patient without any comorbidities came to OPD with Pain over low back region radiating to right lower limb associated numbness over buttock since 2 months. He's a coolie worker by profession and has to work really hard. Two months back, he had a history of fall from almost around 20 feet height tree and landed on ground with full force in a sitting position. Immediately he took consultation from nearby hospital and was referred to medical college. Admitted there for 3 days and took medication. He didn't get considerable relief. He consulted in our OPD and further investigations were done. Admitted here for further management. Pain aggravates on walking, sitting and getting up from squatting position, etc. Pain get relieves on rest.

Informed consent was obtained and entire details of procedures and its adverse effect was explained.

On examination

On physical examination, appetite, bowel, micturition and sleep are normal in limit. Patient had *kapha vata prakrthi* with *madhyama sambananm* and *madhyama sara*

Dermatomes and myotomes are intact

Muscle power intact

Ayurveda pareeksha

Dosham – *Vatakaptha*, *Dooshyam*- *Rasa*, *Mamsa*, *Medas*, *Asthi*, *Majja*

Srotas – *Rasa*, *Mamsa*, *Asthi*, *Majja vaha srotas*

Nidana:

- *Ahara* : *rookshahara*, *katu teekshana ahara*
- *Vihara* : *Ativyayamam*, *ayasam*
- *Agntu* : *Abhighatam*

Poorvarupa: *Teevra Vedana*, *sopham*

Roopam: *katevedana*, *sthambam*, *Dourbalyam*, *Angamardam*, *Sandhi Vedana*, *Asthi soolam*, *karmahani*

Upasayam: *visrama*

Anupasaya: *Aya*

Investigation

Blood investigations: ESR – 20 mm/hr, Uric acid – 7.9 mg%, ASO – 248.1 IU/ml

Radiological investigation

FIGURE 1

Diagnosis- Based on the examination and investigations case was diagnosed as ***Kateekaserukasthi bagnetam*** – **Chip fracture of L2L3L4**

Intervention

The treatment was planned according to *baghnachikitsa* and *vataryadhichikitsa* giving more focus on *bagnaanubandha vikara*. This includes *bandhana*, *abhyanga ooshmasvedam*, *sodhanam*, *kayasekam*, *matravasthi*, and *shashtika pinda svedam*. During the treatment period internal medicines was also administered.

Table 1: Examination of Lumbar spine

Examinations	Findings
Inspection	Scoliosis towards Rt side (due to pain)
Palpation	Tenderness over lumbar spine Grade II
ROM	Flexion – possible Extension – Not possible (pain) Lat rotation – Possible with pain
VAS Score	7

Table 2: Special examination

Tests	Right	Left
Straight leg raising (SLR)	Negative	Negative
Lasseque's	Negative	Negative
FABERS	Positive	Negative
FNST	Negative	Negative
Gilles	Negative	Negative

Table 3: Internal medicines prescribed:

1.	<i>Sahacharadi kashayam</i>	90ml bd bf
2.	<i>Yogarajaguggulu</i>	1 -0-1 with 1
3.	<i>Balarishtam</i>	30 ml bd af

4.	<i>Gandhatbailam</i>	10 drops with milk night
5.	<i>Musthadi marmakashayam</i>	60 ml bd af
6.	<i>Changalam paranda koarakku neermaruth paal kashayam</i>	1 glass bd af

Table 4: Procedures done

1	Lowback bandage(Mandala)	7 days	Pain reduced
2	<i>Abhyanga ooshmasvedam (murivenna and balatbailam)</i>	7 days	Relief from pain and numbness Tenderness reduced
3	<i>Virechanam (mrdu – 15ml gandharva erandam)</i>	1 day	Numbness completely relived
4	<i>Kayasekam (murivenna and dhanwantharam thailam)</i>	7 days	Slight pain appeared (Chikitsa kseenam)
5	<i>Matravasti (Dhanwantharam mezhkupakam)</i>	7 days	Tenderness completely relived
6	<i>Virechanam (20ml gandharva erandam)</i>	1 day	Relief from pain Range of motion improved
7	<i>Shashtika pinda svedam (murivenna , dhanwantharam thailam)</i>	7 days	No pain on extension No tenderness No numbness

Table- 5 : Result

Parameters	Before treatment	After treatment
Pain (VAS Score)	7	2
Tenderness	Grade 2	Grade 0
Range of Motion	Flexion – possible Extension – Not possible (pain) Lat rotation – Possible with pain	Flexion - Possible Extension - Possible Lateral bending – possible No pain on movements
Numbness	Present	Absent
FABERS TEST	Positive	Negative



Figure- 1: X Ray -Lumbar Spine – AP and Lateral View -Chip Fracture Of L2 L3 L4

Discharge advice

1. *Musthadi marma kashayam* 60 ml bd
bf 6am and 6pm for 15 days
 2. *Indhukantham kashayam* 60 ml bd
11am and 4pm for 15 days
 3. *Gandha thailam* 10 drops with 1 for
30 days
 4. *Dhanvantaram ghrutam* ½ tsp HS
for 30 days
- Advised rest for 2 weeks.

RESULT:

After treatment pain, tenderness, and numbness was relived and range of motion improved,

Follow up:

1 month after treatment and resting period patient was relived from all the symptoms and recovered sufficiently to be able to do

his job and other activities. Advised him to do his activities with proper care.

DISCUSSION:

Discussion on probable pathology of disease

Vertebral or spinal injuries are caused by trauma, osteoporosis, metastatic tumours and some infections^[6]. Motor vehicle accidents, sports injuries and fall from height like traumatic causes are directly involves in the mechanism of spinal injuries. compression, shearing, avulsion, rotation forces etc by the trauma leads to injury in vertebral bones, spinal cord, disc, ligaments, muscles and tendons around spinal column. It produce symptoms like low back pain, radiating pain, numbness, paralysis, loss of sensation, and loss of bowel-bladder control based on the severity of injury and affects

the quality of life. As an emergency condition death is a significant threat, so require prompt medical attention. Emergency care is the first line treatment in spinal injuries. After stabilizing the patient, rehabilitation has a great role in relieving the symptoms and improving the quality of life. Here the patient had a history of *abhighata* (trauma). It cause *vatakop* with *rakthadushti* at the site of injury (*kati*), leads to *baghna* in *katekaserukasthi* with sudden pain (*teevravedana*) and swelling (*sopha*) over *katepradesam*. Due to over exposure to *ayasa* and other *nidanas* like *katu*, *ruksba*, *teekshna ahara* during healing period of disease the *vata* get aggravated and more disturbed, it lodged in *katee pradesha* and leads to the *sleshka kapha kshaya*. The pain got aggravated. Also increased *vata* cause *dhatukshaya* of *raktha*, *mamsa*, *medus* and *asthi* further produce *angamarda*, *sthamba*, *sandhivedana* and there by *cheshta nasam*. *Ayurvedic* management includes oral medications, various external therapies along with selected *panchakarma* procedures. The treatment protocol combines therapeutic rehabilitation with medical interventions, emphasizing a comprehensive approach to health and wellness. Focusing more in to aggravated *vata* treatment provide an initial *bagnachikitsa* and then *vataryadhi chikitsa* with *sneha sweda sodhana* and *brihmana*

Probable mode of action of treatment

Anchana (traction), *peedana* (pressure manipulation), *sampkshepa* (opposition and stabilisation) and *Bandhana* (bandaging) are the basic principles of treatment for *bagana* as per *susruthacharya*^[7]. *Sneha sweda mrdusamsodhana* are the treatment principles for aggravated *vata* in Ayurveda^[8]. After complete elimination of *dosa*, *brihmana* (rehabilitation) is must for the proper maintenance of patients health. The two

important therapeutic methods in Ayurveda are *Langhanam* and *Brihmanam*. In this case, since our patient has a bone fracture, the treatment that nourishes and strengthens the body should be chosen according to his health and physical condition. Therefore, the overall treatment should be based on *Brihmana* therapy instead of a strong *langhana*.

Bandhana : *Bandhana* has the property of *vedana upasanthi* and stabilizing the joint and soft tissues^[9]. Bandaging improves drug absorption at the target site, stimulates mechanoreceptors, leading to pain relief. *Murivenna* is well known for its anti-inflammatory and analgesic actions^[10].

Abhyanga ooshmasveda: *Snehana* and *svedana* aim to bring out vitiated *doshas* from the *sakhas* back to the *koshtha* and helps to remove it from body^[11]. *Bahya Sneha sweda* has direct effect on blood circulation and nociceptors. It will improve peripheral circulation and normalise nociceptors. Proper blood circulation activate sympathetic action and act on pain pathway^[12]. So it helps to relieve pain, tenderness and numbness. *Balathailam* has *vatahara* property. combined action of *balathailam* and *murivenna* will act as a strong analgesic.

Mrdu virechanam : Procedure defined as elimination of *dosa* through *adbobhaga*. It helps to improve the metabolism. It has direct action on *apanavaigunya*. *Mrdu virechanam* with *ghandharva eranda* has a direct action on *apanavayu* and helps to relieve numbness to the lower limb.

Kayasekam: Pouring of hot liquid over body is type of *svedana* procedure. The procedure induces vasodilation: allowing for

increased blood flow -improved circulation. There by give proper nourishment and tissue repair^[12]. May cause fracture healing and promote strength. The *brihmana* action of *kayaseka* can be proved here.

Dhanwantharam Taila exhibits potent anti-inflammatory and analgesic properties. It is specifically indicated as *sarva vata vikarajith*^[13].

Matra vasthi: treatment specifically indicated for *vata* is *vasthi*. According to *charaka* it is indicated for *vatabagna* and has its own *brihmana* action.^[14] *Basti* is administered through the rectal route which is a part of gastro intestinal system (GIT). Its direct action on gut microbiome facilitate drug assimilation and absorption and there by enhance proper nutrition.

Excess *dosa* will eliminate through *virechana*

Shashtika pinda sweda : It is a form of *swedana karma* . It is a type of *pinda sweda* done usig *shashtika saali pinda* in milk and *balamoolakashaya*. All ingredients have *brihmana* property^[15].

Mode of action of *sweda* along with *brihmana* action will helps to proper nourishment and complete relief from symptoms.

Internal medicines provided here have *bagnasandhana*, *vatahara* and *brahmana* properties.

CONCLUSION:

Ayurvedic treatment have remarkable role in addressing complications caused by vertebral fractures. Beyond merely healing the fracture, Ayurveda helps completely relieve the patients related signs and symptoms and also restores strength to the bones and muscles. Ayurveda has a great role in rehabilitation of vertebral fracture patients.

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