



A CRITICAL INTERPRETATION ON RELATION BETWEEN ASTHIKSHAYA AND OSTEOPOROSIS IN *ASTHIDHATU* – AN AYURVEDIC PERSPECTIVE

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ABSTRACT

Introduction: The constituents of the body are divided into three categories by *Acharya's* i.e., *Dosha*, *Dhatu*, and *Mala*. These three entities are governing the maintaining the body's structural and functional integrity. *Dhatu*s, among these fundamental components, are specifically designed for *Sharira's* *Dharana* and *Poshana*. *Arogya* is produced when these *Dhatu*s are in their equilibrium condition, but *Vikara* is produced when they are out of balance. *Asthi Dhatu* is generated as *Poshaka* (unstable) *Meda Dhatu* in the physical body, which flows into the *Purisha Dhara Kala* and is digested by the *Asthiagni*. Teeth are created during this phase, Hair and nails are the waste products (*Malas*) of this metabolic process. **Methodology** All the data related to *AsthiKshaya* and osteoporosis collected from authentic Sources like Authentic Websites (like PubMed, J-aim etc.), authentic literatures etc. **Discussion** As *Dhatu*s is vitiated by numerous *Doshas*, the *Asthi Dhatu* is vitiated as well, e.g., *Asthi Pradosaja* *Vikara*, *Asthi Kshaya*, and so on. *Bhagna* also occurs as a result of severe form of *Asthi's* *Kshaya* (Osteoporosis) injuries. As a result, the *Asthi* develops degenerative and traumatic deformities. *Asthi* has been expanded on the basis of clinical relevance since ancient times. **Conclusion** Various clinical problems linked to *Asthi Dhatu* and its *Upadhatu*, as well as their treatment, are spread throughout the *Samhita* and need to be collected in order to offer a glimpse of *Ayurveda's* comprehensive expertise on this subject.

Keywords: *Asthi Dhatu*, *Asthi's Kshaya*, Osteoporosis, *Poshaka*, *Dosha*, *Dhatu*s etc.

INTRODUCTION

Background - *Panchamahabhutas* made up the human body. The condition of *Dosha*, *Dhatu*s, and *Mala*'s in balance form is known as health, while its disturbance is known as illness.¹ *Balyavastha*, according to *Ayurveda*, is a time of *Dhatunirman*, or anabolic phase; *Yuvavastha* preserves *Samavastha* (balance) of various *Dhatu*s; nevertheless, when catabolism speeds up, all *Dhatu*s eventually diminish. *Acharya Charka* defined *Asthi*kshaya as one of the 18 kinds of *Kshaya*.² In terms of *Vridhhi* and *Kshaya*, *Asthi* and *Vata* are inversely proportional. *Vridhha Vata* leads to *Asthi*'s *Kshaya*.³ The symptoms of *Asthi*kshaya are similar to those of osteoporosis, which is characterized by a loss of bone mass, increased bone fragility, and increased fracture susceptibility.

Epidemiological Analysis By 2050, there will be 6 million osteoporosis patients worldwide (including men and women), with 3/4 of them living in developing nations.⁴ The most common consequences include vertebral body, rib, proximal femur, humerus, and distal radius fractures with minor trauma.⁵ Some of the risk factors for osteoporosis include advanced age, female sex, sex hormone insufficiency, a low calcium, protein, and vitamin-D diet, smoking, drinking, extended corticosteroid treatment, and a low Body Mass Index

(BMI).⁶ If the symptoms exist before to menopause, they will become more severe after menopause. An attempt is made here to investigate the etiopathogenesis of *Asthi*kshaya.

Pathologies Associated with *Asthi*kshaya Might Be Simple or Complicated.

Vata vitiation causes bones to become weak or brittle, causing them to become osteoporotic and readily fracture. *Vata Pradhana Pitta Dosha* vitiation causes osteomyelitis (bone infection) and inflammation. When the *Kapha Dosha* is vitiated, the bones become abnormally thick and solid. Other bone disorders are more difficult to treat. Osteoarthritis is a *Vata-Kapha* disease in which *Vata* (age, motion, and stress) is responsible for causing bone spurs by causing development in an uneven pattern. Rheumatoid arthritis is a *Sannipatika* disease in which *Vata* drives *Kapha*, resulting in abnormal bone development.

Clinical Significance- *Vata* enhances *Pitta*'s impact, producing inflammation and bone deterioration. Osteoblastic bone cancer is a *Sannipatika* disease in which *Vata* drives *Kapha* (bone development) while also increasing *Agni*'s impact inside the afflicted tissue, resulting in a high metabolic state for growth. Osteoclastic bone cancer is caused by a dual *Dosha*

pathology, in which *Vata* and *Pitta* combine to create a high metabolic state that kills bone tissue. Traumatic deformities are included in these diseases, however because of the extensive description in ancient sources.

AIM & OBJECTIVE – To evaluate the Clinical significance between *Asthi* and Osteoporosis

METHODOLOGY

All the data related to *Asthi* and osteoporosis collected from authentic Sources like Authentic Websites (like PubMed, J-aim etc.), authentic literatures, Magazine's, Text books, Teeka's, Ayurvedic *Samhita's* (*Charka*, *Sushruta Samhita* etc.)

ESTIMATION OF ASTHI DHATU (NAKHA, DANTA, KESHA)

Because medical testing cannot be used to examine the health of the *Asthi Dhatu*, it is important to assess the *Asthi Dhatu* through the *Upadhatus* and *Malas* of its creation. The practitioner can reduce the condition of the *Asthi Dhatu* by inspecting the hair, nails, and teeth.

HAIRS

Hair density is reduced when the *Asthi Dhatu* is inadequate. Hair loss can be patchy or uniformly distributed over the head.

NAILS

Furthermore, probing of the nails indicates

that they have thinned and are readily broken.

TEETH

Teeth may seem misaligned or appear darker (grey) than usual. These results point to a deficit caused by *Vata* vitiation.

Hair density is fuller (complete) when the *Asthi Dhatu* is in excess. The nails are very thick, and the teeth are big, straight, and white. Within the *Asthi Dhatu*, these are the symptoms of *Kapha* vitiation. Similar results, however, are more difficult to distinguish from deficiency because a person with a *Kapha Prakruti* will likewise show these signs. As a result, look for secondary indications of *Kapha* vitiation, particularly in the digestive system, such as sluggish digestion, and in the mind, such as stubbornness. When these characteristics are present, along with dense hair, strong nails, and white teeth, *Kapha* has reached the *Asthi Dhatu*.

When *Pitta* enters the *Asthi Dhatu*, the teeth and nails turn a pale-yellow tint, and the hair loses its colour and begins to grey. As insufficiency develops in as a result of burnout, the nails may weaken and the hair may fall out.

IMPORTANT DHATU PRADOSHAJA VIKARAS

Dalhana stated the following reasons for discussing the *Dhatu Pradosaja Vikara* separately:

1. *Chikitsa Vishesa Vijnanartha*2. Sukhasadhyatvadi Karma
Bodhartham

To prevent failure in practice, a *Vaidya* must be well-versed in these two subjects. In such situations, only *Dosha Viparita Chikitsa* would provide total alleviation to the sufferer, according to Chakrapani.

Because of Ashraya Prabhava, *Dhatu* should be treated as well. The word "Ashraya Prabhava" was used by Chakrapani to describe the importance of *Dhatu* in the therapy.

VIKARAS ASTHI PRADOSHAJA⁷

The *Asthi Pradoshaja Vikaras* that appear in several classics are listed below.

Symptoms	Charaka	Sushruta	AshtangSangraha	AshtangHrudaya	Bhavaprakash	Harita Samhita
<i>Kesha vikara</i>	+	-	+	+	-	-
<i>Loma vikara</i>	+	-	+	+	-	-
<i>Nakhavikara</i>	+	+	+	+	+	-
<i>Smashruvikara</i>	+	-	-	+	-	-
<i>Dantavikara</i>	+	+	+	+	+	-
<i>Shrama</i>	+	-	-	-	-	-
<i>Asthi Toda</i>	-	-	+	+	-	-
<i>Ruja</i>	-	-	-	-	-	+
<i>Asthi Shula</i>	-	+	-	-	+	-

Kesha, *Loma*, and *Smashru* are *Malas* of the *Asthi Dhatu*, according to Yogendranath Sen's commentary on the *Charaka Samhita*. This is why *Keshadi Doshas* is considered one of the *Asthi Pradoshaja Vikaras*.

ASTHI PRADOSHAJA VIKARAS NIDANAS (PATHOLOGICAL CAUSES)

Asthi Pradoshaja Vikaras' Nidanans are divided into two categories: *Samanya* and *Vishesha Nidana*. The following are the details.

Samanya Nidana

Samanya Nidanans is stated for all of the *Dhatu Pradoshaja Vikaras* in *Charaka*

Samhita and *Ashtanga Hrudaya*. These are the following:

1. *Dosha Guna Sama Ahara* and *Vihara*
2. *Dhatu Viguna Ahara* and *Vihara*
3. *Ritu Viguna Ahara* and *Vihara*

Vihara and Dosha Guna Sama Ahara:

Samanyam Vriddhikaranam Siddhanta causes *Dosha Vriddhi* by ingesting *Nidanans* in the form of *Ahara* and *Vihara*, which have comparable *Guna's* to those of specific *Dosha Guna's*. For example, if a person drinks *Rukshadi Guna Yukta Ahara* and *Vihara*, *Vata Vriddhi* would result. **Dhatu Viguna Ahara and Vihara:** *Vishesha Siddhanta* takes *Nidanans* in the form of *Ahara* and *Vihara*, which have

different *Gunas* than specific *Dhatu Gunas*, i.e., *Dhatu Virodhaka Swabhava*.

Ahara and Vihara Ritu Viguna:

If the *Ahara* and *Vihara* assigned to each *Ritu* are not followed, *Dosha* vitiation occurs, resulting in *Vipareeta* to *Ritucharya* Palana.

Vishesha Nidana

Some particular *Nidanas* for *Asthi Pradoshaja Vikaras* are listed in the *Charaka Samhita*, such as.

1. *Ativyayama*
2. *Atisankshobha*
3. *Ativighattana*
4. *Vatala Ahara and Vihara*

ATIVYAYAMA: Excessive *Sharira* *Ayasa* *Janaka Karma* is referred to as *Ativyayama*.

ATISANKSHOBHA: *Abhigata* signifies *Atisankshobha* (*Yogindranath Sen*). It can refer to an injury, a violent jerk.

ATIVIGATTANA: *Atichaalana* is the meaning of *Ativighattana* (*Yogindranath Sen*). Excessive movement, separation, loosening, or shaking are all examples⁸.

VIHARA SEVANA AND VATALA

AHARA: *Vihara Sevana* and *Vata Guna Samana Ahara*

VATAJA AHARA: *Ruksha – Sheeta-Laghu Guna Pradhana Ahara Sevana*,

etc.

VATAJA VIHARA: *Ati Jagarana, Krodha, Bhaya, VegaDharana, Abhighata, Ativyavaya, Upavasa* etc.

SAMPRAPTI

Ativyayama, Atisankshobha, Ativighattana, and Vatala Ahara-Vihara are the *Nidanas* of the *Asthi Pradoshaja Vikara*, which lead to *Agni Dushti* and the creation of aberrant *Asthi*. In such cases, if the patient continues to consume causative elements (*Nidana Sevana*), the *Doshas* would become excessively vitiated, as they have already become vitiated.⁹ When sufficient vitiated *Doshas* lodge in *Asthi Dhatu*, *Asthi Pradosaja Vikara* manifests at numerous locations throughout the body, according to *Sthana Dusti* or *Khavaigunya*.

POORVARUPA

Poorva Rupa of Asthi Pradoshaja Vikaras is not mentioned in any of the Ayurvedic classics. Poorvarupas are also known as Avyakta Lakshanas or Alpa Vyakta Lakshanas.

RUPA

Each *Asthi Pradoshaja Vikara* has its own set of rules.

LAKSHANA.

1. *AdhyAsthi*¹⁰ - *AdhyAsthi* is short for *Adhika Asthi*, which means "added bone." *Adhidanta*¹¹ is *Adhika Danta*, which meaning "additional tooth" or "extra

teeth." **VATA IS THE DOSHA THAT GOVERNS THE BODY.**

Characteristics include an additional tooth eruption over the tooth, discomfort associated with the eruption, and pain that decreases following the eruption. *Adhidanta* is the name for this disorder.

2. **Dantabheda**¹²- *Dantabheda* is a condition characterized by a cutting kind of pain in the *Danta*. 'Bhanjanaka'¹³.

Vata + Kapha (Susruta)

The *Danta* will contain *Toda*, *Bheda*, *Ruksha*, and *Sphutana*, indicating that it is a *VatajaVyadhi*.

Dantabheda is the name for this. *Teevraka Ruja* is a *Kapha-Vataja Vyadhi* in which the teeth fall out as a result of *Mukha Vaktrata*. This is referred to as *Bhanjanaka*.

3. **Dantashoola**^{14,15}-*Dantashoola* is a term used to describe a severe or acute toothache.

Vata is the *Dosha* that governs the body.

features: The vitiated *Vata Dosha*, also known as *Dalana*¹⁶, produces severe cutting pain in the teeth. The same is believed by *Ashtanga Hrudaya*, however it is referred to as *Sheeta Danta* since the sufferer is unable to eat or drink *Sheeta Padarthas*.

4. **Asthibheda**¹⁷: This is a situation in which *Asthi* has *Bhidhyamanasya Vyatha*

(cutting or splitting sort of pain).

5. **Asthishoola**: This is a condition in which *Asthi* suffers from intense or acute pain, similar to *Shanka Sphutanavat*.

6. **Asthitoda**¹⁸: This is a condition in which *Asthi* suffers from *Vicchinna Shoola* (pricking or shattering agony). This is referred to as *Asthitoda*.

7. **Vivarnata**: There are two types of *vivarnata*. *Shyavadanta* and *Krimidanta* are their names¹⁹.

8. **Shyavadanta**²⁰: *Shyavadanta* is a blackish darkening of the teeth.

Rakta + Pitta Dosha (According to Susruta)

Features: - The vitiated *Rakta*, in conjunction with *Pitta*, burns the *Danta*, *Twacha*, resulting in the *Shyama vata* (blackish) or *Neela* (blue) *Varnata* of *Danta*. The vitiation of *Rakta*, *Pitta*, and *Vata* causes the *Danta* to become *Shyava Varna*, which is known as *Shyavadanta*.

9. **Krimidanta**^{21, 22}- *Krimidanta* is the term for the situation in which a tooth decay.

VATA IS THE DOSHA THAT GOVERNS THE BODY.

DANTA

Danta becomes *Krishna Varna*, *Chidra Yukta*, *Chalayukta*, *Sravayukta*, *Teevra Rujayukta*, or occasionally intermittent *Shoola* as a result of *Vata Dosha* vitiation. This is referred to as *Krimi Danta*.

Danta Moola- *Vata* vitiation *Kshata-Sushira Danta Shotha Danta Majja Shosha* is a *Krimi Danta Shoola* production, while *Srava* is a *Chala Danta Danta Vidradi- Puya Rakta Srava*

KESHA

10. **Kesha, Loma, and Smashru Vikaras-** *Indralupta, Ruhya, Khalitya, and Palitya* are the *Kesha, Loma, and Smashru Vikaras*.

MODERN VIEW

Osteoporosis is a serious social and economic problem to which the dentist may make a significant contribution by identifying individuals at risk for osteoporosis early. Periodontal disease, reduced jaw bone density, tooth loss, inability to produce effective dentures, and TMJ problems are all linked to the illness, according to accumulating research. Women with osteoporosis are three times more likely than those without the condition to lose their teeth. In osteoporosis, systemic bone loss, including that of the oral cavity, may create a host system that is more vulnerable to infectious periodontal tissue damage. Bisphosphonate (BP)-related osteonecrosis of the jaws is a serious issue for dentists, in addition to the effects of osteoporosis on oral health. The mandible is afflicted more frequently than the maxilla (2:1 ratio). In most cases

of BP-related osteochemonecrosis, dental treatment appears to be a triggering event.

HAIRS

11. **Indralupta**^{23,24}- *Indralupta* is the loss of hair from all over the body, either partially or completely.

Tridosha + Rakta Dosha

The vitiated *Vata* and *Pitta* damage the *Roma Kupas* and create *Roma Patana*, followed by the vitiated *Kapha* and *Rakta* obstructing the *Roma Kupas*. As a result, there is no likelihood of hair regrowth. *Indralupta* is the name given to this ailment. According to *Karteeka*, hair loss that occurs all over the body is known as *Ruhya*, while the fall of *Smashru* is known as *Indralupta*.

12. **Khalitya**^{25,26}-*Khalitya* is a disorder in which the hair on the scalp gradually falls off.

Tridosha + Rakta (According to *Acharya Susruta & Vagbhata*)

Features: - **Khalitya** is a condition in which the vitiated *Vatadi Doshas*, along with enhanced *Sharira Ushnata*, eliminate the *Snigdata* in *Kesha Moolas*, resulting in progressive hair loss.

The vitiated *Vata* and *Pitta* impact the *Roma Kupas* and cause *Roma Patana*, which is subsequently obstructed by the vitiated *Kapha* and *Rakta*. As a result,

there is no likelihood of hair regrowth. *Khalitya* refers to the total removal of scalp hair. The pathophysiology of *Khalitya* is similar to that of *Indralupta*, in that *Vata* and *Pitta* induce *Kesha Shatana*, while *Kapha* and *Rakta* clog the *Kesha Moolas*, preventing hair regrowth. However, in *Khalitya*, *Kesha Shatan* is progressive rather than abrupt, as in *Indralupta*.

13. **PALITYA**^{27,28}: *Palitya* is a disorder in which hair discoloration occurs.

Tridosha Pitta Dosha (According to *Acharya Susruta & Vagbhata*)

Features: -The vitiated *Vatadi Doshas* and enhanced *Sharira Ushnata* eliminate the *Snigdhatva* in *Kesha Moolas*, producing hair darkening and turning it into *Kapila Varna*. The increased *Shareera Ushnata* and vitiated *Pitta* caused by *Krodha, Shoka, and Shrama* creates *Pachana* or colouring of *Keshas* in the *Shiras*, which is known as *Palitya*.

- The *Ashtanga Hrudaya* follows *Susruta Samhita's* advice and adds a few more *Lakshanas* based on *Dosha* dominance.
- Hair becomes *Shyava Varna, Ruksha, Khara, and Jalaprabha* when *Vata* predominates.
- Hair becomes *Peetabha* with *Daha* in *Pitta* predominance; hair becomes *Peetabha* with *Daha* in *Kapha*

predominance.

- *Snigdayukta, Shukla Varna, and Sthula* are three names for the same person.
- All of the aforementioned symptoms are present in *Tridosha* vitiation.

MODERN VIEW

Your jawbone supports and secures your teeth, and it, like any other bone, is prone to deterioration. Your gums may recede or separate from your teeth as your jaw loses bone. Another oral warning sign is tooth loss. "Women with osteoporosis may lose teeth or find that their dentures don't fit well," explains Susan Greenspan, MD, head of the University of Pittsburgh Medical Center's Osteoporosis Prevention and Treatment Center. Women with osteoporosis are three times more likely to lose teeth, according to research.

NAILS

14. **KUNAKHA**²⁹ – A nail disease in which the nails are unsightly. *Kunakha* is the name for this ailment.

Pitta + Vata Dosha (According to *Acharya Susruta*)

Chippa is a condition in which vitiated *Pitta* and *Vata* congregate along the edges of the nail beds, causing *Daha, Paka, and Vedana*. When this state is moderate, it is referred to as *Kunkha*, and *Nakha* progresses via *Rukshatva, Kharatva, and Asita Varna*. *Abhighata* is another cause

of *Kunakha*. Ashtanga Hrudaya agrees and adds one more Lakshana, Jwara, to the mix. Beej *Dosha*, or a combination of Beej *Dosha*, causes many additional systemic skeletal abnormalities.

MODERN VIEW

It is more than inconvenient to break a nail. If this happens on a regular basis, it might indicate that your bones are becoming brittle as well. People with low levels of collagen (a bone-strengthening protein) in their nails may also have low quantities in their bones, according to preliminary research. Meanwhile, brittle nails or vertical nail ridges indicate a calcium deficiency in your body.

RELATION BETWEEN ASTHIKSHAYA (INCLUDING NAKHAKSHAYA, DANTAKSHAYA, KESHAKSHAYA) AND OSTEOPOSIIS CHANGES

A Patient regularly visits the doctor to have his blood sugar, blood pressure, and lipid profile checked, but he seldom visits the doctor to have his bone health checked. Before clinical signs of osteoporosis appear, there is usually a protracted latent period. The illness can be avoided by practising good *Dinacharya* and *Ritucharya*³⁰. For better bone health, *Abhyanga* and *Atapasevan* should be part of your everyday practice. *Dantadhavana* and *Tailagandusha* might help you keep

your teeth clean and healthy. *Shiroabhyanga* will keep your hair from falling out and greying of hairs. *Nasya* is beneficial to all *Urdhwajatrugata Vikaras* in maintaining their health.

Foods containing Madhura, Amla, Lavana rasa, Guru, Snigdha, and Ushna *Gunas*, which are *Vatadoshashamaka* and *Asthimajjaposhaka*, should be incorporated in *Ahara* in greater quantities. Calcium levels may be improved by eating milk, cheese, and other dairy foods, as well as green leafy vegetables, legumes, and dried fruits.

Asthi kshaya symptoms are comparable to osteoporosis, which is characterized by a loss of bone tissue. Osteopenia is a kind of osteoporosis that occurs before the onset of the disease. There is a reduction in bone mineral density in this condition as well, although it is not as significant as in osteoporosis. *Asthi kshaya* is the first stage, which is marked by various types of discomfort and abnormalities in the *Upadhatus* and *Asthi Malas*. As the illness advances, it will impact *Majjadhatu*, manifesting as *Asthi Soushirya*, which is characterized by bone porosity, according to *Anuloma Kshaya* principles. As a result, Osteopenia should be compared to *Asthi kshaya*, and Osteoporosis should be compared to *Asthi Soushirya*.

The key variables in *Asthikshaya* Samprapti are vitiation of *Vata* and *Asthi* and *Majja Dhatu*. The Samprapti might follow one of two patterns: *Margarodha* or *Dhatukaya*. *Dhatukayajanya* Samprapti is a sickness caused by a preponderance of *Vata Dosha* and a reduction in *Dhatu*s in old age. It follows *Margavarodhajanya* Samprapti when the disease strikes fat people, middle-aged people who eat a calcium-rich, healthy diet. *Srotas Shodhana* is the Hindu term for menstruation.³¹ Early menopause causes *Srotorodha*, which disrupts *Vata's Anuloma Gati* and vitiates *Vata*. *Deepana and Pachana Dravyas* can be used to remove the blockage in *Srotorodha*. It aids in the development of *Jatharagni* and *Dhatvagni*. Any symptom of the upper or lower gastrointestinal tract that lasts more than a few days should not be dismissed.

Deepana and Pachana Dravyas should be used to rectify it. *Dhatwagnimandya* is also treated with these medications.

DISCUSSION

Asthi Kshaya (reduction in bone tissue) is an ailment described in *Ayurveda*. There is a decrease in *Asthi Dhatu* in *Asthi Kshaya*. In western medicine, there is a disorder called Osteoporosis, which means "porous bones" or "the brittleness of the bones owing to increased porosity

from loss of mineral material," causing a decrease in bone tissue and increasing the risk of fractures.³² According to the concepts of *Aashrayaashrayee Bhava*, *Asthi Dhatu* is the seat of *Vata Dosha*, and the rise and reduction of *Asthi* and *Vata* are inversely related. When *Vata* is increased, *Asthi* is reduced.

Kshaya is described by Dalhana as *Swapramaanahaani*. *Kshaya* has decreased in both quantitative and qualitative terms. In *Asthi Dhatu*, *Asthi Kshaya* is decreasing. *Asthi Kshaya* or *Asthi Soushirya* are used to indicate this.³³ Osteoporosis can be likened to *Asthi Kshaya* (Decrease in bone mineral density). *Majja Kshaya* is described as having *Asthi Soushirya* as a symptom.

CONCLUSION

The clinical significance of *Asthi Sharir* extends beyond traumatic abnormalities to a broad description of illnesses based on *Doshic* predominance that may be found dispersed across classical writings. The different pathological states of *Asthi* are depicted in this Study. *Vikara* in *Dhatu* causes *Updhatu*, and *Vikruta* in *Mala* causes different *Vyadhis*, as we've already seen with *Asthi Pradoshaja Vikara*. Classical literature not only described the signs and symptoms of disease, but also prescribed local and systemic treatments. Now it can state that

Asthi Vikara isn't simply for catastrophic injuries; the different situations of *Asthi Vikara* demonstrate the breadth of knowledge regarding both *Asthi Dhatu* and its therapeutic significance, revealing *Ayurveda's* vast expertise in this field.

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