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Trichoscopic patterns seen in patients with alopecia of scalp: A cross-sectional study

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Abstract:

Background: Alopecia refers to “baldness” or loss of hair. Various methods used for the evaluation of hair loss are hair pull test, wood's lamp examination, light and electron microscopy of hair, scalp biopsy, and dermoscopy. The present study was conducted to study trichoscopy findings of scalp and hair shafts in different types of Alopecia at tertiary care centre.
Material and Methodology:
The present study was cross-sectional observational study carried out at tertiary institute conducted at Department of Dermatology, Venereology and Leprology. The study was conducted from May 2024 to April 2025. A total of 118 patients consenting male and female patients, with complaints of hair loss over scalp, attending the Department were enrolled for the study. Permission from the Ethical Committee was taken prior to commencement of the study and informed written consent was taken from the participants of the study. The data was filled in excel sheet and the results were described as frequency and proportion.
Results: The mean age of the patients was 27.36 ±13.52 years. It was observed that majority of patients were in male (63.56%) and females were 36.44%. It was observed that majority of patients had Alopecia areata (34.75%) followed by AGA (27.11%), Female patterned hair loss (8.47%), Tinea capitis (6.78%) and Telogen effluvium (4.24%)
Conclusion: Trichoscopy is a very valuable and useful tool to diagnose various hair disorders by understanding the various trichoscopic patterns specific for each disease.

Keywords:

Trichoscopy Pattern, Alopecia, Scalp, Dermoscopy

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Introduction

Alopecia refers to “baldness” or loss of hair. The word alopecia is derived from the greek word alopecia which literally means “fox mange” Alopecia has been classified into scarring and nonscarring alopecias and hair shaft disorders.1 In nonscarring alopecia, hair follicles are preserved with potential for hair regrowth. In scarring alopecia, the hair follicle is irreversibly destroyed

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due to the destruction of stem cells in the bulge area of the outer root sheath and replaced by fibrous scar tissue. 2,3

Various methods used for the evaluation of hair loss are hair pull test, wood's lamp examination, light and electron microscopy of hair, scalp biopsy, and dermoscopy. Dermoscopy, also known as epiluminescence microscopy or skin surface microscopy is a non-invasive, most commonly used for viewing pigmented skin lesions. Trichoscopy is the term coined for dermoscopic imaging of the scalp and hair. This novel diagnostic technique, both simple and non-invasive, can be used as a handy bed side tool for diagnosing common hair and scalp disorders. 4-6

A dermatoscope has the potential for ruling out unnecessary biopsies and also help in choosing an ideal site for biopsy when one is needed. Unfortunately, this technique has not been used to its full potential yet in this part of India and hence the findings on a dermatoscope still has a lot more scope for research work.

Hence, the present study was conducted to study trichoscopy findings of scalp and hair shafts in different types of Alopecia at tertiary care centre.

Objective

To study trichoscopy findings of scalp and hair shafts in different types of Alopecia. In a tertiary care centre

Material and methods

The present study was cross-sectional observational study carried out at tertiary institute conducted at Department of Dermatology, Venereology and Leprology. The study was conducted from May 2024 to April 2025. A total of 118 patients consenting male and female patients, with complaints of hair loss over scalp, attending the Department were enrolled for the study. Permission from the Ethical Committee was taken prior to commencement of the study and informed written consent was taken from the participants of the study. A prestructured proforma was used to collect the baseline data. Detailed history was taken and clinical and dermatological examination was done. The hair and scalp were evaluated using a Dermatoscope. Additional investigations will be done as and when required. The data was filled in excel sheet and the results were described as frequency and proportion. Data were expressed as mean values ± standard deviations (SD) for continuous variables.

Results

Table 1: This study

Demographic profile		No of Patients (n=118)	Percentage%
Agegroup (years)	0-10	16	13.56
	11-20	26	22.03
	21-30	42	35.59
	31-40	19	16.10
	41-50	09	7.63
	51-60	03	2.54
	>60	03	2.54
Gender	Male	75	63.56
	Female	43	36.44

The above table shows distribution of patients according to demographic profile. It was observed that majority of patients were in age group 21-30 years (35.59%) followed by 11-20 years (22.03%) The mean age of the patients was 27.36 ±13.52

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years. It was observed that majority of patients were in male (63.56%) and females were 36.44%.

Table 2: Distribution according to clinical findings among patients:

Clinical findings		No of Patients (n=118)	Percentage%
Type of hair loss	Generalized	48	40.68
	Patchy	63	53.39
	Diffuse	07	05.93
Hair pull test	Positive	24	20.34
	Negative	94	79.66
Area of hair loss	Frontal	43	36.44
	Parietal	32	27.12
	Vertex	85	72.03
	Occipital	26	22.03
	Temporal	37	31.36

The above table shows distribution of patients according to clinical findings. It was observed that majority of patients had patchy hair loss (53.39%) followed by generalized (40.68%) and diffuse (5.93%) It was observed that majority of patients had negative hair pull test (79.66%) while 24 (20.34%) patients had positive test. It was observed that most common area affected was vertex (72.03%) followed frontal (36.44%), temporal (31.36%), parietal (27.12%) and occipital (22.03%)

Table 3: Distribution according to scalp features:

Features		No of Patients (n=118)	Percentage
Scalp features	Atrophy	11	09.32
	Boggy swelling/crusting	06	05.08
	Scarring	07	05.93
Follicles	Black dots	47	38.83
	Yellow dots	29	24.58
	White dots	79	66.94
	Perifolicular halo	31	26.27
	Perifollicular plugging	06	05.08
Vascularity	Telengectasia	18	15.25
	Erythema	18	15.25

The above table shows distribution of patients according to scalp features. It was observed that majority of patients had scalp atrophy (9.32%) also crusting (5.08%) and scarring (5.93%) The majority of patients had white dots (66.94%) followed by black dots (38.83%) and yellow dots (24.58%) Perifollicular halo was observed in 31 (26.27%) patients while perifollicular plugging in 6 (5.08%) patients. It was observed that 18 (15.25%) patients showed telengectasia and erythema respectively.

Table 4: Distribution according to hair shaft findings on dermascopy:

Dermascopy findings		No of Patients (n=118)	Percentage
	Scaling	30	25.42

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Dermatoscopy	**Diameter Variation**	**47**	**39.83**
	Length variation	**34**	**28.81**
	Depigmented vellous hair	**48**	**40.68**
	Tapered hair	**27**	**22.88**
	Comma hair	**06**	**05.08**
Pigmentation	**Perifollicular**	**12**	**10.17**
	Interfollicular	**05**	**04.24**
	Loss of pigment network	**08**	**06.78**

The above table shows distribution of patients according to hair shaft findings on dermascopy. It was observed that majority of patients had depigmented villous hair (40.68%) followed by diameter variation (39.83%), length variation (28.81%), scaling (25.42%), tapered hair (22.88%) and comma hair (5.08%) The majority of patients had perifollicular pigmentation (10.17%) followed by interfollicular (4.24%) and loss of pigment network (6.78%)

Table 5: Distribution according to impression:*

Impression	No of Patients (n=118)	Percentage
AGA	**32**	**27.11**
Alopecia Areata	**41**	**34.75**
Alopecia Universalis	**03**	**2.54**
Cicatricial alopecia secondary to trauma	**01**	**0.85**
DLE	**03**	**2.54**
Dystrophic anagen Effluvium	**01**	**0.85**
Femal patterned hair loss	**10**	**8.47**
Lichen Planopilaris	**05**	**4.24**
Nevus Sebaceous	**02**	**1.69**
SLE	**01**	**0.85**
Oophiasis pattern of Alopecia areata	**01**	**0.85**
Subtotalis alopecia areata	**01**	**0.85**
Traction alopecia	**01**	**0.85**
Tinea Capitis	**08**	**6.78**
Telogen Effluvium	**05**	**4.24**
Trichotillomania	**03**	**2.54**
Goltz Syndrome	**01**	**0.85**
Post traumatic alopecia	**01**	**0.85**

(*Multiple response present)

The above table shows distribution of patients according to impression. It was observed that majority of patients had alopecia areata (34.75%) followed by AGA (27.11%), female patterned hair loss (8.47%), tinea capitis (6.78%) and tinea effluvium (4.24%)

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Discussion

The present prospective cross-sectional observational study was undertaken to study the trichoscopic findings of scalp and hair shafts in different types of Alopecia in a tertiary care centre.

The study was conducted in Department of Dermatology, Venereology and Leprosy at VEDANTAA INSTITUTE OF MEDICAL SCIENCES (VIMS) DAHANU from May 2024 to April2025. A total sample size of 118 patients with complaints of hair loss over scalp, attending the Department of Dermatology, Venereology and Leprology was included in the study population. Patients not willing to participate in the study were excluded.

The study was conducted after taking ethical clearance from the institute and informed consent from the patients. The data was collected from patients regarding demographic profile, clinical spectrum and trichoscopic findings.

In the present study, the majority of patients were in age group 21-30 years (35.59%) followed by 11-20 years (22.03%) The mean age of the patients was 27.36 ±13.52 years. It was observed that majority of patients were male (63.56%) and females were 36.44%. Minu Jose Chiramel et al7 compared the trichoscopic characteristics of different types of alopecia observed a total of 120 patients were with 57 men and 63 women. The mean age at presentation was 24.9 years (range: 1–60 years).

Ashwini S. Khadatkar et al8 studied the dermoscopic patterns of various cicatricial alopecias and observed the mean age of the study population was 20.2 ±14.31 years (ranging from 1 to 60 years). Women outnumbered men with a male: female ratio of 1:2.8. The majority of patients had patchy hair loss (53.39%) followed by generalized (40.68%) and diffuse (5.93%) The distribution of patients according to associated features showed that majority of patients were H/O itching (24.58%) followed by family H/O alopecia (21.19%), H/O dandruff (17.8%) and endocrine abnormalities (10.17%) Smoking addiction was present in 10 (8.47%) patients while H/O stress in 14 (11.86%) patients.

In the study patients had negative hair pull test (79.66%) while 24 (20.34%) patients had positive test. The most common area affected for hair loss was vertex (72.03%) followed frontal (36.44%), temporal (31.36%), parietal (27.12%) and occipital (22.03%) It was observed that majority of patients had scalp atrophy (9.32%) also crusting (5.08%) and scarring (5.93%)

It was observed that majority of patients had white dots (66.94%) followed by black dots (38.83%) and yellow dots (24.58%) Perifollicular halo was observed in 31 (26.27%) patients while perifollicular plugging in 6 (5.08%) patients. It was observed that 18 (15.25%) patients showed telengectasia and erythema respectively.

The distribution of patients according to hair shaft findings on dermascopy had depigmented villous hair (40.68%) followed by diameter variation (39.83%), length variation (28.81%), scaling (25.42%), tapered hair (22.88%) and comma hair (5.08%) It was observed that majority of patients had perifollicular pigmentation (10.17%) followed by interfollicular (4.24%) and loss of pigment network (6.78%)

Hair diameter diversity was seen in all patients in Mamatha P. et al 9 study which is in concordance with studies conducted by Inui et al. 10 where they evaluated 50 Asian men with Androgenetic Alopecia. It is also similar to studies conducted by Hu R et al. 11 Chiramel et al.12 and Kibar et al. 13

The distribution of patients according to impression showed that majority of patients had alopecia areata (34.75%) followed by AGA (27.11%), female

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patterned hair loss (8.47%), tinea capitis (6.78%) and tinea effluvium (4.24%)

In a study by Minu Jose Chiramel et al7 who compared the trichoscopic characteristics of different types of alopecia observed alopecia areata (20%) followed by AGA (18.33%), female patterned hair loss (7.5%), DLE (7.5%) and tinea effluvium (8.33%) In Mamatha P. et al 9 study most common alopecia noted in the study was Androgenetic alopecia 125 patients (48.82%), followed by telogen effluvium 48 patients (19.1%)

Conclusion

The study concludes that alopecia predominantly affected young adults, with males being the majority. The vertex was the most affected region. The most frequently diagnosed conditions were alopecia areata and androgenetic alopecia. A single finding of Trichoscopy is not diagnostic of any condition, but rather the constellation of Trichoscopy findings together with history helps in proper diagnosis.

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