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A case study of Ayurvedic management of *Katishool* with reference to Senile Osteoporosis induced compression fracture of vertebrae

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ABSTRACT

Low bone mass and micro architecture bone tissue degeneration that can cause fractures is the hallmarks of osteoporosis. The development of disease is influenced by numerous etiological factors, including physical, hormonal, dietary, and lifestyle factors. Low back discomfort, or *Katishool*, is one of them. Low back discomfort can have many different causes, including compression fractures, intervertebral disc prolapse (IVDP), lumbar spondylosis, spine tuberculosis, etc. At some point in their life, 39% of people report having low back pain, with females between the ages of 40 and 80 experiencing the condition more frequently. The reason of significant low back pain is one of the vertebral compression fractures (VCF). It is comparable to *Katishool* in *Ayurveda*. The care of fractures in modern science includes reduction, immobilization of the broken area, use of NSIAD, calcium supplements, etc. Numerous native substances that can aid in the healing of the fracture have been described in ancient treatises. In this instance, *Ayurvedic* treatments like *Vijaya* Extract, medicines and *Kati Abhyangam* are used to treat lower back pain.

Key words: *Katishool*, *Non Specific Low Back Pain*, *Kati Abhyangam*, *Vertebral Compression Fracture*, *Vijaya*, *Hempseed*

INTRODUCTION

Degeneration in the body and ageing are continual processes. The development of degenerative diseases, the most prevalent of which are arthritis, spondylosis, PID, low back pain, etc., is a result of today's altered lifestyle, which has accelerated the process of degeneration. There are two types of *Katishoola* (low back pain): specific and non-specific. In 90% of cases, there is no known reason, and in the remaining 10%, cases like fractures, infections, and cancer are known.^[1]

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Spinal fractures are frequently caused by vertebral compression fractures (VCF). A crush or wedging damage occurred to the vertebral body. Osteoporosis is the most prevalent cause of compression fractures.^[2] Bowel/bladder dysfunction, numbness, tingling, and weakness in the limbs occur when the spinal cord or nerves are affected. Patients with VCF are five times more likely to develop another VCF. *Katishoola* is one of the 80 varieties of *Vatavyadhi* that *Acharya Charaka* mentioned in his work *Nanatmajavatavyadhi*.^[3] It is distinguished by *Kati Pradeshevedana* (lower back pain), *Kati Shunyata* (lower back numbness), and *Hasta-Pada Suptata* (numbness in legs).^[4] Despite recent developments, the therapy only addresses the symptoms. Therefore, the need to find a better, safer, and less expensive therapy arises. India places a great importance on the strong *Ayurvedic* plant *Vijaya* and the cannabis medicine it produces because of its potent anti-inflammatory and pain-relieving effects.^[5-7] Since there is little adulteration and it is also economical, it meets all criteria. Numerous investigations and clinical trials have demonstrated its

great effectiveness in reducing all types of pain and their accompanying symptoms. Techniques like *Kati Abhyangam* with *Ayurvedic Tail* are very simple to do and have been proven to be efficient.

AIM AND OBJECTIVES

To estimate the efficacy of *Vijaya* Extract and *Kati Abhyangam* with *Hempseed Tailam* in management of *Katishool* with reference to Senile Osteoporosis induced Compression fracture of vertebrae.

MATERIALS AND METHODS

Type of study: Single case study

CASE REPORT

A Hindu 83 yr old male patient consulted on 14/12/2022, OPD for chief complaint of pain in lower back region, mild stiffness in lower back, he was unable to stand for longer duration, Painful movements since 45 day. After taking the detailed history patient explained that the pain occurred while he was lifting up from bed/seat and it get worst day by day so he went for medical treatment in allopathic hospital. Where MRI revealed Lumbo-Sacral Spine showed Lumbarisation of S1 vertebra. Superior endplate compression fracture of L4 vertebral body with marrow oedema and endplate irregularity, ~30% height compromise seen. Vacuum phenomenon of adjacent L3-L4 IV disc noted. No obvious associated pre or paravertebral soft tissue lesion. Posterior elements are intact changes. He already had done C.B.C., Urine examination (Routine and Microscopic) which were all appeared within normal limit.

He rated his pain as 7/10 on the Visual Analogue Scale (VAS) where 0 is “no pain” and 10 is the “worst pain that he had ever experienced.” The pain was described as sharp and stabbing, Radiating and it was exacerbated by direct pressure over the painful area and any movements of the lower axial spine. He denied any difficulty with bowel and bladder function. Past medical history revealed that he had been diagnosed with “mild” osteoporosis two years prior. Systems examination and family health history was unremarkable. He had no addiction and previous

history of any back injury. He was having trouble in getting a sleep due to lower back pain.

Investigations: MRI (04/12/2022)

- Superior Endplate Compression Fracture of L4 Vertebral Body with Marrow Oedema ± Osteoporotic /Traumatic.
- Broad Based Posterior Protrusion of L4-L5 Disc Indenting Thecal Sac And Traversing Nerve Roots.
- Right Lateral Protrusion of L5-S1 Disc Indenting Epidural Fat and Exiting Right L5 Nerve Root.
- Lumbar Spondylosis.

General examination

- BP - 135/68 mm of Hg
- P - 66/min
- Height - 160cm
- Weight - 62kg
- BMI - 24.2 kg/m²
- Ponderal Index - 15.1 kg/m³
- Systemic examination – normal

Assessment Criteria

Range of movement SLR was measured by Goniometer. Visual Analogue Scale (VAS) is used for pain; Improvement was assessed by Low back outcome score (LBOS) and Oswestry disability index.

Table 1: Dashavidha Pariksha

SN	Factor	Observation
1.	<i>Prakriti</i>	<i>Vatakaphaja</i>
2.	<i>Vikriti</i>	<i>Pravara Tridoshaja</i>
3.	<i>Saara</i>	<i>Majjasar</i>
4.	<i>Samhanana</i>	<i>Madhyama</i>
5.	<i>Satmya</i>	<i>Madhyama</i>
6.	<i>Satva</i>	<i>Madhyama</i>
7.	<i>Aahar Shakti</i>	<i>Madhyama</i>

8.	Vayama Shakti	Madhyama
9.	Vaya	Avara
10.	Bala	Avara

Table 2: Following Oral medications were given

SN	Drug	Dose	Anupana
1.	Vijaya Extract 3000mg	6 drops twice a day	Luke warm water
2.	Tab Hadjod	1 Tab BD	Luke warm water
3.	Tab Ortho 21	1 Tab BD	Luke warm water
4.	Tab Moringa	1 Tab BD	Luke warm water

Table 3: Procedures with quantity and duration

SN	Procedure	Drug used	Quantity	Days
1.	Kati Abhyangam with combined Tail	Mahamasha Tail	100 ml	30 days for 20 minutes
		Vishagarbha Tail	50 ml	
		Mahanarayan Tail	100 ml	
		Hemp seed Tail	100 ml	

Table 4: Pain was assessed by VAS score

SN	Score	Before treatment	After treatment
1.	0 to 10	8	3

Table 5: Straight Leg Raising Test

Before treatment		After treatment	
Right leg	Left leg	Right leg	Left leg
38 degree	43 degree	48 degree	55 degree

Table 6: Oswestry low back pain index

SN	Score	Before treatment	After treatment
1.	0-20% minimal disability 21-40% moderate disability 41-60% severe disability 61-80% crippled disability 81-100%	48.8% severe disability	31.1% moderate disability

Table 7: Low back outcome score (LBOS) by Greenough and Frase.

SN	Score	Before treatment	After treatment
1.	≥ 65 Scoring (Excellent status) 50 - 64 Scoring (Good status) 30 - 49 Scoring (Fair status) 0 - 29 Scoring (Poor status)	27	45

DISCUSSION

According to *Ayurveda*, *Katishool* is mostly caused by *Vata Prokopa* and is regarded as a *Vataja* illness. In the current case study, the patient had a vertebral fracture that was producing *excruciating* low back discomfort and numbness. The major pathogenic causes for aggravating *Vata Dosha* are *Dhathu Kshaya* (depletion/malnutrition) and *Srotas Avarodh* (channel blockages). According to *Acharya Sushruta*, *Dhatukshaya* in general and *Asthi Kshaya* in particular among *vata* types were the primary causes of the *vata prakopa* in this case.^[8] *Kati Shoola* is where *Apana Vata* is mostly involved. Therefore, the goal of the therapy is to calm down the vitiated *Vata Dosha*, especially *Apana Vata*. In order to calm the *Vata Dosha* and control its movement, *Snehana*, *Swedana*, and *Basti Karma* were implemented.

Shamana Chikitsa

Vijaya Extract has *Tikta Rasa*, *Ushna Virya*, *Laghu Tikshna Gunas* and *Katu Vipaka*. It alleviates *Kapha* and

Vata Doshas, increases *Pitta* having *Dipana*, *Pachana*, *Ruchya*, *Grahi*, *Madkari* and *Vyavayi* properties. *Vijaya* have been indicated in many diseases including pain and as anti-inflammatory. Its main components that are found in higher concentrations, identified as $\Delta 9$ tetrahydrocannabinol ($\Delta 9$ -THC) and cannabidiol (CBD). Among them, $\Delta 9$ tetrahydrocannabinol ($\Delta 9$ -THC) is identified as the psychoactive component, which is a potential treatment for Pain.^[9]

According to *Ayurveda*, the herb *Hadjod* (*C. quadrangularis* L.) possesses anti-osteoporotic properties. Triterpenoids and phytoestrogen are found in plants. The isolated plant's phytoestrogen steroids have an impact on bone mineralization and early regeneration.^[10] The *C. quadrangularis* L. ethanolic and petroleum ether extract has a noticeable impact. Numerous studies support the anti-osteoporotic activity of *C. quadrangularis* L., which also increases blood calcium levels, vitamin D3 levels, serum oestrogen levels, bone mineral density, and bone mineral content. Bone hardness, density, and thickness have all increased significantly. Furthermore, it considerably reduces the anti-anabolic impact and has some beneficial benefits on bone mineral density restoration. The *C. quadrangularis* L. ethanolic extract demonstrates that the plant's ethanol extract has a clear anti-osteoporotic action.^[11]

Yograj Guggulu,^[12] *Dashmool Kwath*, *Maharasnadi Kwath*, *Ashwagandha*, *Nirgundi*, and other key ingredients in Ortho 21, an exclusive *Ayurvedic* medication, have an entourage effect against osteoporosis and have analgesic effects.

Rheumatoid factor, TNF-alpha, and IL-1 levels in arthritic rats were decreased by the hydro-alcoholic extract of *Moringa* flowers. This demonstrates how effective *Moringa* may be as a treatment for inflammation. The presence of flavanoids and antioxidants in *M. oleifera*'s extracts is probably what caused these therapies to appear to have anti-inflammatory effects. According to reports, *M. oleifera*'s include a variety of antioxidants, such as flavanoids and polyphenolic substances.^[13] By increasing bone mineral density, flavonoids have been

proven to be responsible for preventing osteoporosis.^[14]

By acting locally, *Abhyangam*^[15] promotes blood flow, reduces pain, and has stabilizing and nourishing effects. *Purva Karma* is the practice of *snehan* (oleation) (*Abhyangam* - massage) treatment (pre-procedure). The vitiated *Doshas* become softer and more liquid as a result of these. Since the *Snigdha* (unctuous), *guru* (heavy), and *Mridu* (soft) qualities of the oils employed in *Snehan* treatment are the opposite of those of *Vata*, *Abhyangam* eliminates vitiated *Vata*. Additionally, in the current study, the oils and other components selected for *Abhyangam* were those that also balance the *Kapha Dosh*; hemp seed,^[16] *Mahamasha Tail*,^[17] *Vishagarbha Tail*,^[18] and *Mahanarayan Tail*^[19] all have *Vata*-soothing characteristics along they have tendency to reduce age related macular degeneration. The oils balance the vitiated *Doshas* as well as provide a nourishing impact (*Vrinhan*) on the tissues that are ageing.

CONCLUSION

Vata is vitiated in *Katishoola* (low backache), which results in pain (*Shoola*). Along with an oral *Vata* pacifying medication, the principles of *Ayurvedic* medicine for treating *Vata*, such as *Snehana* and *Abhyangam*, are mostly relevant here. Consequently, in the current case, a severe backache caused by VCF is being treated with *Abhyangam* using *Mahamasha Tail*, *Vishagarbha Tail*, *Mahanarayan Tail*, Hemp seed Tail along with oral medicines like *Vijaya* Extract, *Hadjod*, ortho 21, *Moringa* offered considerable relief in pain and range of motion as determined by VAS scale, Oswestry low-back pain index, SLR test, and also improved the quality of life. Therefore, the current case study offers a glimmer of hope and a springboard for doing more research with a larger sample size of individuals with low back pain owing to VCF.

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