EJPMR, 2026, 13(1), 500-507 **Review Article** **Impact Factor 7.065**

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

ISSN (O): 2394-3211
ISSN (P): 3051-2573
Coden USA: EJPMAG

A CRITICAL REVIEW ON *KHALITYA* AS A *LAKSANA* OF *ASTHIKSHAYA* IN AYURVEDA

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https://doi.org/10.5281/zenodo.18205809

How to cite this Article: Dr. Sanjivani Vijay Godbole*. (2026). A Critical Review On *Khalitya* As A *Laksana* Of *Asthikshaya* In Ayurveda. European Journal of Biomedical and Pharmaceutical Sciences, 13(1), 500–507.

Article Received on 05/12/2025 **Article Revised on 25/12/2025** **Article Published on 10/01/2026**

ABSTRACT

Ayurveda is a science which deals with maintaining health and preventing disease in the body. Equilibrium of *Dhatus* contributes to health and disequilibrium leads to disease. Distribution to this disequillibrium of *Dhatus* leads to formation of disease. Health and disease are defined in *Ayurveda* by the state of *Dhatu* balance. When the *Dhatus* (tissues) are in equilibrium, it is known as *Samavastha* (a state of health). When there is disturbance or irregularity in this balance, it is called *Vishamavastha*, which represents disease.[1] In Ayurveda, *Dhatu* theory forms the foundation for understanding the structural and functional integrity of the human body. Among the seven *Dhatus*, *Asthi Dhatu* provides the framework and support to the body. The primary role of *Asthidhatu* is *Deha Dharana* - to provide structure, support, and strength to the body . *Asthikshya* is a condition described by *Acharya charak* under 18 types of *Kshyaya*.[2] *Asthidhatu Kshaya* is one of the most common degenerative conditions seen in the elderly. In modern life, changes in lifestyle, diet (*Aahar*), and daily habits (*Vihar*) contribute to this condition. Improper nutrition and lifestyle can lead to *Asthiposhakansha* (deficiency of nutrients essential for bone health), disturbie balance (*Samyavastha*) of *Dhatus* and leading to *Asthidhatukshaya*. *Asthiksaya Laksana* (signs of depletion of *Asthi Dhatu*) mentioned in texts like *Charaka Samhita*. *Dantanam patanam, kesha-lomanam patanam, nakhanam durbalata* → Loss of teeth, hair, and nails due to *Asthi Dhatu* depletion. Since *Kesha* (hair) is considered an *Upadhatu* (secondary product) of *Asthi Dhatu*, *keshapatana* indicates *khallitya* in *Ayurveda*. It's loss (*Keshapatana*) directly indicates *Asthi Dhatu Kshaya*. From modern prerspective *Khallitya* is comes under the Alopecia i.e Baldness or Hair loss *Khallitya* (baldness) is described as a condition where *kesha* (hair) fall from the scalp occurs gradually, leading to Alopecia (baldness). When alopecia affects the scalp and leads to visible thinning or bald patches, it is commonly called baldness. It's one of the important *Laksanas* (clinical features) of *Asthiksaya* (depletion of bone tissue). The connection between hair health and *Asthi Dhatu* reflects the profound understanding of tissue interrelationships in *Ayurveda.* This review article highlights on *Khallitya* (baldness/hair loss) can be interpreted as a clinical manifestation (*Laksana*) of *Asthiksaya* in Ayurveda and to explore the classical references, pathophysiological correlation, and clinical relevance of *Khallitya* as a *Laksana* of *Asthiksaya.*

KEYWORDS: *Khallitya, Asthiksaya*, Alopecia (baldness/ Hair loss).

INTRODUCTION

The *Ayurvedic* concept of *Dhatus* represents the structural and nutritional layers that sustain life. Each *Dhatu* nourishes the subsequent one through the process of *Dhatu Poshana Krama*. *Asthi Dhatu*, the fifth among the seven *Dhatus*, provides firmness, shape, and protection to the body. Any disturbance in its formation or nourishment leads to *Asthiksaya* (tissue depletion).

Human body is made up of *Panchamahabhutas*. The state of equilibrium of Dosha, Dhatus, *Malas* is health and its disturbance is known as disease. This disequilibrium may either be *Vriddhi* or *Kshaya*. According to Ayurveda, *Balyavastha* is a period of *Dhatunirman* or anabolic phase, *Yuvavastha* maintains *Samavastha* (equilibrium) of different *Dhatus*, but in old age all *Dhanus* decrease gradually as catabolism speeda up. *Asthikshaya* is a condition described by *Acharya Charakunder* 18 types *Kshaya*. *Asthi* & *Vata* are

inversely proportional to each other regarding *Vriddhi* and *Kshaya*. *Vriddhvata* leuds to *Kshaya of Asthi*.

Among the various symptoms of *Asthiksaya, Khallitya* (baldness) is an important external manifestation indicating internal depletion of *Asthi Dhatu.* Symptoms of *Asthikshya* are similar to Alopecia (baldness) that is *khallitya*.

Classical texts like *Charaka Samhita*, *Susruta Samhita*, and *Astanga Hṛdaya* describe this correlation, highlighting the systemic link between bone metabolism and hair growth.

From modern prerspective *Khallitya* is comes under the Alopecia i.e Baldness or Hair loss Alopecia refers to loss of hair from the scalp or any part of the body where hair normally grows. The term "Alopecia" comes from the Greek word "Alopex" meaning fox, because foxes shed their fur seasonally.

When alopecia affects the scalp and leads to visible thinning or bald patches, it is commonly called baldness.

Common types of Alopecia are

a. Androgenic Alopecia (Male/Female pattern baldness)
b. Alopecia Areata (Autoimmune hair loss)
c. Telogen Effluvium (Stress or nutritional-related shedding)
d. Cicatricial Alopecia (scarring type)

The most common type of alopecia is androgenetic alopecia, also known as male or female pattern baldness. This is a hereditary form of hair loss that affects millions of men and women, characterized by a gradual, symmetrical thinning of hair on the scalp.

Approximately 40% of women and 85% of men in India may experience some form of hair loss, with male pattern baldness (Androgenic alopecia) affecting around 34.06% of the male population according to recent studies. Studies indicate that the onset of baldness is occurring at a younger age due to a combination of genetic and lifestyle factors like stress and diet.

Androgenetic alopecia (AGA) is the most common type of hair loss occurs in Asian men. due to excessive response to androgens, which affects up to 50% of males and females after the onset of puberty. It is characterized by gradual loss of terminal hair of the scalp, with a characteristic pattern in both males and females. In men, this condition is also known as male-pattern hair loss, whereas, in females, it is termed as female-pattern hair loss. Hair loss is most dominant in males over the vertex and frontotemporal regions. In women, the frontal hairline is typically spared with diffuse apical hair loss noted as a broader anterior part of the hair partition.[1,2]

Common causes of Alopecia are

- Hormonal imbalance (androgens)
- Nutritional deficiencies (Vitamin D, calcium, protein, zinc)
- Stress, autoimmune reactions
- Aging and genetic predisposition

In alopecia, hair follicles undergo miniaturization or inflammation, resulting in reduced hair growth or complete loss.

These lead to weakened hair roots, decreased keratin and collagen synthesis, and impaired bone-hair structural integrity. Hence an effeort is made here to explore the pathophysiological correlation, and clinical relevance of Khallitya as a Laksana of Asthiksaya.

AIM AND OBJECTIVE

1. To Study the *Khallitya* and Alopecia (Baldness/Hair loss) in Ayurvedic and Modern perspective.
2. To Study the *Khallitya* as a *lakshana* of *Asthikshaya* in light of Ayurveda.

MATERIAL AND METHOD

The consept of Asthikshaya studied from various Ayurvedic Samhitas while the concept of Alopecia (Baldness/Hair loss) is studied from modern books, by searching various databases like PubMed, google Scholar and other research articles.

Asthikshaya

Asthi Dhatu (the bone tissue) is the fifth *dhatu* in the *Dhatu poshana* (tissue nourishment) sequence. According to *Ayurvedic dhatu* formation, each *dhatu* nourishes the next one through Agni (metabolic fire) and produces an Upadhatu (secondary tissue).[3]

The *Upadhatu* (secondary tissue) of *Asthi Dhatu* is:

***Kesha* (hair) and *Loma* (body hair)[4]**

The aggravation of *Vata dosha (Pravruddha vata dosha*) plays a major role in the development of *Asthi kshaya* due to the *Ashraya-Ashrayi bhava* relationship.

Asthikshaya is the first stage of the disease, which is mainly characterized by different kinds of pain and deformities of Upadhatus and *Malas* of *Asthi - Dantha, Nakha, Kesha* etc.

Associated Symptoms of *Asthiksaya*[5]

- *Dantapatana* (falling of teeth)
- *Nakha bhanga* (brittle nails)
- *Kesha lopa* (hair fall)
- *Asthi shula* (bone pain)
- *Sandhi shula* (joint pain)
- *Shrama* (fatigue)
- *Khallitya* & *Palitya* (baldness and premature greying)

The etiological factors for Asthikshaya

The etiological Factors of *Asthikshaya* are not explained separately in the text. On the basis of Ayurvedic principle of *Ashrayashrayee Bhava*, The increase or decrease of *Asthi* and *Vata* are inversely proportional to each other. Hence the factors vitiating Vata will cause decrease in *Asthi Dhatu*.[6] *Acharya Charak* had explained *Samanya Nidana* (general etiological factors) leading to the *Kshaya* of 18 types which includes mostly the *Vataprakopak Nidana*. The factors provocating *Vata* are excessive exercise, intake of dry vegetables, irregular dietary habits which includes excessive fasting, dieting and limited foods, excess of food also, excess of worry. grief, fear, hunger, waking at nights, letting out excess of blood, *Dosha*, *Dhatu Mala* and time factor (*Adanakala* and *Vridhavastha*).

Majjadhatu is the next to *Asthi Dhatu* which is present inside the *Asthi Dhatu* and very closely related to each other. Hence the factors responsible for the vitiation of *Asthivaha* and *Majjavaha Srotas* are also responsible for *Asthikshaya*. The vitiating factor of *Majjavaha Srotas* such as intake of *Abhishyandi* and incompetent diet vitiates *Vata* due to *Margavarodha* (obstruction).[7] Vitiation of *Asthivaha Srotas* directly leads to aggravation of Vata, resulting in *Asthikshaya. Acharya Dalhana* described the *Asthidhara Kalaas, Purishdhara Kala*.[8] So the causative factors responsible for vitiation of *Purishvaha Srotas* are also responsible for *Asthikshaya*. It includes suppression of urge for stool, consumption of large quantity of food, eating during indigestion, eating before digestion of previous meal, person having weak *Agni* and emaciation.

Step	Ayurvedic Explanation
1)*Dhatu Poshana* disruption	Due to poor digestion, *Vata-Pitta* aggravation, or *Medo Dhatu* obstruction, *Asthi Dhatu* does not get proper nutrition.
2) *Asthi Dhatu Kshaya*	Depletion of bone tissue leads to weakening of its *Upadhatu* (*Kesha*).
3) *Romakupa* (hair follicles) affected	Depleted *Asthi Dhatu* and vitiated *Pitta-Vata* reach *Romakupa* (hair follicles), causing dryness and heat.
4) Kesha Patana (hair fall)	Due to *Asthi Dhatu* malnourishment, *Kesha* lose strength, leading to hair fall and baldness.
5) *Khallitya* (Baldness)	Permanent loss of scalp hair due to non-regeneration of follicles as *Dhatu* support is lost**.**

Dosha	Role in Khallitya	Clinical Effect
1) Vata	▪ Dries and degenerates tissues, especially *Asthi Dhatu*.	▪ Thinning of hair, nourishment.
2) Pitta	▪ Burns and damages - *Roakupa*(follicles) and *dhatu*.	▪ Inflammation, pr-greying, follicular destruction.
3) Kapha	▪ Blocks *Romakupa* (follicles) in later stages.	▪ Prevents regrowth leading to permanent baldness.

Role of Doshas

- So, *Vata-Pitta* aggravation initiates the condition, while *Kapha* maintains it by obstructing new hair formation.

Samprapti* Of *Asthikshaya

Samprapti of Asthikshaya is not explained in Ayurvedic text. Variation of Vata is the main factor in samprapti of Asthiksaya. Therefore the Samprapti can be explained by two ways, one is Dhatukshayajanyaand another is Margavarodhajanya. Apatarpan i.e. taking Vataprakopak Ahara (diet) and Vihara (living habits) leads to vitiation of Vata.

- **Aharaja Nidana (Dietary causes)**

- Alpa or Asatmyahara - inadequate, improper, or incompatible diet
- Kshira, ghrita, and sneha-alpasevana - less intake of milk, ghee, and fats
- Rukṣa, laghu, tikta, katu, kasaya rasa-pradhana ahara
- Kṣudha, upavasa, or excessive fasting.

- **Viharaja Nidana (Lifestyle causes)**

- Ati-vyayama (overexertion)
- Ati-ruksa or atapasevana (excessive exposure to heat or dryness)
- Vegadharana (suppression of natural urges)
- Ratri-jagarana (night awakening)

- **Manasika Nidana (Psychological causes)**

Chinta, soka, bhaya, krodha - mental stress and emotional disturbances

- **Rogaja and Aushadha-ja Nidana**

- Chronic diseases that deplete dhatus (like raktaksaya, vata vyadhi)
- Long-term use of ruksa, katu, tikta medicines.

- **Dosha Prakopa**

Primarily Vata dosha becomes vitiated due to ruksha (dry), laghu (light), and shita (cold) qualities of nidanas. Vata, especially Vayana and Apana vayu, increases and disturbs the dhatu-paka (nutritional transformation) sequence.

➢ **Dhatu Paka (Dhatu Formation Pathway)[9]**

According to Charaka and Sushruta, dhatus are nourished sequentially:

Rasa → Rakta → Mamsa → Meda → Asthi → Majja → shukra

When the process of dhatu-paka is disturbed

Inadequate transformation of Meda Dhatu → leads to improper formation of Asthi Dhatu.

Vata aggravation dries and degenerates *Asthi.*

Result: *Asthi kshaya* (degeneration or depletion of bone tissue).

➢ **Srotodusți (Channel involvement)**

Asthivaha srotas are primarily affected.

Mula (root) of Asthivaha srotas: Medo Dhatu and Kati (pelvic bones).

Srotas get sankucita (narrowed) or shunya (empty) due to Vāta and dhatu kshaya.

This leads to poor nourishment and degeneration of bone tissue.

When Asthivaha srotas are affected and Asthi dhatu diminishes, the following symptoms appear:

➢ **Lakshanas of Asthikshaya[10]**

- Khallitya hair fall or baldness
- Dantapata - loosening or falling of teeth
- Nakhadantavakruta - brittleness and deformity of nails and teeth
- Asthi-bheda - bone pain and fragility
- Sandhi-shula or Sandhi-shaithilya - joint pain, looseness
- Kesha, Loma, Nakha vikriti - brittleness of hair and nails.

➢ **Untreated, Asthikshaya can lead to[11]**

- Asthisoushirya (porosity of bones) → comparable to Osteoporosis
- Sandhivata (degenerative joint disorders)
- Khallitya & Palitya (baldness and premature greying)
- Dantapata (dental problems)

Nidana Sevana

↓

Vāta Prakopa

↓

Vaishamya

↓

Meda Kshaya

↓

Asthi Dhatu Apachaya

↓

Dhatu-paka

↓

Asthivaha Srotodushti

↓

Lakshana Pradarshana

↓

Asthikshay

Khallitya (Baldness)[12]

1. Nidana (Causative factors)

Intake of ruksha (dry), tikta (bitter), katu (pungent) ahara, excessive stress, lack of snigdha (unctuous) food, overexertion, and vata-pitta aggravating habits.

2. Dosha Prakopa

Vata and Pitta get vitiated.

Pitta causes kshaya (depletion) and daha (burning) in hair follicles.

Vata causes *rukshata* (dryness) and *kshaya* (degeneration).

3. Dushya

Rasa dhatu and *Asthi dhatu* (since hair is *upadhatu* of *Asthi*).

4. Srotas involved

Rasavaha and *Asthivaha srotas* - due to obstruction and vitiation at the level of hair roots (*romakoopa*).

5. Srotodushti

Sangha (obstruction) and *Kshaya* (depletion) at the scalp level.

6. Vyakti (Manifestation)

Loss of hair (*Kesha patana*),

Thinning and weakening of hair,

Ultimately, bald patches (*Khallitya*).

Ruksha-tikshna ahara-vihara

↓

Vata-Pitta prakopa

↓ R

Rasa & Asthi dhatu kshaya

↓ R

Romakoopa dushti

↓ R

Kesha patina

↓ R

Khallitya.

Alopecia[13]

Alopecia refers to hair loss from the scalp or body, resulting from disruptions in the normal hair growth

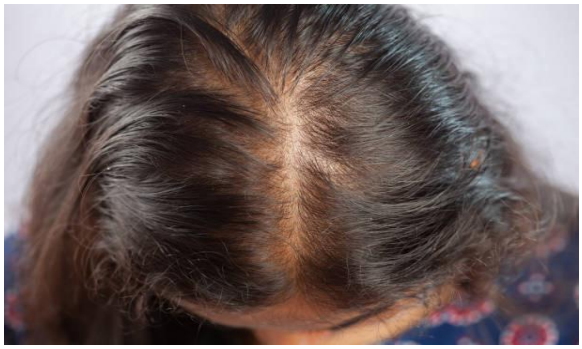
cycle or destruction of hair follicles. The pathophysiology varies depending on the type of alopecia (non-scarring or scarring), but the general mechanisms involve immune, hormonal, genetic, and environmental factors.

Normal Hair Growth Cycle

Hair growth occurs in three main phases:

1. Anagen (growth phase) - Active growth of hair (lasts 2-6 years).
2. Catagen (regression phase) - Transition phase where follicle shrinks (2-3 weeks).
3. Telogen (resting phase) - Hair rests before falling out (2-3 months).

After telogen, a new anagen phase begins, and the cycle repeats.



Alopecia occurs when there is

- Shortening of anagen phase, or
- Prolongation of telogen phase, or
- Permanent follicular destruction.

Pathophysiology by Major Types

A. Androgenetic Alopecia (Male or Female Pattern Baldness)[14]

Primary mechanism: Androgen (dihydrotestosterone, DHT)-mediated miniaturization of hair follicles.

Process

DHT binds to androgen receptors in hair follicle dermal papilla cells.

This causes progressive shortening of the anagen phase and miniaturization of terminal hair follicles into vellus-like follicles.Genetically predisposed follicles (frontal and vertex scalp areas) are more sensitive to DHT.

Result: Gradual thinning and loss of scalp hair in a defined pattern.

➢ **Causes[15,16]**

1) Genetic Causes

- Hereditary predisposition plays a major role, especially in Androgenetic Alopecia (AGA) commonly known as pattern baldness.
- Genetic polymorphisms in androgen receptor (AR) genes and 5-alpha-reductase enzyme genes cause increased sensitivity of hair follicles to dihydrotestosterone (DHT).

2) Hormonal Factors

Dihydrotestosterone (DHT) - a potent derivative of testosterone - is the main hormonal factor.

5-alpha reductase enzyme converts testosterone into DHT in hair follicles.

DHT binds to androgen receptors in genetically susceptible follicles, leading to:

- Miniaturization of hair follicles
- Shortening of the anagen (growth) phase
- Prolongation of the telogen (resting) phase
- Gradual thinning and loss of terminal hairs

3) Nutritional Deficiencies

- Hair follicles are rapidly dividing cells requiring constant nutritional support.
- Deficiencies in iron, zinc, vitamin D, vitamin B12, biotin, and protein contribute to diffuse hair loss.

4) Stress and Psychological Factors

- Chronic emotional or physical stress elevates cortisol, pushing hairs prematurely into telogen
- (resting) phase - resulting in telogen effluvium.
- Also implicated in autoimmune activation (Alopecia Areata).

5) Gender

- Men: Typically have receding frontal hairline and vertex baldness.
- Women: Show diffuse thinning over the crown with preserved frontal hairline (Ludwig pattern).

DISCUSSION

In today's perspective, due to sedentary life style, faulty food habits and excessive stress metabolic diseases are occurring commonly. *Ashtikshaya* is one among these diseases are occurring commonly. *Asthikshaya* is the first stage of the disease, which is mainly characterized by different kinds of pain and deformities of *Upadhatus* and *Malas* of *Asthi* - *Dantha*, *Nakha*, *Kesha* etc.

In Ayurveda, *Asthi Dhatu* is responsible for providing structure, stability, and support to the body. Its *Upadhatu* (secondary tissue) is *Kesha* (hair) and *Nakha* (nails). Therefore, when *Asthi Dhatu* undergoes *Ksaya* (depletion), its *Upadhatus* also get affected, leading to hair loss and baldness (*Khallitya*).

According to classical texts, *Khallitya* occurs due to vitiation of *Vata* and *Pitta Dosas* in the scalp region

- *Pitta* causes burning and damage at the root of the hair due to its *ushna* and *Tikshna* qualities.
- *Vata* causes dryness and shrinkage of the hair roots due to its *Ruksha* and *Laghu* properties.
- This combined action leads to follicular degeneration and hair root weakness, which is a sign of *Asthi Dhatu Kshaya*.

Since Kesha is a byproduct of *Asthi Dhatu*, any deficiency or improper nourishment of *Asthi Dhatu* reflects as *Kesha Patana* (hair fall) or *Khallitya* (baldness).

Thus, *Khallitya* is considered a *Lakshana* (clinical symptom) indicating *Asthikshaya* a deeper tissue depletion disorder rather than just a superficial hair condition.

Asthi Dhatu Kshaya → Improper nourishment of *Kesha* (*Upadhatu*) → Hair fall & baldness (Khallitya).

Khallitya (Baldness) in modern science correlate with Alopecia. In alopecia, hair follicles undergo miniaturization or inflammation, resulting in reduced hair growth or complete loss.

These lead to weakened hair roots, decreased keratin and collagen synthesis, and impaired bone-hair structural integrity. Hence an effeort is made here to explore the pathophysiological correlation, and clinical relevance of Khallitya as a Laksana of Asthiksaya.

Vriddhi of earlier Dhatus like *Rasa, Rakta, Mamsa, Meda* are measured clinically and laboratory findings, but deeper *Dhatus* like *Asthi, Majja, Shukra* are difficult to measure clinically. A person used to see the doctor for checking his blood sugar, blood pressure, lipid profile etc., but he rarely sees a doctor to know his bone health. Ayurveda strains more on the prevention of diseases. By following proper *Dincharya* and *Rutucharya*, the disease can be prevented.

Correlatoin Between Khallitya And Asthikshaya

Ayurvedic Concept	Modern Concept
Asthi Dhātu Kṣaya leads to loss of its Upadhātu (Kesha)	Hair loss due to reduced follicular strength
Vata-Pitta Prakopa causes follicle degeneration	DHT-induced follicular miniaturization
Kesha Patana (hair fall) and Kesha Shaithilya (weak hair)	Thinning and progressive baldness
Asthi Dhatu Dushti affects nourishment of scalp	Reduced nutrient and hormonal supply to hair roots

CONCLUSION

Alopecia can be better correlate with *khallitya* (baldness) as a *lakshana* of *Asthikshaya*. Along with the factors responsible for vitiation of *vatta dosha*, *pitta dosha*, and *kapha dosha*, vitiating of *khallitya*, vitiation of *Ashtivaha, Majjavahas srotas* are considered as the causative factors for *Asthikshaya.* The correlation between *Khallitya* described in Ayurveda and Alopecia of modern medicine reveals a profound similarity in their underlying pathology and manifestation. Ayurveda recognizes *Khallitya* not merely as a superficial cosmetic concern but as a deeper reflection of *Asthi Dhatu Kshaya*, where depletion of the bone tissue and its *Upadhatu-Kesha* -results in hair loss. This classical understanding aligns with modern findings that associate nutritional deficiency, hormonal imbalance, reduced bone mineral metabolism, and follicular atrophy with various forms of alopecia.

Ayurvedically, it is a manifestation of *Asthikshaya* a deeper *Dhatu*-level disorder affecting hair as an *Upadhatu* of *Asthi.* Hence, *Khallitya* = Clinical indicator of *AsthiDhatu* depletion, which parallels Alopecia = Follicular atrophy and nutritional-hormonal deficit in modern science.

Corelation between Ayurvedic Asthikshaya lakshan khallitya and Modern Alopecia

Aspect	Ayurvedic Cocept	Modern Concept
Basic defination	• Khallitya –Hair fall leading to Alopecia (Baldness)	• Alopecia – Partial or complete hair loss
Main *Dosha* involvement	• Vata & Pitta(initial stage), later Kapha & Rakta	• Hormonal imbalance, inflammation, oxidative stress
Dhatu involved	• *Asthi Dhatu* (hair as its *Updhatu*)	• Bone metabolism,collagen and calcium metabolism
Lakshana (symptoms)	• *Kesh patina*(hair loss)	• Hair fall, baldness
Hetu	• *Pitta* aggravation, faulty	• Hormonal changes, malnutrition,

	diet, stress, *Dhatukshaya*	autoimmunity, VitD - deficiency, Low calcium metabolism
Samprapti	• *Pitta* and *Vata* disturb *Romakupa* and dry up *Asthi Upadhatu*	• Follicular atrophy and inflammatory miniaturization of hair follicles
Chikitsa	• *Rasayana, Asthiposhaka dravyas, Shiroabhyanga, Nasya*	• Nutritional therapy, hair growth stimulants, stress management

Asthikshaya → *Kshaya* (*Kesha patana*) = Bone and collagen depletion → weakening and loss.

Modern science validates this link

- Low bone mineral density, vitamin D deficiency, and low calcium metabolism have been associated with hair loss conditions (especially androgenic alopecia and telogen effluvium).
- This supports Ayurveda's view that *Asthi Dhatu* depletion (weakness in bone metabolism) manifests as *Khallitya*.

Thus, *Khallitya* as a *Lakshana* of *Asthikshaya* demonstrates that hair loss can be an external indicator of internal tissue depletion and metabolic imbalance. This integrative interpretation bridges traditional Ayurvedic wisdom with modern biomedical insight, emphasizing the need to address both systemic nourishment (*Dhatu Poshana*) and local follicular health in management.

In conclusion, understanding *Khallitya* through the lens of *Asthikshaya* provides a holistic framework that not only explains the causation of Alopecia but also guides comprehensive preventive and therapeutic approaches, combining *Rasayana* therapy, *Asthi-poshaka* diet, stress control, and scalp rejuvenation techniques. Such an integrative perspective holds great potential for developing sustainable and root-level solutions to modern hair loss disorders.

REFRENCES

1. Acharya Sushrut, Sushrut Samhita, Edited with Ayurveda-Tattva-Sandipika, By Kaviraj Ambikadutta Shastri, Chaubhamba Sanskrit Sansthan, Varanasi, Reprint-2018, Part-1, Sushrut Sububha chapter No. 15, Shlok No.48, 84.
2. Acharya Charak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Sutrasthana, Chapter-17, Shlok no.63, 102.
3. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Sutrasthana, Chapter-28, Shlok no.4, 175.
4. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Chikitsasthana, Chapter-15, Shlok no.19, 515.
5. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Sutrasthan, Chapter-17, Shlok no.67: 103.
6. Acharya Vagbhat, Ashtang Hradayam, Edited with Nirmala Hindi Comentry, By Brahmanand Tripathi, Chaubhamba Sanskrit Sansthan, Varanasi, Reprint-2017, Ashtang Hradayam, Sutrasthana, Chapter-11, Shlok no.26: 166.
7. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Chikitsasthana, Chapter-15, Shlok no.16, 514.
8. Acharya Sushrut, Sushrut Samhita, Edited with Ayurveda-Tattva-Sandipika, By Kaviraj Ambikadutta Shastri, Chaubhamba Sanskrit Sansthan, Varanasi, Reprint-2018, Part-1, Sushrut-Kalpsthana chapter No. 4, Shlok No.40, 60.
9. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Chikitsasthana, Chapter-15, Shlok no.16, 514.
10. AcharyaCharak, Charaka Samhita, by Agnivesa, revised by Charaka and Dridhabala of Chakrapanidatta, Edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Prakashan, Varanasi, Reprint-2013, Charaka Samhita, Sutrasthan, Chapter-17, Shlok no.67, 103.
11. Vrudha Vagbhat, Astanga Samgraha hindi commentary by Kaviraj Atridev Gupta, Chowkhamba Krishnadas Academy, Reprint-2019, Vol-1, Astanga Samgraha Sutrastha, Chapter-19, Shlok no.10, 154.
12. Vrudha Vagbhat, Astanga Samgraha hindi commentary by Kaviraj Atridev Gupta, Chowkhamba Krishnadas Academy, Reprint-2019, Vol-1, Astanga Samgraha Sutrastha, Chapter-19, Shlok no.10, 154.
13. World Health Organization (WHO) - Hair and Scalp Disorders Fact Sheet. https://www.who.int

14. National Alopecia Areata Foundation (NAAF): https://www.naaf.org
15. American Academy of Dermatology Association (AAD) - Hair Loss: Causes, Diagnosis, and Treatment. https://www.aad.org/public/diseases/hair-loss
16. National Institutes of Health (.gov). https://pmc.ncbi.nlm.nih.gov