

## Comparative Efficacy of Minoxidil and Minoxidil Finasteride Combination in Management of Noncicatricial Alopecia in a Population in Maharashtra.

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### Abstract

Alopecia is a common condition which adversely affects the quality of life. It is not always possible to make an accurate and quick diagnosis by clinical examination. Trichoscopic analysis is a widely used noninvasive tool for diagnosis. Based on diagnostic findings, management protocols can be outlined. The present study was planned to comparatively assess the Efficacy of Minoxidil and Minoxidil Finasteride in managing Noncicatricial Alopecia. The study involved a pool of 40 subjects. The study concluded that combination of finasteride and minoxidil is more effective and promising option in the treatment of noncicatricial alopecia than minoxidil alone.

**Keywords:** Alopecia, Efficacy, Minoxidil,

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### Introduction

Alopecia is a common condition which adversely affects the quality of life. It is not always possible to make an accurate and quick diagnosis by clinical examination. Invasive methods such as scalp biopsy or painful clinical tests like hair pull test may be required. Under such circumstances trichoscopy is a useful form of a noninvasive tool in hair disorders.[1] Trichoscopic observations can be broadly grouped as hair marks, vascular patterns, pigmentation patterns, and interfollicular patterns. In addition to diagnosing alopecia, it has the potential to avoid unnecessary biopsies and, when a biopsy is still needed, it is helpful in choosing an ideal biopsy site. Furthermore, trichoscopy is a

valuable tool to photographically assess the response to treatment at each follow-up. [2]

Different patterns of noncicatricial alopecia are alopecia areata, androgenetic alopecia, female pattern alopecia, trichotillomania, telogen effluvium, anagen effluvium and structural defects of the hair shaft. Androgenetic alopecia, alopecia areata and telogen effluvium are the main non-healing alopecia found in clinical practice. Androgenetic alopecia is considered to be the most common form of human alopecia and is believed to affect over 50% of men by the age of 50. [3]

Standard treatment of non-cicatricial alopecia is with topical 5% minoxidil with or without finasteride

Minoxidil aids in enhancing the hair growth by vasodilation via providing the nutrients to the hair follicles and thus direct stimulation of the hair follicle cells. [4,5] Finasteride, a selective type II 5- $\alpha$ -reductase inhibitor approved by the FDA for the treatment of male AGA, can be considered as a treatment option. [6]

However, no study has evaluated the efficacy and safety of topical finasteride combined with topical minoxidil compared with topical minoxidil as monotherapy.

Therefore, the objective of the present study was to compare the efficacy of minoxidil and minoxidil finasteride combination in management of noncicatricial alopecia using a trichoscope.

### Material and Methods:

The present study was prospective interventional study to compare the efficacy of minoxidil and minoxidil finasteride combination in management of non-cicatricial alopecia using a trichoscope conducted over a period of 2 years. The study was conducted in department of Dermatology Venereology & Leprosy at D.Y. Patil Medical College, Kolhapur. Institutional ethical approval was obtained prior to start of the study. The study population was selected patients with clinical features of non- cicatricial alopecia during the study period.

A sample size of 40 eligible patients both male and female with clinical features of non-cicatricial alopecia during study period was included.

### Inclusion Criteria:

- Patient on clinical examination showing non scaring alopecia.
- Ability to understand and provide informed consent for participation in the study.

### Exclusion Criteria:

- Patient on treatment for more than 3 months for alopecia.

- On clinical examination patient showing evidence of cicatricial alopecia.
- Patient suffering from non-cicatricial alopecia, not amenable to treatment with topical 5% Minoxidil.

### Study Groups:

- Group M: Patients treated with topical 5% minoxidil
- Group MF: Patients treated with 5% minoxidil with finasteride

### Methodology:

A complete detailed history regarding hair loss was taken from the patient who were included in the study. A written informed consent was taken from each patient in a language the patient understands and a thorough clinical examination was conducted. The data was recorded on a Case record form. A Trichoscope was used to diagnose different types of non cicatricial alopecia. Trichoscope was used to see the effect of topical 5% minoxidil and 5% minoxidil with finasteride in matched 2 groups of 20 each, photographic evidence was recorded. Patients were followed up every 4 weeks for 24 weeks, Tricoscopic findings were recorded in the case record form. Response to treatment was determined on a 4 point scale as poor, fair, good and very good.

Outcome measures were assessed using 4 point scale:

- 0: Poor (<10% i.e., 10 or less hair)
- 1: Fair (10%-25% i.e., 10 to 25 hair),
- 2: Good (25-50% i.e., 25 to 50 hair),
- 3: Very good. (>50% i.e., 50 or more hair)

Categorical variables were summarized as frequency, percentage and numerical variables was summarized as mean, median, mode, standard deviation and Interquartile range.

Analysis of pre and post treatment data for both group was done using paired t test. Comparison between groups was done using

unpaired t test and significant of post treatment improvement throughout the different stages was assessed by one way ANOVA test.

Analysis was done using SPSS version 21 and Microsoft excel 2010 for graphical representation. A p value less than or equal to 0.05 was considered statistically significant.

#### Observations:

The study was conducted with a subject pool of 40 participants. The mean age in group M was  $23.21 \pm 10.23$  years and group MF was  $24.18 \pm 9.36$  years. There was no significant difference in age distribution in all two groups. ( $p > 0.05$ ). Out of total 40 patients, 25 were males while 15 were females. There were 12 (60%) and 13 (65%) male patients among Group M and Group MF respectively. There was no gender difference when two groups were compared statistically.

**Table 1: Hair Loss Pattern**

Type of hair loss	Group M (%)	Group MF (%)	Total
Generalized	08 (40)	06 (30)	14
Patchy	10 (50)	11 (55)	21
Diffuse	02 (10)	03 (15)	05
Total	20 (100)	20 (100)	40

Table 1 showed distribution of patients according to type of hair loss among both groups. It was observed that majority of patients in Group M (40%) and Group MF (30%) had patchy hair loss. The generalized hair loss was seen in 40% in Group M and 30% in Group MF.

In terms of associated factors and past history it was seen that majority of patients in Group M (25%) and Group MF (30%) had H/O itching followed by family H/O alopecia (20 vs 15%) in Group M and Group MF respectively. There was no associated features difference when two groups when compared statistically.

**Table 2: Trichoscopic Findings**

Trichoscope findings	Group M (n=20)	Group MF (n=20)	P value
Scaling	05	04	>0.05 (NS)
Diameter Variation	08	07	>0.05 (NS)
Length variation	06	07	>0.05 (NS)
Depigmented vellous hair	09	08	>0.05 (NS)
Tapered hair	04	03	>0.05 (NS)
Comma hair	01	01	>0.05 (NS)

The above table shows distribution of patients according to hair shaft findings on trichoscope. It was observed that majority of patients in Group M (45%) and Group MF (40%) had depigmented villous hair. Diameter variation was observed in 8 (40%) and 7 (35%) patients in Group M and Group MF respectively, while

comma hair was observed in 1 (5%) and 1 (5%) patients in Group M and Group MF respectively.

There was no difference when two groups were compared statistically for hair shaft findings.

**Table 3: Diagnosis Based on Trichoscopic Findings**

Impression	Group M	Group MF	P value
AGA	06	06	>0.05 (NS)
Alopecia Areata	08	07	>0.05 (NS)
Female patterned hair loss	03	04	>0.05 (NS)
Telogen Effluvium	02	02	>0.05 (NS)
Trichotillomania	01	01	>0.05 (NS)

The above table shows distribution of patients according to impression. It was observed that majority of patients in Group M (40%) and Group MF (35%) had had alopecia areata. AGA was observed in 6 (30%) and 6 (30%) patients in Group M and Group MF

respectively, while female patterned hair loss was observed in 3 (15%) and 4 (20%) patients in Group M and Group MF respectively.

There was no difference when two groups were compared statistically for impression.

**Table 4: Comparative Efficacy of Drugs.**

Efficacy	Group M	Group MF	Total	P value
Very good	02	13	15	<0.05 (S)
Good	11	06	17	
Fair	06	01	07	
Poor	01	00	01	
Total	20	20	40	

The above table shows distribution of patients according to efficacy of drugs in treatment among both groups. Out of total 20 patients in Group M, 11 (55%) had good efficacy while only 2 (10%) had very good efficacy. In Group MF, 13 (65%) patients had very good efficacy.

The Group MF showed greater efficacy compared to Group M with statistically significant difference. (P<0.05)

#### Discussion:

In the present study, it was observed that majority of patients in Group M (40%) and Group MF (30%) had patchy hair loss. The generalized hair loss was seen in 40% in Group M and 30% in Group MF. There was no type of hair loss difference when two groups were compared statistically. In the study majority of patients in Group M (25%) and Group MF (30%) was H/O itching followed by family H/O alopecia (20 vs 15%) in Group M and Group MF respectively. There was no

associated features difference when two groups were compared statistically.

The most common area affected of hair loss in Group M (75%) and Group MF (70%) was vertex. There was no area of hair loss difference when two groups were compared statistically.

It was observed that majority of patients in Group M (65%) and Group MF (60%) had white dots. Black dots were observed in 8 (40%) and 9 (45%) patients in Group M and Group MF respectively.

Perifollicular halo was observed in 6 (30%) and 5 (25%) patients in Group M and Group MF respectively. There was no difference when two groups were compared statistically for follicles.

It was observed that telengectasia was observed in 3 (15%) and 3 (15%) patients in Group M and Group MF respectively, while erythema was observed in 3 (15%) and 2 (10%) patients in Group M and Group MF

respectively. There was no difference when two groups were compared statistically for vascularity.

The distribution of patients according to impression showed that majority of patients in Group M (40%) and Group MF (35%) had had alopecia areata. AGA was observed in 6 (30%) and 6 (30%) patients in Group M and Group MF respectively, while female patterned hair loss was observed in 3 (15%) and 4 (20%) patients in Group M and Group MF respectively. There was no difference when two groups were compared statistically for impression.

In a study by Minu Jose Chiramel et al [7] who compared the trichoscopic characteristics of various types of alopecia observed alopecia areata (20%) followed by AGA (18.33%), female patterned hair loss (7.5%), and tinea effluvium (8.33%)

The efficacy was graded according to scale 4 point scale from 0 to 3 i.e. 0-poor (<10%), 1 fair (10-25%), 2-good (25-50%), 3-very good. (>50%). The percentage in the grading were hair i.e. <10% is 10 or less hair.

In the present study, distribution of patients according to efficacy of drugs in treatment among both groups showed out of total 20 patients in Group M, 11 (55%) had good efficacy while only 2 (10%) had very good efficacy. In Group MF, 13 (65%) patients had very good efficacy. The Group MF showed greater efficacy compared to Group M with statistically significant difference. ( $P < 0.05$ ) i.e. hair growth in Group MF was more compared to Group M with significant difference.

Similar findings were observed in Saifuddin Sheikh et al [8] where safety and efficacy of combined Minoxidil [5%] and Finasteride [0.1%] lipid solution was compared with Minoxidil (5%) solution observed more patients treated with combined Minoxidil [5%] and Finasteride [0.1%] lipid solution showed greater improvement in Investigator score (65% vs. 26%), global photographic

assessment (89% vs. 60%) and patient's self-assessed questionnaire as compared to Minoxidil alone. Topical formulation of combined Minoxidil [5%] and Finasteride [0.1%] lipid solution was shown to have clinically significant improvement in terms of hair growth as compared to Minoxidil (5%) alone.

Poonkiat Suchonwanit et al [9] studied efficacy and safety of topical 0.25% finasteride combined with 3% minoxidil solution and 3% minoxidil solution as monotherapy in the treatment of FPHL observed by 24 weeks, hair density and diameter had increased in both groups, and finasteride/minoxidil was significantly superior to minoxidil solution in terms of hair diameter ( $p = 0.039$ ). [10]

A topical combination of 0.25% finasteride and 3% minoxidil may be a promising option in the treatment of FPHL with an additional benefit of increasing hair diameter.

### Conclusion:

The study concludes that combination of finasteride and minoxidil is more effective and promising option in the treatment of noncicatricial alopecia than minoxidil alone.

The study also concludes that trichoscope is a simplest and effective technique to study and correlate the different patterns in noncicatricial alopecia. The limitation of a smaller sample size can be overcome by a wider selection of candidates and a brader duration of study.

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