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Original Research

A Comparative Study of Clinical and Dermoscopic Patterns of Psoriasis in Smokers and Non-Smokers Attending a Tertiary Care Hospital

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Abstract

Introduction Psoriasis is a chronic immune-mediated inflammatory skin disorder with multifactorial etiology involving genetic, environmental, and lifestyle factors. Smoking has been recognized as an important risk factor influencing disease severity and progression. Dermoscopy has emerged as a useful non-invasive diagnostic tool in psoriasis. *Aim* To compare the clinical and dermoscopic patterns of psoriasis among smokers and non-smokers attending a tertiary care hospital. *Materials and Methods:* A hospital-based comparative cross-sectional study was conducted among 120 clinically diagnosed psoriasis patients attending the Dermatology outpatient department over one year. Patients were divided into smokers (n=60) and non-smokers (n=60). Detailed clinical examination and dermoscopic evaluation were performed. Disease severity was assessed using Psoriasis Area Severity Index (PASI). Data were analyzed using SPSS version 25. *Results:* The mean age of participants was 41.8 ± 12.4 years. Male predominance was observed among smokers. Chronic plaque psoriasis was the most common clinical type in both groups. Smokers demonstrated significantly higher PASI scores compared to non-smokers ($p < 0.05$). Dermoscopic findings including regularly distributed dotted vessels, diffuse white scales, red globules, and hemorrhagic spots were more prominent among smokers. Nail involvement and scalp psoriasis were also significantly higher in smokers. *Conclusion:* Smoking is associated with increased severity and distinct dermoscopic patterns in psoriasis patients. Dermoscopy serves as a valuable non-invasive tool for assessment of disease activity and vascular changes in psoriasis.

Keywords: Psoriasis, Dermoscopy, Smoking, PASI, Chronic plaque psoriasis, Non-smokers.

Introduction

Psoriasis is a chronic, relapsing, immune-mediated inflammatory skin disorder affecting approximately 2-3% of the global population.[1] It is characterized by erythematous scaly plaques resulting from hyperproliferation and abnormal differentiation of keratinocytes along with inflammatory infiltration.[2]

The etiopathogenesis of psoriasis is multifactorial and involves genetic predisposition, environmental triggers, infections, psychological stress, obesity, alcohol intake, and smoking.[3] Smoking has emerged as an important modifiable risk factor associated with the onset, severity, and persistence of psoriasis.[4] Nicotine and other tobacco components are believed to influence immune pathways, cytokine release, and oxidative stress leading to exacerbation of psoriatic lesions.[5]

Several epidemiological studies have demonstrated increased prevalence and severity of psoriasis among smokers compared to non-smokers.[6] Smoking is also associated with poor therapeutic response, increased nail involvement, palmoplantar psoriasis, and psoriatic arthritis.[7]

Dermoscopy is a non-invasive diagnostic tool increasingly used in dermatology for evaluation of inflammatory dermatoses.[8] In psoriasis, characteristic dermoscopic features include regularly distributed dotted vessels on a light red background with diffuse white scaling.[9] Dermoscopy helps differentiate psoriasis from other papulosquamous disorders and assists in monitoring treatment response.[10]

Studies evaluating dermoscopic differences between smokers and non-smokers with psoriasis are limited, especially in the Indian population. Therefore, the present study was conducted to compare clinical and dermoscopic patterns of psoriasis among smokers and non-smokers attending a tertiary care hospital.

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Materials and Methods

Study Design and Setting

This hospital-based comparative cross-sectional study was conducted in the Department of Dermatology at a tertiary care teaching hospital over a period of one year.

Study Population

A total of 120 clinically diagnosed psoriasis patients were included and divided into:

- Smokers: 60 patients
- Non-smokers: 60 patients

Inclusion Criteria

- Patients aged ≥ 18 years
- Clinically diagnosed psoriasis cases
- Patients willing to participate

Exclusion Criteria

- Patients on systemic immunosuppressive therapy
- Pregnant and lactating females
- Patients with severe systemic illness
- Patients unwilling to participate

Data Collection

Detailed demographic history, smoking history, duration of disease, family history, comorbidities, and treatment history were recorded.

Clinical Assessment

Clinical type of psoriasis, body surface area involvement, nail changes, scalp involvement, and joint symptoms were documented. Disease severity was assessed using Psoriasis Area Severity Index (PASI).

Dermoscopic Evaluation

Dermoscopic examination was performed using a handheld dermoscope under polarized mode. Features assessed included:

- Dotted vessels
- White scales
- Red globules
- Hemorrhagic spots
- Vascular arrangement
- Background erythema

Statistical Analysis

Data were analyzed using SPSS version 25. Chi-square test and Student's t-test were used where appropriate. A p-value < 0.05 was considered statistically significant.

Results

Demographic Profile

Among smokers, 48 (80%) were males and 12 (20%) were females, whereas non-smokers included 32 (53.3%) males and 28 (46.7%) females.

Variable	Smokers	Non-Smokers
Mean age (years)	43.2 ± 11.8	40.4 ± 12.9
Male (%)	80%	53.3%
Female (%)	20%	46.7%

Clinical Characteristics

Chronic plaque psoriasis was the predominant clinical type in both groups.

Clinical Type	Smokers (%)	Non-Smokers (%)
Chronic plaque psoriasis	76.7	71.7
Guttate psoriasis	8.3	13.3
Palmoplantar psoriasis	10	6.7
Erythrodermic psoriasis	5	8.3

Mean PASI score was significantly higher among smokers (14.6 ± 5.2) compared to non-smokers (10.8 ± 4.6).

Nail involvement was observed in 46.7% smokers and 25% non-smokers.

Scalp involvement was present in 58.3% smokers and 38.3% non-smokers.

Dermoscopic Findings

Dermoscopic Feature	Smokers (%)	Non-Smokers (%)
Regular dotted vessels	91.7	83.3
Diffuse white scales	95	88.3
Red globules	48.3	26.7
Hemorrhagic spots	36.7	15
Background erythema	86.7	73.3

Dermoscopic vascular prominence and hemorrhagic spots were significantly more common among smokers ($p < 0.05$).

Discussion

The present study demonstrated that smoking is associated with increased clinical severity and distinctive dermoscopic findings in psoriasis patients. Male predominance among smokers was consistent with previous studies conducted by Naldi et al. and Armstrong et al.[11,12]

Smoking has been implicated in psoriasis pathogenesis through activation of inflammatory cytokines including TNF- α , IL-17, and IL-23 pathways.[13] Nicotine-induced oxidative stress and endothelial dysfunction may contribute to increased vascular proliferation observed dermoscopically in smokers.[14]

Higher PASI scores among smokers observed in the present study are comparable to findings reported by Fortes et al., who demonstrated dose-dependent association between smoking and psoriasis severity.[15]

Regular dotted vessels and diffuse white scales were common dermoscopic findings in both groups, consistent with observations by Lallas et al.[16] However, hemorrhagic spots and prominent vascular changes were more frequent among smokers, possibly due to smoking-induced microvascular alterations.[17]

Nail and scalp involvement were significantly more common among smokers. Similar findings were reported by Rai et al. and Gupta et al. in Indian studies.[18,19]

Dermoscopy proved to be a valuable non-invasive tool in assessing vascular and scaling patterns in psoriasis and may aid in evaluating disease severity and treatment response.[20].

Conclusion

Smoking is significantly associated with greater disease severity, nail involvement, scalp lesions, and distinct dermoscopic vascular patterns in psoriasis patients. Dermoscopy provides important additional information regarding disease activity and vascular changes. Smoking cessation counseling should be integrated into psoriasis management for better clinical outcomes.

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