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A COMPREHENSIVE LITERATURE REVIEW OF INDRALUPTA (ALOPECIA AREATA): AYURVEDIC AND MODERN PERSPECTIVES

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Abstract

This review article provides an analytical evaluation of the historical, Ayurvedic, and modern perspectives of Indralupta, clinically correlated with Alopecia Areata. In Ayurveda, hair (Keshha) is considered a byproduct (Mala) of Asthi Dhatu, and its health is directly dependent on tissue nourishment and Dosha equilibrium. Indralupta is described as a Tridoshaja Vyadhi, predominantly involving Pitta and Vata causing hair fall, accompanied by Kapha and Rakta obstructing the hair follicles. Conversely, modern science defines Alopecia Areata as a T-cell mediated autoimmune disorder disrupting the normal hair cycle dynamics. This review aims to bridge ancient classical wisdom with contemporary dermatological understanding, focusing strictly on etiopathogenesis, historical evolution, and diagnostic concepts without delving into therapeutic interventions.

Keywords: Alopecia Areata, Autoimmune disorder, Ayurveda, Hair cycle, Indralupta, Trichoscopy.

1. Introduction

Understanding the historical evolution of a disease provides deeper insight into its conceptual basis and etiopathogenesis[1]. In ancient Indian literature, diseases were not viewed in isolation but interpreted through systemic observations across different eras. This review explores the structural and metabolic explanations for patchy hair loss across historical timelines, comparing the classical Ayurvedic pathology of Indralupta with the modern dermatological mechanisms of Alopecia Areata. Hair loss beyond normal physiological limits is clinically termed alopecia, and its psychological impact necessitates a profound understanding of its underlying mechanisms from both traditional and modern viewpoints[2,3].

2. Historical Evolution of Indralupta

The historical evolution of Indralupta is documented across various periods of Indian medical history:

- **Vedic Period:** The Vedic period represents the earliest phase of medical thought. The Vedas, particularly the Atharvaveda, contain references to hair and its disorders. Hair (Keshha) was considered a symbol of strength and vitality, and its loss was viewed as inauspicious. Preventive measures using herbal drugs like Nitatni were mentioned to promote hair health[4].
- **Purana Period:** During this era, medical knowledge became more observational. The Garuda Purana categorized individuals based on the number of hairs emerging from hair follicles, indicating an early attempt to study variations in hair growth patterns as a marker of physical characteristics[5].
- **Samhita Period:** This marks the golden era of Ayurveda. Classical texts such as Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya provide detailed systematic descriptions of Indralupta. It was classified under Kshudra Roga (minor diseases) and Shiroroga (diseases of the head), primarily considered a disorder affecting the scalp and hair follicles due to Tridosha involvement[1,2,6].

3. Ayurvedic Perspective on Keshha and Indralupta

3.1 Conceptual Understanding of Keshha (Hair)

In Ayurveda, Keshha refers to the filamentous structures growing on the scalp. It is fundamentally classified under Parthiva Dravya due to its qualities of stability and firmness, indicating the predominance of the Prithvi Mahabhuta. Keshha is considered the Mala (by-product) of Asthi

Dhatu (bone tissue). Its proper formation and continuous nourishment are heavily dependent on the sequential tissue metabolism (Dhatu Poshana Nyaya) driven by Dhatvagni[1]. Furthermore, natural hair color is attributed to Teja Mahabhuta and Bhrajaka Pitta[6].

3.2 Etiopathogenesis (Samprapti) of Indralupta

The pathogenesis of Indralupta involves a complex interplay of Dosha, Dhatu, and Srotas. The classical texts offer a deeply structural and metabolic explanation for patchy hair loss.

3.2.1 According to Sushruta Samhita

Acharya Sushruta presents a sophisticated dual-mechanism of pathology. Vitiating of Pitta and Vata leads to the sudden falling of hair (destruction phase). Simultaneously, the involvement of Kapha and Rakta results in the obstruction of the hair follicles (Romakupa Avarodha), thereby inhibiting regrowth[2]. This dual mechanism—destruction followed by obstruction—is the hallmark of Indralupta.

3.2.2 According to Charaka Samhita

Acharya Charaka discusses Indralupta from a systemic metabolic perspective. He states that vitiated Tejas (representing Pitta and metabolic heat) in association with Vata reaches the Keshabhoomi (scalp), damaging the hair roots. Vata accelerates the dislodgement of hair due to its dry (Ruksha) and mobile (Chala) properties[1].

3.2.3 According to Ashtanga Sangraha & Hridaya

Acharya Vagbhata provides distinct clinical differentiation between Khalitya and Indralupta. While Khalitya is characterized by a gradual, diffuse hair loss driven by sustained Dosha vitiation, Indralupta manifests abruptly as localized, patchy hair loss[6].

The core Samprapti Ghataka (pathological factors) include Vata, Pitta, and Kapha as the principal Doshas, Rakta as the primary Dushya, and Swedavaha Srotas (with Romakupa as their root) as the affected channels. The disease originates in the Tamra Twacha (the fourth layer of the skin), which modern anatomy correlates with the papillary and upper reticular dermis where hair follicles are anchored[2].

4. Modern Perspective on Alopecia Areata

4.1 Hair Anatomy and Growth Cycle

Modern medicine recognizes hair as a specialized keratinized epidermal appendage. The hair shaft consists of three concentric layers: the medulla, cortex, and cuticle. The normal human hair growth cycle is a highly regulated, asynchronous process consisting of three primary phases:

Anagen (active growth phase lasting 2–7 years), Catagen (a short transitional involution phase lasting 2–3 weeks), and Telogen (the resting and shedding phase lasting around 3 months)[7]. Disturbances in these phases contribute to different forms of hair loss.

4.2 Pathophysiology of Alopecia Areata

Alopecia Areata is classified as an organ-specific, T-cell mediated autoimmune disorder. The immune system erroneously targets the deep dermal portions of the hair follicles, specifically the hair bulb matrix, bypassing surface inflammation[8]. This autoimmune attack abruptly shifts the hair follicle from the active Anagen phase into the premature Catagen and Telogen phases. A critical feature of Alopecia Areata is that while the inflammatory infiltrate disrupts the hair cycle, it does not permanently destroy the follicular stem cells in the bulge region. Therefore, it remains a non-scarring alopecia, preserving the potential for spontaneous regrowth once the inflammation subsides[9].

4.3 Trichoscopy Diagnostics

Advances in modern dermatology utilize trichoscopy as a non-invasive diagnostic tool to evaluate scalp disorders. Characteristic trichoscopic markers for Alopecia Areata include[10]:

- **Exclamation-mark hairs:** Hairs that taper and become significantly thinner as they approach the scalp, indicating an interrupted hair cycle.
- **Black dots (Cadaverized hairs):** Pigmented, broken hair shafts remaining within the follicular openings, serving as a primary marker for active inflammation and shedding.
- **Yellow dots:** Keratin and sebum-filled follicular ostia, indicating empty but viable follicles, often seen in chronic stages.

5. Discussion

The extensive literature review reveals a striking conceptual parallel between ancient Ayurvedic pathology and modern dermatological science. The Ayurvedic mechanism of Indralupta—where Vata and Pitta cause follicular destruction and Kapha and Rakta cause obstruction—closely mirrors the modern understanding of Alopecia Areata, where an autoimmune inflammatory attack halts hair growth, followed by follicles entering a dormant telogen state[2,8]. Both paradigms agree that Indralupta is a complex, multifactorial disorder affecting the structural integrity of the hair follicle without causing permanent scarring, thereby allowing room for structural regeneration.

6. Conclusion

The evaluation of historical literature, classical Ayurvedic texts, and modern dermatological findings demonstrates that Indralupta and Alopecia Areata describe the same clinical entity across different scientific eras. By bridging Ayurveda's detailed metabolic and structural framework (Dosha-Dushya interplay) with modern science's cellular and immunological perspective, researchers can establish a more robust, comprehensive understanding of the disease's pathogenesis, paving the way for integrative approaches to diagnosis and holistic management.

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Conflict of Interest

The author declares that they have no conflict of interest.

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