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Review Article

An Ayurvedic Diagnostic Approach to Understanding Trichoscopic Findings in Hair Loss: A Conceptual Review

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Abstract

Introduction: Alopecia (hair loss) is a prevalent condition influenced by both genetic and environmental factors. With an increase in early onset of hair loss and greying, trends show profound effects on the psyche, personality of an individual and his social interactions, highlighting the need for effective strategies to promptly diagnose and treat the condition. In dermatological practice, use of trichoscopic images in the diagnosis of hair loss have been documented profusely and algorithms have been framed to aptly diagnose the condition in modern science based on the findings, but it is not being widely used in ayurvedic trichology. Materials and Methods: This review utilises detailed visualisation of the hair and scalp of individuals with hair loss using trichoscopy and the images captured served as aid in interpretation of *lakshanas* (signs) thereby aiding in the diagnosis of the condition. The trichoscopic images were recorded and analysed based upon ayurveda and modern parameters and inferences were drawn. Observation & Results: Based upon the trichoscopic analysis, the images assessed showed varied clinical findings mentioned in ayurvedic texts and revealed the parameters of hair density, distribution, follicular units, hair characteristics, vascular patterns and signs of alopecia. Conclusion: The ayurvedic *lakshanas* (signs) and the trichoscopic findings matched well which pave a way for sound scientific basis of diagnostics and management of hair loss and other conditions pertaining to hair and scalp.

Keywords: Alopecia, Ayurveda, Hair loss, *Khalitya*, Trichoscopy

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Introduction

The hair forms an integral part of the integumentary system and is responsible for protection of the body, thermoregulation, production of sebum and diverting the sweat. (1) Hair holds a great social significance in the society while reflecting the overall physical and mental health of an individual signifying health, youth and vigour. (2) Hair loss or alopecia (non-specific) is a widespread dermatological disorder affecting the scalp or body in people of all ages irrespective of gender. (3) Nearly 50% of individuals are affected by the age of 50 years. (4) Though alopecia is not a life-threatening condition, recent trends of early onset hair loss and greying are disturbing, as they have a profound effect on the psyche, personality of an individual and his social interactions. (5)

The diagnosis of hair loss encompasses a systematic approach- a detailed history, careful clinical examination, laboratory tests like hemogram, serum iron, serum ferritin, Vitamin B12 and trichoscopy. (6) Trichoscopy is a diagnostic methodology that helps in the detailed examination of the scalp providing clues to promptly and aptly diagnose the condition. As trichoscopy is an underutilised, simple, non-invasive diagnostic tool used in enhanced visualisation of hair and the scalp, (7) its utilisation in Ayurvedic diagnosis of hair loss could be a preferred tool for diagnostics to pave the way for appropriate treatment for the same. Ayurveda utilises the three-fold examination-*darshana* (visualisation), *sparshana* (tactile sensation), and *prashna* (questioning) where *darshana* plays an important role while dealing with the trichoscopic analysis of hair. The enhanced visualisation of hair follicles in varied conditions of hair disorders like non-specific hair loss, alopecia areata, androgenic alopecia, telogen effluvium etc, and scalp creates a research gap where ayurvedic diagnostics could be merged with trichoscopic findings to enforce the scientific validity of ayurvedic hair parameters

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helping in uniquely diagnosing a condition and treating the same. In this paper, an attempt has been made to delineate the *lakshanas* of hair mentioned in ayurvedic classics, using trichoscopic images and to reiterate the scientific validity of ayurvedic trichoscopy.

Materials and methods

A thorough literature review of the condition, its diagnosis and management were done utilising classical ayurveda texts, biomedical literature and scientific publications related to the field of trichology from databases like PubMed and Scopus. The keywords utilised were Ayurveda AND Trichoscopy, Ayurveda AND hair loss, hairloss AND trichoscopy.

Trichoscopic images were recorded from patients visiting the OPD of *Rasayana* and *Vajikarana* Department, KLE Ayurveda Hospital, Shahapur, Belagavi, presenting with complaints of hair fall. A total of 100 patients were assessed using trichoscopy over a period of two years (January 2024 to November 2025). Trichoscopic analysis of hair and scalp is generally performed 2-3 days after washing the hair. It involves visualisation of the scalp and taking pictures of five areas- the frontal, temporal, vertex and occipital areas and the tips of hair. The Trichoscopic images were observed and analyzed based upon trichology parameters and *samhita* based ayurveda parameters along with NAMASTE Standard Terminologies. Amongst all recorded data, the ideal representative images and trichoscopic patterns are recorded in this paper to reiterate the scientific validity of ayurveda parameters based on trichoscopic parameters.

The trichoscopic parameters assessed in a condition of hair loss include: (8) Hair density and distribution; Follicular units- number of hairs in a follicle, miniaturisation (AGA), exclamation mark hairs; Hair shaft characteristics- brittle, fragmented, broken, split hair; Scalp changes- dandruff, dermatitis, psoriasis, infections, keratinisation disorders; Vascular patterns- telangiectasias, hyperemia; Signs of alopecia- diffuse thinning, empty follicular openings, yellow dots, black dots, vellus hairs.

Observations

The images were assessed/evaluated by characteristics listed in the ayurvedic classics and for trichoscopic parameters. [9] [10] The findings were as follows:

Table 1: Observations and findings from Trichoscopic Images

S. No.	Trichoscopic Image	Trichoscopic Findings	Ayurvedic Interpretation	Dosha dominance	Classical Reference	Standard Terminology NAMASTE-Code (Term Id)
1		Honeycomb pigment pattern, perifollicular halo, pinpoint white dots, scales	*Agnidagdhabha* (resembles as though burnt by fire)	*Vataja*	A.Hr.Utt.23/27	-
2		No scaling over the scalp, 2-3 hairs in a follicular unit, normal hair shaft thickness, shiny scalp	*Svinna/sveda* (unctuousness)	*Pittaja*	A.Hr.Utt.23/27	-
3		Erythema, vascular pattern, telangiectasia, peripilar haemorrhage	*Siraavrita* (manifestation of vascularity on scalp)	*Pittaja*	A.Hr.Utt.23/27	-
4		2-4 hairs per follicular unit, no plugged follicles, hair diameter diversity <20%	*Ghana* (dense hairs)	*Kaphaja*	A.Hr.Utt.23/27	SAT-D.3046 (3047)
5		Hair diameter diversity >20%; yellow dots, white dots, short vellus hairs	*Tvagvarṇa* (same colour as of the skin)	*Kaphaja*	A.Hr.Utt.23/27	-
6		White dots, plugged follicles; erythema; focal atrichia	*Nirloma/kesha updhwamsanam* (loss of hair)	*Sannipataja*	A.Hr.Utt.23/28	SAT-D.2459 (2460)

7		Damages to hair shaft; breaks in hair; scaling	*Kesha & keshabhumi rukshata* (Dryness of hair & scalp)	*Vataja*	Ca.Vi.8/98	SAT-D.6586 (6587)
8		Non-pigmented hair shaft; leukotrichia	*Palitya/ keshapacanam* (greying of hairs)	*Pittaja*	A.Hr.Utt.23/29	SAT-D.2463 (2464)
9		Lower mean hair thickness	*Kesha Tanutva* (thinning of hair)	*Vataja*	Ca.Vi.8/98	-
10		Damage to ends of hair shaft, broken hair	*Sphutita* (split hair ends)	*Vataja*	Ca.Vi.8/98 A.Hr.Utt.23/28	SAT-D.9048 (9049)
11		Hair density and diameter diversity >20%; short vellus hair; >3:1 hair follicles with perifollicular discoloration; >2:1single hair follicular unit; >10% thin hair	*Alpa* (scanty)	*Vata-Pittaja*	Ca.Vi.8/97-98 A.Hr.Sha.3/85	SAT-D.925 (926)
12		Shiny, unctuous hair shaft	*Snigdha* (unctuous hair)	*Kaphaja*	Ca.Vi.8/96	SAT-D.8969 (8970)
13		3-4 hairs per follicular unit	*Bahu* (high density)	*Kaphaja*	Ca.Vi.8/96	-
14		Visible depth of hair in hair follicles; absence of open hair follicles	*Sthira / dridhakesha* (fixed or firm hair)	Kaphaja	Ca.Vi.8/96	SAT-D.3990 (3991)
15		Lightly coloured hair shaft	*Dhusara kesha* (dusky hair)	*Vataja (Prakriti) Kaphaja (Vikriti)*	A.Hr.Sha.3/85 A.Hr.Utt.23/30	SAT-D.4134 (4135)
16		Yellow/ tawny coloured hair shaft	*Pingala/ pitabha kesha* (tawny/ yellowish hair)	*Pittaja*	A.Hr.Sha.3/85 A.Hr.Utt.23/30	-
17		Dark coloured hair shaft	*Krishna/ Shyama kesha* (dark black hair)	*Kaphaja (Prakriti) Vataja (Vikruta)*	A.Hr.Utt.23/30	SAT-D.7931 (7932)

18		Dark blue coloured hair shaft	*Atineela* (dark blue hair)	*Kaphaja*	A.Hr.Sha.3/97	-
19		Curved hair shaft, corkscrew hair, angulated hair	*Kutila* (curly hair)	*Kaphaja*	Ca.Su.28/4	SAT-D.2287 (2288)
20		Dark red- brown colored hair shaft	*Kapila kesha* (reddish brown hair)	*Pittaja*	Ca.Vi.8/97	SAT-D.2040 (2041)
21		Dark red coloured hair shaft	*Haritakeshata*(reddish brown hair)	*Pittaja*	A.Hr.Utt.23/30	SAT-D.9244 (9245)
22		Yellow dots; short vellus hair; single hair follicular unit; thin hair; off white dots (empty follicles)	*Anya kesha asambhava* (absence of hair re-growth in that area)	*Tridosha & Rakta*	A.Hr.Utt.23/25	SAT-D.688 (689)

Discussion

Ayurveda explains the origin of *kesha* (hair) in the 6th month of gestation. (11) The *kesha* is *parthiva dravya* (12) due to its inherent properties of roughness, steadiness and heaviness derived from *pitruja* bhavas. (13) *Acharya Charaka* has enumerated 29956 as the number of *kesha*. (14) *Kesha* is described as *upadhatu* and *mala* of *asthi dhatu*. (15) The *kesha* is nourished by the *ahara rasa* (assimilable nutritional fluid) via *dhamanis* (circulatory channels) which supply the *romakupa* (hair follicles). (16) Factors that produce *vikriti* in production of *prashasta ahara rasa*, *asthi* and *majja* have a direct impact on the condition of the hair. While every hair follicle continually goes through a programmed life cycle with three phases: Anagen (growth phase, 2-8 years, ~80% of hair), Catagen (regression/transition phase, 10-14 days) and Telogen (resting phase, 90-100 days), (17) 90% of hair on a healthy scalp remains in growing phase (anagen), 1% in involution and less than 10% in resting phase. In non-specific alopecia, the derangement in hair development cycle affects hair development and leads to hair loss. (18) Thus, the Anagen phase resembles *kapha* dominant stage of hair developmental cycle, Catagen phase as *pitta* dominant and Telogen phase as *vata* dominant.

Ayurveda emphasizes on influence of *tridoshas* and *saptadhatus* on every element of the body which holds true for hair follicles also. The classical description of the same has been documented in *samhitas* whose interpretation based on trichoscopic parameters has been enlisted in table 2 and 3.

Table 2: *Doshic* influence on hair and trichoscopic parameters

Dosha	Hair colour (*Prakruta*)	Hair quality	
		Ayurvedic parameters (*Vikruta*)	Trichoscopic parameters
Vata	*Dhusara (19)*	*Atiruksha, sphutita, alpa*	Dry, brittle, frizzy, rough, gritty, split, dust coloured, low density hair
Pitta	*Pingala (20)*	*Palitya, Khalitya*	Early greying, balding, scanty, soft, tawny/yellowish and thinning hair.
Kapha	*Krishna, Neela (21)*	*Ati-Snigdha, Bahu, Ghana, Sthira, Kutila*	Thick, curly, oily (shiny), dark black and dense hair.

Table 3: Influence of Dhatus on hair and Trichoscopic parameters

Dhatu	Dhatu Karma (22)	Dhatu Karma specific to hair	Normal Trichoscopic Findings	Abnormal Trichoscopic findings
Rasa	*Prinana- tushti, tripti*	Nourishment to grow	Dark, shiny, uniform thickness and density of hair	Dull, hair density and diameter diversity
Rakta	*Jivana- pranadharana, varna prasadana*	Nourishment to sustain	Well-vascularised pink scalp	Erythema, vascular patterns on scalp, atypical red vessels, perifollicular erythema

Mamsa	*Lepana- upadeha, bala*	Thickness and strength	Uniform hair density and diameter	Hair diameter and density diversity
Meda	*Snehana- snigdhata*	Shine	Deep roots, follicular and hair shaft health	Shallow roots, follicular plugging, yellow dots, brittle & dry hair
Asthi	*Dharana-avalambana*	Attachment	Deep set follicles, hair shafts well embedded in follicles	Empty follicular openings, loss of hair strength, miniaturisation
Majja	*Purana-asthipurana*	Well-formed medullary and cortical portion	Uniform, well-formed hair shaft	Broken hair, damage to hair shaft, hair shaft disorders (pili torti, pohl-pinkus constrictions)
Shukra	*Garbhotpadana-utpatti*	New hair production	Straight regrowing hair, multiple hairs in single follicular unit	Empty follicles, no regrowth from multiple follicles

The above tables describe the trichoscopic interpretations in both normal and abnormal hair health. The spectrum of *Khalitya* (gradual hair loss), *Palitya* (greyingof hair), *Indralupta* (sudden hair loss), and *Darunaka* (dandruff) constitutes ayurvedic trichology. NAMASTE Morbidity Code (NAMC) FA-3 describes *khalitya* as the disorder characterised by hair fall (*pracyavayati romani*), obstruction of hair roots (*runaddhi romakupamstu*), restriction of new hair growth (*anyesham asambhava*), and gradual hair fall (*kramat shatanam*) (23) due to vitiation of *vata*, *pitta*, *kapha* and *rakta*. *Vataja khalitya* is identified by *lakshanas* such as *agnidagdhabha* (resembles as though burnt by fire); *pittaja khalitya* by *svinna*/*sveda* (unctuousness), *siravrita* (vascularity in scalp); *kaphaja khalitya* by *ghana* (thick), *tvagvarna* (same colour as of skin) and *sannipataja khalitya* by *nakhaprabha* (resembles nail), *agnineva dagdha* (burnt by fire), *nirloma* (hairless) and *daha* (burning sensation). (24)

Trichoscopy offers a perspective of objective assessment of the phenotypic manifestation of the *doshic* imbalance. In *vata dominant khalitya,* trichoscopic findings such as mild scaling, abnormal hair shaft, splitting of hair tips, hair density and diameter diversity, shallow follicles, follicular atrophy, thin hair, short vellus hair, empty follicular openings, hyperpigmentation, black dots, perifollicular scales, lightly coloured hair shaft, sparsely distributed single hair in a follicular unit, along with physical characters of thin, sparse, lightly coloured, brittle, dry hair (*tanu*, *ruksha*, *alpa, sphutita kesha*) align with the catabolic and degenerative/atrophic/depleting changes attributed to *vata*. These findings can be observed in traction alopecia, trichotillomania, chronic telogen effluvium and senescent alopecia. (10) In late/ advanced cicatrical alopecias, signs like hyperpigmentation, dark halos, black dots depict the *agnidagdhabha* spectrum of *vataja khalitya.*

In *pittaja khalitya,* physical characters like hair fall with early greying in multiple areas, tawny/yellowish coloured hair, scanty, soft hair (*pingala*, *harita*, *palita kesha)* coupled with signs such as scalp or perifollicular erythema, vascular patterns, atypical red vessels, peripilar hemorrhages, miniaturisation of hair follicles, exudation (yellow dots or discharge) exclamation mark hairs, abnormal hair shaft colours, telangiectasia, brown or blue grey spots, honeycomb pigment pattern, heterogeneity in hair shaft thickness, predominance of single hair follicular units correspond with the derangement in metabolic and inflammatory processes attributed to *pitta.* These findings are observed in androgenetic alopecia, alopecia areata and few cicatrical alopecias. (10)

Kapha predominant *khalitya* may present with fall of soft, shiny hair with excessive unctuousness, seborrhoea and dandruff (*kutila*, *snigdha*, *ghana*,*bahu sthira kesha*) which is reflected as whitish dots, thick, greasy, moderate scaling, deep set roots, soft, shiny, unctuous scalp and hair shafts, dense in distribution and thick in diameter, off white dots, keratin plugs, multiple hair in a single follicular unit on trichoscopy. This can be attributed to the cohesive and obstructive & heavy nature of *kapha* that leads to buildup of debris and follicular occlusion.

Signs such as hyperkeratosis, fibrotic white dots, black dots with damaged follicles, follicular plugging, cicatrical white patches, severe scaling, thick arborising vessels, crusting, white peripilar sign, perifollicular discolouration, follicular pustules, loss of follicles, varied pigmentation patterns, peripilar casts, dark perifollicular halos, and physical features like matted hair, severe hair loss, damaged hair shafts, scalp thickening or hardening, absence of hair regrowth, and scarring resembling burn injuries (*anya kesha asambhava*, *kesha upadhwamsanam*, *jatila kesha)* correspond to *nakhaprabha*, *nirloma*, and *agnineva dagdha* of *sannipataja khalitya*. These findings are seen predominantly in cicatrical alopecias of the scalp. (9) (10)

The vitiation of *doshas* and in turn, *dhatus* and *malas* in varied combinations lead to diverse *lakshanas*.

Serial trichoscopy can serve as a tool to monitor or evaluate the efficacy of ayurvedic interventions. Preliminary evidence from clinical trials have shown improvement in follicular density, reduction in signs of inflammation (erythema, yellow dots), growth of vellus hairs reinforcing the rejuvenative & regenerative properties of ayurvedic interventions.

Also, prakriti based analysis using trichoscopy can help to predict the predisposition of an individual to develop a specific form of hair fall. For example, *pitta prakriti* individuals have a predisposition to develop androgenetic alopecia and trichoscopy can help identify the signs of early follicular miniaturisation.

Since the trichoscopic findings helps to understand the *doshic* dominance in hair and scalp, hence, the utilisation of trichoscopic findings will serve as a blueprint in ayurvedic diagnostics based on the *lakshanas* described in the classics.

Conclusion

The rising prevalence of hair problems makes it imperative to promptly and aptly diagnose hair loss. Trichoscopy can act as an objective tool to understand the manifestations of the doshas, in turn aiding in prompt diagnosis. The images obtained undoubtedly prove that it is possible to distinctly visualise the *lakshanas* mentioned in ayurvedic literature and reinforces the scientific understanding behind the concepts. The synergy of using trichoscopy in ayurvedic diagnostics will allow for clinicians to have a broader understanding of hair and scalp pathology leading to diagnostic clarity.

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