

**Case Study****OSTEOPOROSIS WITH *TIKTA KSHEER BASTI CHIKITSA*-A CASE STUDY****Rani Khushboo<sup>1\*</sup>, Kumari Rinku<sup>1</sup>, Gujjarwar Vidula<sup>2</sup>**<sup>1</sup>MD Scholar, <sup>2</sup>Professor and Head, Postgraduate Department of Rog Nidana and Vikriti Vigyan, Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, Najafgarh, New Delhi, India.**KEYWORDS:** Osteoporosis, *Asthidhatukshya*, *Tiktaksheerbasti*, *Panchkarma*.**ABSTRACT**

The word osteoporosis is derived from Greek word meaning porous bones, it is a progressive bone disease that is characterised by decrease in bone mass and density which can lead to a increased risk of fracture. In Ayurveda Osteoporosis is closely resembles with *Asthidhatukshaya*. A female patient aged 56 years was admitted in IPD of *Rog nidana* with complaints of pain in bilateral hip joint and knee joints, swelling, tenderness, restricted movements and general weakness since 8 months. It was diagnosed the case of osteoporosis. As per *Acharya Charak*, the remedial measures in the disorder of *Asthi* consist of the *Panchkarma* therapy, *Basti* and intake of bitter-medicated milk and ghee. So, in this study, *Tiktaksheera Basti* was selected for the management of Osteoporosis. The patient was admitted in IPD of hospital and treated with Ayurvedic medicine and *Panchkarma* therapies. Remarkable improvement was seen in all parameters i.e., pain, swelling and tenderness was reduced, range of movements increased and improvement in general health.

**\*Address for correspondence****Dr Rani Khushboo**

MD Scholar,  
Postgraduate Department of Rog  
Nidana and Vikriti Vigyan, Ch.  
Brahm Prakash Ayurved Charak  
Sansthan, Khera Dabar,  
Najafgarh, New Delhi, India.  
Email: [kh.rani1990@gmail.com](mailto:kh.rani1990@gmail.com)  
Mob No.-9821535962

**INTRODUCTION**

Osteoporosis is a metabolic bone disease characterised by diffused skeletal lesions in which normally mineralized bone is decreased in the mass to the point that is no longer provides adequate mechanical support.<sup>[1]</sup> Worldwide, it is estimated that 1 in 3 women above the age of 50 will experience osteoporotic fractures, as well as 1 in 5 men. India with a population of 1.2 billion people is the second most populated country in the world with approximately 10% of population (more than 100 million) over 50 years of age.<sup>[2]</sup> Although osteoporosis reflects a number of cause, it is always characterised by loss of skeletal mass. Remaining bone has a normal ratio of mineralized to non-mineralized (i.e., osteoid) matrix. Bone loss and eventually fractures are the hallmark of osteoporosis, regardless of the underlying causes. The aetiology of bone loss is diverse but includes smoking, vitamin D deficiency, low body mass index, hypogonadism, a sedentary life style and glucocorticoid therapy. Osteoporosis and its complications are huge public health problem that are expected to expand as life expectancy increases. Bone mass peaks in normal individuals between the

age of 25 and 35 and begins to decline in the fifth and sixth decade. Bone loss during normal aging in women has been divided into two phases; menopause and aging. Bone resorption and bone formation exist simultaneously. All osteoblast and osteoclast belong to a unique temporary structure, known as the Basic multicellular unit (BMU) or bone remoulding unit. The BMU is responsible for bone remodelling throughout the life. Person younger than 35 or 40 years completely replace bone resorbed during the remodelling cycle. With age, less bone is replaced in resorption bays than is removed, leading to a small deficit at each remodelling site. Osteoporosis is due to an absolute increase in osteoclast activity. Since Osteoclasts initiate bone remodelling, the number of remodelling sites increase in this state of enhanced osteoclast formation, a phenomenon known as increased activation frequency. The condition is particularly common in elderly people and more frequent in postmenopausal women. The increase in osteoclasts in the early postmenopausal skeleton is a direct result of estrogen withdrawal. The effects of lack of estrogen are not, however, targeted

directly to the osteoclast, but rather to cells derived from marrow stroma, which secrete cytokines that recruit osteoclasts. These cytokines, which are believed to be estrogen sensitive, include IL-1 and IL-6, TNF and M-CSF.

Osteoporosis is characterised histologically by decreased thickness of the cortex and reduction in number and size of trabeculae of the coarse cancellous bone. Postmenopausal osteoporosis exhibits disrupted connection between trabeculae. The loss of trabecular connectivity, which is attended by diminished biochemical strength and ultimately leads to fracture, is due to perforation of trabeculae by resorption osteoclasts in remodelling sites.<sup>[3]</sup>

The condition may remain asymptomatic or may cause only backache. However, more extensive involvement is associated with fractures, particularly of distal radius, femoral neck and vertebral bodies. Osteoporosis may be difficult to distinguish radiologically from other osteopenias such as osteomalacia, osteogenesis imperfecta, osteitis fibrosa of hyperparathyroidism, renal osteodystrophy and multiple myeloma. Radiologically evidence becomes apparent only after more than 30% of bone mass has been lost. Level of serum calcium, inorganic phosphorus and alkaline phosphatase are usually within normal limits.<sup>[4]</sup>

Osteoporosis can be correlated with *Ashtikshaya* in *Ayurveda*. It is a condition in which diminution of *Asthidhatu* will occur. According to *Ashrayaashrayee bhava*, *Vata* and *Asthi*, both are inversely proportion to each other means when *Vata* increase *Asthi* decrease.<sup>[5]</sup> So, etiological factors which are responsible for *Vata* increase can cause *AsthiKshaya*. The clinical features of *AsthiKshaya* mentioned by *acharyas* are *Asthishula*, *Toda*, *Sandhi Shaithilya*, *Kesha*, *Loma*, *Nakha*, *Danta Vikara*, *Daurbalya*, *Rukshata Sparshashyatava* etc. which are closely resembles with the symptoms of Osteoporosis like bone pain, tenderness and weakness etc.<sup>[6,7]</sup> Treatment of *AsthiKshaya* recommended by *Acharya Charaka* and *Vagbhata*, the use of Basti prepared with the *Tiktadravya*, *Ksheera* and *Ghritha* along with the use of *Swayoni dravyas*.<sup>[8]</sup>

## Method and Material

A single case study

## Case Report

A female patient of 56 years old, visited to OPD of CBPACS, Khara Dabar Najafgarh, New Delhi India with complaint of pain in hip joints and bilateral knee joints, swelling, stiffness, and

restricted movement. Associated symptoms were general weakness, loss of appetite and constipation. Patient was asymptomatic before 6 months. Then she gradually developed pain in low back and difficulty in walking and sitting. Then she went to a nearby allopathic hospital and took treatment more than 4 months but she couldn't get satisfactory relief. Then she came to our hospital and admitted in hospital for 28 days with Ayurvedic medicine and *Panchkarma* therapies.

## General Physical Examination on Visit

- Pulse rate :-82/min
- Temperature :-98.6°F
- Jaundice:- Absent
- Blood pressure:- 110/70 mm of Hg
- Cyanosis:- Absent
- Pallor :-Absent

## Systemic Examination

- Gastro-intestinal System :-P/A Soft, non tender, no organomegally
- Respiratory System :- B/L chest airways clear with no added sound
- Cardiovascular system:- S<sub>1</sub>S<sub>2</sub> normal with no added sound.
- Nervous system:- Patient conscious, well oriented to time, place and person.
- Locomotory System:- Examined bilateral hip joint and knee joints

Inspection:- moderate swelling present

Palpation:- Tenderness present

Range of motion:- Decreased and difficulty in sitting and walking

## Gynecological History

### Menstrual History

- Age of Menarche:- 12 years
- Last menstrual period :- At the age of 49 years

### Obstetric History

- Total no. of children :- 2, 1 male and 1 female children
- Age of children:-20 years old male and 17 years old female.
- Any abnormality during pregnancy:- No
- Nature of Delivery:- both child born with normal labour
- Number of miscarriages:-No

## Assessment Criteria

### Subjective Criteria

#### 1. Pain

Pain is assessed by visual analogue scale (VAS).<sup>[9]</sup>

**2. Swelling**

- 0 No swelling
- 1 Slight swelling
- 2 Moderate swelling
- 3 Severe swelling
- 4 Very severe swelling

**3. Tenderness**

- 0 No tenderness
- 1 Subjective experience of tenderness
- 2 Wincing of face on pressure
- 3 Wincing of face and withdrawal of affected part on pressure
- 4 Resist to touch

**4. General debility (Daurbalya)**

- 0 No any general debility
- 1 Not able to perform strenuous activity
- 2 Not able to perform moderate activity
- 3 Cannot perform moderate activity but, can perform mild activity without any difficulty
- 4 Even mild activities cannot be performed

**Objective Criteria**

Bone Mineral Density (W.H.O. criteria for osteoporosis)<sup>[10]</sup>

**T-score**

1. Normal =-1
2. Osteopenia=-1 to -2.5
3. Osteoporosis=less than or equal to -2.5
4. Severe osteoporosis =less than -2.5 with fracture

Patient BMD value was 2.4

**Diagnosis**

On the basis of subjective and objective criteria the diagnosis was made of Osteoporosis.

**Clinical Examination****Dashvidha Pariksha**

- a. *Prakirti*:- Vatakapha dominant
- b. *Sara*:- Mamsasara
- c. *Samhana*:-Madhyam
- d. *Satmya*:-Madhyama
- e. *Satva*:-Madhyama
- f. *Vyayama Shakti*:- Madhyama
- g. *Jarana Shakti*:-Madhyama
- h. *Vaya*:-Madhyama

**Astavidh Pariksha**

- a. *Naadi*:- Vatakapha Pradhan, Sama
- b. *Mutra*:- Samamutra
- c. *Mala*:-Badhdha
- d. *Jihva*:- Sama

e. *Shabda*:-Spasht

f. *Sparsa*:- Samanya

g. *Drik*:- Samanya

h. *Akriti*:-Samanya

**Treatment**

Patient was admitted in the IPD of Ch. Brahm Prakash Ayurved Charak Sansthan and prescribed the following medicine:-

- a. Tab. *Laxadi Guggulu* - 2 tab thrice with lukewarm water after meal.
- b. *Satavarigud* - 1 tsf with warm milk twice a day.
- c. *Pravalpanchamrit rasa* - 250 mg BD
- d. *Muktashuktibhasm*- 200mg TDS
- e. *Dashmoolkwath* - 20ml BD

Patient underwent following *Panchkarma* therapy:-

- a. *Patrapotali Swedana (Bala-ashwagandhadi tail)* of whole body once day
- b. *Basti* was planned in *Kala Basti* pattern- 16 *Niruh Basti* with *Tikta Ksheer Kwath* + 16 *Matra Basti* with *Balaswagandhadi Taila*

The composition of *Tiktaksheer Basti* adopted for this study:

1. *Ksheer*: 160ml
2. *Madhu*: 80ml
3. *Murchhittil Tail*: 80ml
4. *Panchtiktaghrit*: 80ml
5. *Kalka (Guduchi, Shatavari, Brihati, Kantkari)*: 10gm
6. *Saindhavlavana*:-5gm

**RESULT**

After completion of 28 days of treatment there was significant reduction in pain, tenderness, swelling and stiffness in joints. After completion of treatment, there was drastic change in parameters.

Parameters	Before treatment	After treatment
Pain (As per VAS)	5	0
Swelling	2	0
Tenderness	2	1
General debility	3	1

**Observation**

*Tiktaksheerbasti* had shown remarkable improvement in pain in hip and b/l knee joint, swelling and stiffness was reduced and range of movement was also increased.

**DISCUSSION**

*Charaka* has mentioned that *Basti* is useful in *Kshina Dhatus* and *Bhagna* of the *Asthi* and

*Sandhi. Basti* is called as the '*Ardha Chikitsa*' - half of the whole treatment.<sup>[11]</sup>

Regarding *Tiktaksheer Basti*, Commentator *Arundatta* mentioned that the substances which have *Snigdha* and *Shoshana* property produces *Kharatvaguna* that nourishes *Asthi* as per *Samanya Siddhanta* because *Asthi* is also *Khara* by nature. But no substance is available that possess both *snigdha* and *Shoshan* properties. So, *Ksheer* and *Ghrit* which having *Madhur* and *Snigdha* properties, used with *Tiktadravayas* which possess *Shoshan* properties.<sup>[12]</sup> *Ksheer* and *Ghrit* pacify the *Vata* and *Pitta dosha* and act as a *Brimhana karma*. *Saindhavlavana* having *Sukshamguna*, it reaches upto the micro channels of the body.<sup>[13]</sup>

Due to similar *Panchabhoutika* composition of ingredients of *Tiktaksheer Basti* and *Asthi*, these ingredients will reach the *Asthivaha Srotas* and will be acted upon by the *Parthiwagni*, *Vayavyagni* and *Tejasagni* and gets transformed into *Asthi Poshakamshas* on which the *Asthi Dhatwagni* will act upon and converts into *Sthayi Asthi Dhatu*. Hence there will be increase of the decreased *Asthi*.<sup>[14,15]</sup> Phytogetic molecules (derived from *Tikta Rasa Pradhana* plants and from dairy products) having estrogenic actions that decrease osteoclastic activity and increase bone matrix formation and mineral deposition, and thus helps in preventing osteoporosis.<sup>[16]</sup> Calcium deficiency also decreases bone density and causes degeneration of bones. Cow's milk is the richest source of calcium and other minerals. Calcium is absorbed from duodenum by carrier mediated active transport and from the rest of the small intestine by facilitated diffusion.<sup>[17]</sup> So, by giving *Ksheerbasti* calcium level improved in the body and bony tissue get repaired.

The *Ksheerbasti* reaches the *Pakwashaya* which is *Purishdhara Kala* and According to *Dalhana Purishdharakala* is nothing but *Asthidhara kala* and there is a definite relation between these two *Kalas*.<sup>[18]</sup> So, when the ingredients of *Basti* i.e., *Ksheera*, *Ghrita* and *Madhu* nourish the *Purishadhara Kala*, nourish the *Asthidhara Kala* same and it is observed that there is relieved in symptoms of pain and tenderness.

## CONCLUSION

On the basis of this single case study it can be concluded that *Tikta Kshira Basti* along with certain palliative medicine are effective in the management of Osteoporosis. It is found very effective in reducing pain and other symptoms of osteoporosis like pain, swelling, tenderness, restricted movements, weakness etc.

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