

Ayurvedic Management of Osteoporosis W.S.R. to Asthikshaya- A Pilot Study

Dr. Janhavi Meshram¹; Dr. Aarti Bhandule²; Dr. Hema Boryale³; Dr. Naresh Jain⁴

¹PG Scholar in Kayachikitsa department at Govt. (Auto) Dhanwantari Ayurvedic College & Hospital Ujjain (M.P.)
[Corresponding Author]

²PG Scholar in Kayachikitsa department at Govt. (Auto) Dhanwantari Ayurvedic College & Hospital Ujjain (M.P.)

³PG Scholar in Kayachikitsa department at Govt. (Auto) Dhanwantari Ayurvedic College & Hospital Ujjain (M.P.)

⁴Associate Professor in Kayachikitsa department at Govt. (Auto) Dhanwantari Ayurvedic College & Hospital Ujjain (M.P.)

Abstract:- Osteoporosis is marked by a substantial decrease in bone mass and a deterioration of the microarchitecture of bone tissue, which increases the risk of fractures. This condition often goes unnoticed until a fracture occurs, which is why it is often referred to as a "silent disease". *Asthikshaya* is an Ayurvedic term that refers to the depletion, degeneration, or weakening of *Asthi Dhātu* (bone tissue). It occurs when there is an insufficient formation or nourishment of the *Asthi Dhātu*, leading to a decrease in bone density and strength. This condition can manifest as bone weakness, brittle nails and teeth, hair loss, joint pain, and a greater risk of fractures or bone-related disorders, such as osteoporosis. Worldwide, an osteoporotic fracture happens every three seconds, significantly impacting individuals and disrupting their lives. By the age of 50, the probability of sustaining a fracture is one in three for women and one in five for men. The incidence of hip fractures in women is greater than the combined risk of breast, ovarian, and uterine cancers, while for men, the risk of hip fractures exceeds that of prostate cancer. Alarming, about 50% of individuals who experience an initial osteoporotic fracture will suffer additional fractures, with the risk escalating with each subsequent incident. In the present clinical study, 15 clinically proven patients of Osteoporosis were treated with *Asthiposhtika Vati* to evaluate its therapeutic effectiveness. Ayurvedic parameters (*Lakshanas*) of *Asthikshaya* were used as subjective parameters to assess the effectiveness of the drug. Statistical analysis was conducted using the t-test, and the results were encouraging, indicating that *Asthiposhtika Vati* (*Anubhoot yoga*) is effective in managing osteoporosis, thereby exploring various aspects of this clinical condition.

Keywords:- *Asthikshaya*, *Osteoporosis*, *Asthiposhtika Vati*, *Anubhoot Yoga*.

I. INTRODUCTION

Ayurveda is an ancient medical science encompassing various aspects of life, health, disease, and management. According to Ayurveda, there are seven basic tissues (*Dhātu*) in the body: *Rasa*, *Rakta*, *Mamsa*, *Meda*, *Asthi*, *Majja*, and *Shukra*. An imbalance in any of these tissues can result in various disorders. *Asthikshaya*, a condition characterized by decreased *Asthi Dhātu*, is attributed to inadequate nutrition. The primary role of the *Asthi Dhātu* is to provide structural support to the body. There is no direct reference regarding the factors contributing to *Asthikshaya*, but since *Asthi dhātu* and *Vata Dosha* are inversely proportional to each other (*Aashraya-ashrayee bhava*) factors that aggravate *Vata dosha* can be taken as the factors responsible for *Asthikshaya*. According to *Acharya Charak*, symptoms of *Asthikshaya* include falling out of hair, body hair, nails, beard, mustache, and teeth. There can be excessive fatigue and discomfort in the body, looseness, and weakness experienced in the joints. *Asthikshaya* vis-à-vis osteoporosis is a global problem that will increase in significance with the growing elderly population.

Osteoporosis, which means "porous bone," is a skeletal disorder characterized by reduced bone strength due to loss of bone mass and deterioration of bone architecture. These changes lead to an increased risk of fractures. Normal bone has an inner honeycomb structure called trabecular bone, surrounded by a thick outer layer of cortical bone. The trabecular bone features interconnected struts that provide strength. In osteoporosis, bones become thin and brittle, leading to weakened connections. This results in decreased bone density and increased fragility. Bone density increases during early development as the body forms more bone than it resorbs, with the most significant growth occurring in adolescence. This density typically rises until the mid-to-late 20s, after which formation and resorption rates stabilize. However, beginning in the 30s, bone resorption gradually outpaces formation, leading to slight age-related bone loss. During menopause, women's estrogen levels decline. This deficiency in estrogen causes an increase in bone turnover. As a result, the bone resorption rate exceeds the bone formation rate.

This imbalance leads to bone loss that is greater than what is typically expected with aging. Additionally, changes in bone composition further reduce bone strength, increasing the likelihood of fractures. Osteoporosis is a common condition and becomes more common with increasing age. One in two women over the age of 50 is likely to experience an osteoporotic fracture in their lifetime. For men, this is less common and it is estimated that one in five males over the age of 50 will experience an osteoporotic fracture. In most cases, bones weaken when low levels of calcium, phosphorus, and other minerals in the bones result in low bone density. Modern medicine primarily provides symptomatic treatment, which often comes with adverse effects. In contrast, Ayurveda views the human body as an integrated whole, which has led to many innovative treatment approaches. Based on this perspective, the current study aims to analyze the efficacy of *Asthiposhtika Vati* in treating osteoporosis.

II. AIMS AND OBJECTIVE

To assess the effectiveness of *Asthiposhtika Vati* in treating Osteoporosis. A meta-analysis and systematic review of published data will examine the efficacy and safety of Ayurvedic interventions for managing Osteoporosis.

III. MATERIALS AND METHODS

Patients attending the OPD of Kayachikitsa department who met the selection criteria were included in the study regardless of caste, religion, or other demographics.

A detailed history of each patient was recorded, covering present and past illnesses, family history, and clinical findings related to *Dosha*, *Dushya*, *Agni*, *Strotas*, etc. A special proforma was developed for this purpose, and a total of 15 patients were registered for the study.

➤ Study Design

Open clinical randomized trial.

IV. CRITERIA FOR SELECTION OF CASES

A. Criteria for Inclusion

- Patients between 40-70 years of age.
- Both sex groups were randomly selected.
- Patients presenting with classical signs & symptoms as described in ayurvedic and modern medicine.

B. Criteria for Exclusion

- Patient below 40 years of age.
- Patient above 70 years of age.
- Pregnant women and lactating mothers.
- Patient with a history or evidence of metabolic bone disease (e.g., type I diabetes, hyper- or hypoparathyroidism, Paget's disease, Osteomalacia, renal osteodystrophy, osteogenesis imperfecta)
- Patient with metastasis of bone, who have undergone chemotherapy, and radiotherapy.
- Previous fracture or replacement of both hips.
- The presence of a prolonged immobility condition (e.g. spinal cord injury, Parkinson's disease, stroke, muscular dystrophy, ankylosing spondylitis)

➤ Subjective Criteria-

- Pain
- Tenderness
- General debility
- Hairfall
- Brittle nails

C. Selection of Drug

- *Asthishrinkhala*: Stimulates osteoblast activity, increases bone density, and significantly reduces fracture risk.
- *Arjuna*: Possesses potent anti-inflammatory properties and actively promotes wound healing and fracture mending.
- *Shunthi*: It has been shown to have effective digestive and anti-inflammatory properties, improving digestion and reducing inflammation.
- *Ashwagandha*: Known for its strong anti-inflammatory properties, it effectively reduces swelling and alleviates pain.
- *Gokshur*: Abundant in essential calcium and vitamins C and E, and showcases potent anti-inflammatory properties.
- *Yashthimadhu*: Demonstrates strong anti-inflammatory, antioxidant, and immunomodulatory properties that significantly improve bone health.
- *Palash*: An effective anti-inflammatory that alleviates muscle and bone pain while enhancing joint health.
- *Godanti*: A highly valuable calcium supplement that aids in recovering calcium deficiency and distinctly reduces bone-related diseases.
- *Kukkutandtwak*: Abundant in calcium, strengthens bones and improves density, making it ideal for individuals with low bone mass and density.

Table 1 Asthiposhika Vati [Anubhoot Yog]

Sr. No.	DRUG	LATIN NAME	FAMILY	PART USED	PROPERTIES	DOSHAKARMA	RATIO
1.	<i>Asthishrinkhala</i>	<i>Cissus quadrangularis</i>	Vitaceae	Stem	Rasa- Madhura Virya- Ushna Vipaka- Madhura Guna- Laghu, Ruksha	<i>Kaphavatasha maka</i>	1 part
2.	<i>Arjuna</i>	<i>Terminalia arjuna</i>	Combretaceae	Bark	Rasa- Kashaya Virya- Sheeta Vipaka- Katu Guna- Laghu, Ruksha	<i>Kaphapittasha maka</i>	1 part
3.	<i>Shunthi</i>	<i>Zingiber officinale</i>	Zingiberaceae	Dried Rhizome	Rasa- Katu Virya- Ushna Vipaka- Madhura Guna- Laghu, Snigdha	<i>Kaphavatasha maka</i>	1 part
4.	<i>Ashwagandha</i>	<i>Withania somnifera</i>	Solanaceae	Root	Rasa- Tikta, Katu, Madhura Virya- Ushna Vipaka- Madhura Guna- Laghu, Snigdha	<i>Kaphavatasha maka</i>	1 part
5.	<i>Gokshur</i>	<i>Tribulus terrestris</i>	Zygophyllaceae	Fruit, Root	Rasa- Madhura Virya- Sheeta Vipaka- Madhura Guna- Guru, Snigdha	<i>Vatapittashamaka</i>	1 part
6.	<i>Yashthimadhu</i>	<i>Glycyrrhiza glabra</i>	Leguminosae	Root	Rasa- Madhura Virya- Sheeta Vipaka- Madhura Guna- Guru, Snigdha	<i>Vatapittashamaka</i>	1 part
7.	<i>Palash</i>	<i>Butea monosperma</i>	Leguminosae	Bark, Flower, Seed, Gum	Rasa- Katu, Tikta, Kashaya Virya- Ushna Vipaka- Katu Guna- Laghu, Ruksha	<i>Kaphapittasha maka</i>	1 part
8.	<i>Godanti</i>	<i>Gypsum</i>			Guna- Sheeta, Laghu Virya- Sheeta	<i>Pittashamaka</i>	1 part
9.	<i>Kukkutandtwaka</i>	<i>Egg shell</i>			Rasa – Kashaya Virya- Sheeta Guna- Ruksha	<i>Kaphavatatasha maka</i>	1 part

- **Treatment/ Therapeutic regime-**
- **Dosage form :** *Vati*
- **Dose :** 2 *Vati* (each 250 mg) twice a day
- **Mode of administration :** Oral
- **Time of administration :** After meals in the morning and evening
- **Anupana :** Luke warm water
- **Duration :** 15 Days

V. RESULT AND DISCUSSION

The patient was given *Asthiposhatika Vati* for 15 days along with advising a proper diet plan. With the help of this

treatment plan symptoms like joint pain, tenderness, brittle nails, hairfall, and general weakness were also relieved to a great extent. The statistical analysis of the data to study the efficacy of treatment is below.

Table 2 The Efficacy of Treatment

N	S.D.	S.E.	T Calculated Value	T Table Value	P Value
15	1.03	0.26	16.15	2.15	<0.05

The statistical analysis of data from a 15-patient trial group treated with *Asthiposhatika Vati* revealed a calculated t-value of 16.15, surpassing the tabulated t- t-value of 2.15. As a result, the null hypothesis is rejected, and the alternative hypothesis is accepted at a 5% level of significance, indicating highly significant efficacy of the treatment. *Asthiposhatika Vati* was found to be effective in reducing symptoms. This proves the effectiveness of the drug in this condition. There was no adverse effects were noted during this *Asthiposhatika Vati*.

VI. CONCLUSION

Osteoporosis is a symptomless disease that can be correlated with *Asthikshaya* having symptoms like joint pain, tenderness, brittle nails, hair fall, and general weakness. After analyzing this study, it was concluded that *Asthiposhatika Vati* administered orally, has a definite role in the treatment of Osteoporosis, to provide better and earlier relief to the patients of Osteoporosis. The present study revealed that various Ayurvedic treatment modalities are found to be significantly effective in Osteoporosis. This drug is safe as no adverse effects were reported in any of these studies. In the end, we can say that ayurvedic treatment regimens can provide promising results in the management of Osteoporosis.

REFERENCES

- [1]. Charaka Samhita with Charaka Chandrika Hindi Commentary by Dr. Brahmanand Tripathi, Chaukhamba Surbharati Prakashan, Varanasi - 221001
- [2]. Sushruta Samhita with Sushrut Vimarshini Hindi commentary by Dr. Anant Ram Sharma, Chaukhamba Surbharati Prakashan, Varanasi – 221001
- [3]. Ashtanga Hridayam with Nirmala Hindi commentary by Dr. Brahmanand Tripathi, Chaukhamba Sanskrit Pratishthan, Delhi – 110007
- [4]. Bhavaparkasha Nighantu commentary by Padmshri Prof. K. C. Chuneekar 2015 Chaukhambha Bharati Academy Varanasi-221001
- [5]. Dravyaguna Vigyan by Prof. P. V. Sharma, Chaukhamba Bharati Academy, Varanasi 221001
- [6]. Rasatantrasaar & Siddhaprayog Sangraha, Krishna Gopal Ayurved Bhawan, Ajmer, Rajasthan 305408
- [7]. P. J Mehta's Practical Medicine, 2nd edition.
- [8]. Harrison's Principles of Internal Medicine, 14th Ed., New Delhi, McGraw Hill, Health Professions Division 1998; 2: 2247-53.

- [9]. Formulation of Polyherbomineral matrices for treatment of Osteoporosis, Department of Pharmaceutics, Government College of Pharmacy, Kathora Naka, Amravati – 444 604, Maharashtra, India.