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Research Article

OCULAR MANIFESTATIONS IN PATIENTS WITH PSORIASIS: A HOSPITAL-BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Psoriasis is a chronic immune-mediated inflammatory disorder that may involve the ocular surface, adnexa, and intraocular structures. Even though ocular manifestations have a considerable morbidity, the diagnosis is often missed. Early identification is key to avoid sight-threatening issues and enhance quality of life.

Objective: To assess the spectrum of ocular manifestations in patients with psoriasis.

Methods: This was an observational cross sectional study carried out in the Department of Ophthalmology and Dermatology of National Institute of Medical Sciences and Research, Jaipur. There were 42 patients with psoriasis who were enrolled study was conducted between March 2024 and September 2025. The eye exam was detailed, and involved slit lamp biomicroscopy , and scoring for the Standard Patient Evaluation of Eye Dryness (SPEED) questionnaire. Descriptive statistics were used for data analysis and $p < 0.05$ was set as the level of statistical significance.

Results: The mean age of participants was 37.59 ± 18.57 years, with 20 males (47.6%) and 22 females (52.4%). 15 patients (35.7%) had blepharitis. Conjunctival hyperemia was the most common finding, seen in 31 patients (73.8%) ($p<0.001$). Dry-eye severity based on SPEED score was normal in 11 (26.2%), mild in 11 (26.2%), moderate in 6 (14.3%), and severe in 14 patients (33.3%) ($p=0.002$). Corneal involvement was noted in 10 patients (23.8%) ($p=0.018$). Episcleritis was seen in 4.8% (2) while uveitis was observed in 4.8% (2) ($p=0.317$).

Conclusion: Ocular manifestations in psoriasis predominantly involved the ocular surface and adnexa. A substantial proportion of patients were asymptomatic despite objective ocular findings. Regular ophthalmic screening should therefore be considered in patients with psoriasis. The most common signs or symptoms found were conjunctival hyperemia, dry eye disease and blepharitis. Patients with psoriasis are recommended to receive routine ophthalmic screening and a multidisciplinary approach for their care.

KEYWORDS: Psoriasis, Dry Eye Disease, Blepharitis, Conjunctival Hyperemia, Uveitis, Ocular Manifestations.

Introduction

Psoriasis is a chronic, immune-mediated inflammatory condition, where the predominant clinical manifestation is the skin. Erythematous and scaly plaques are the most common clinical features. Psoriasis is one of the most prevalent skin diseases in the world, with an estimated prevalence of 2-3% of the world population. Although historically psoriasis was thought of as a confined, skin disease, recent research has shown that psoriasis is a systemic disease with complex pathophysiological mechanisms which extends beyond the skin[1].

Genetic, immunological, and environmental factors contribute to the etiopathogenesis of psoriasis. Dysregulated innate and adaptive immune pathways, including the IL-23/IL-17 axis and tumor necrosis factor-α signaling, play central roles in chronic psoriatic inflammation and keratinocyte hyperproliferation[2].

Psoriasis is associated with important systemic comorbidities, including cardiovascular disease, diabetes, hypertension, metabolic abnormalities, and psoriatic arthritis. These associations reflect the systemic inflammatory burden of the disease[3].

Ocular involvement in psoriasis may result from direct inflammatory mechanisms, systemic inflammation, associated ocular-surface disease, or treatment-related effects. Reported manifestations include blepharitis, conjunctivitis, keratitis, dry-eye disease and uveitis[4-7].

Dry eye and Ocular surface disorder are especially significant due to the potential for chronic discomfort and eyelid disease, conjunctivitis and tear-film instability. In the past, abnormalities in tear production, tear-film stability, conjunctival cytology and meibomian gland function have been all demonstrated in psoriasis patients[5,7-9].

Ocular manifestations of psoriasis have been reported in different populations, although regional data from India remain limited. The present study was therefore conducted to assess the spectrum of ocular manifestations among patients with psoriasis attending NIMS Jaipur, with emphasis on blepharitis, conjunctival hyperemia, dry eye, corneal involvement, episcleritis and uveitis[4-7].

Materials and Methods

TThis hospital-based cross-sectional study was conducted in the Department of Ophthalmology at the National Institute of Medical Sciences and Research (NIMS), Jaipur, Rajasthan, India, between March 2024 and September 2025. Institutional Ethics Committee approval was obtained, and the study was conducted in accordance with the Declaration of Helsinki. Institutional ethics committee approval was obtained. The study adhered to the tenets of the Declaration of Helsinki.

Patients aged ≥1 year, of either sex, with a confirmed diagnosis of psoriasis and no systemic therapy during the preceding 3 months were eligible for inclusion. Participants and/or parents/guardians provided written informed consent or assent as appropriate. Patients were excluded if they used contact lenses or had any pre-existing ocular disease, including glaucoma, cataract, or macular degeneration; previous ocular trauma or ocular allergy; current or recent disease-modifying antirheumatic drug (DMARD) or immunosuppressive therapy; Stevens–Johnson syndrome; rheumatoid arthritis; sarcoidosis; systemic lupus erythematosus; or Behçet disease.

Written informed consent was obtained from participants or their parents/guardians where applicable, with assent obtained where appropriate. Demographic characteristics, type and duration of psoriasis, and treatment history were recorded. Participants were assisted by the medical staff when required. A comprehensive ocular examination was performed. Best-corrected visual acuity (BCVA) was charted using Snellen's chart and converted to Logarithm of the Minimum Angle of Resolution (LogMAR) for statistical analysis. Intraocular pressure (IOP) was measured with a non-contact tonometer (NCT). The SPEED questionnaire was used to evaluate subjective dry-eye symptoms.

Statistical Analysis: Descriptive data i.e. means, standard deviations, frequencies and percentages were used. Continuous variables were summarized as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Inferential statistical tests were applied as appropriate. A p value <0.05 was considered statistically significant.

Results

A total of 42 patients with psoriasis were evaluated. The mean age of the study population was 37.59 ± 18.57 years. There were 20 males (47.6%) and 22 females (52.4%), indicating an almost equal sex distribution (Table 1).

The most common presenting complaint was plaques over the trunk and lower limbs, reported by 15 patients (35.7%). Scaly plaques over the elbows and knees reported 5 patients (11.9%) and scalp dandruff-like scaling were reported in 10 patients (23.8%). Nail pitting and discoloration reported in 4 patients (9.5%). generalized itching with scaly lesions, and facial plaques with pruritus were each reported by 4 patients (9.5%) Table 2.

Distribution of ocular symptoms reported by patients with psoriasis at presentation. There were 28 patients asymptomatic A dry, gritty sensation in the eyes was reported by 8 patients (19.0%). Intermittent blurred vision was reports in 2 patients, redness and watering of the eyes was reported in 2 patients , and photophobia with mild eye ache were each reported by 2 patients (4.8%) (Table 3).

Regarding past medical and ocular history, 12 participants (28.6%) reported no previous ocular disease or trauma, while

Table 1: Baseline Demographic Characteristics of Study Participants (n = 42)

Variable	Value
Sample size	42
Age, mean ± SD (years)	37.59 ± 18.57
Male, n (%)	20 (47.6%)
Female, n (%)	22 (52.4%)

Table 2: Dermatological Presenting Complaints among Patients with Psoriasis (n = 42)

S. No.	Dermatological Complaint	n	N%
1	Plaques over trunk and lower limbs	1	15 (35.7)
2	Scaly plaques over elbows and knees	5	5 (11.9)
3	Scalp dandruff-like scaling	5	10 (23.8)
4	Nail pitting and discoloration	4	4 (9.5)
5	Generalized itching with scaly lesions	4	4 (9.5)
6	Facial plaques with pruritus		4(9.5)

Table 3: Ocular Symptoms among Patients with Psoriasis (n = 42)

S. No.	Ocular Symptom	n	N%
1	Dry, gritty sensation in eyes	8	(19.0%)
2	Intermittent blurred vision	2	(4.8%)
3	Redness and watering of eye	2	(4.8%)
4	Photophobia with mild eye pain	2	2 (4.8%)
5	Asymptomatic patient	28	28 (66.7%)

Table 4: Ocular and Inflammatory Findings Among Patients with Psoriasis with p-values (n = 42)

Ocular / inflammatory finding	n (%)	p-value
Blepharitis	15 (35.7%)	—
Conjunctival hyperemia	31 (73.8%)	<0.001
Corneal involvement	10 (23.8%)	0.018
Episcleritis	2 (4.8%)	0.317
Uveitis	2 (4.8%)	0.317

10 (23.8%) reported no significant past medical history, Topical calcipotriol/betamethasone used as required was the most commonly reported treatment (21.4%). Seven participants (16.7%) each reported intermittent topical steroid use without systemic therapy in the previous 3 months, emollients with coal-tar shampoo, or combined topical calcipotriol/betamethasone and emollient therapy.

Regarding treatment history, topical calcipotriol/betamethasone used as required was reported by 9 patients (21.4%). Seven patients (16.7%) each reported intermittent topical steroid use without systemic therapy during the preceding 3 months, emollients with coal-tar shampoo, or combined topical calcipotriol/betamethasone and emollient therapy.

During adnexal examination, no abnormality was detected in the lids and lashes in 25 patients (59.5%) and lid-margin scaling with meibomian gland clogging was detected in 15 patients (35.7%). Conjunctival hyperemia was common and ranged from mild to severe was detected in 31 patients (73.8%). Corneal involvement includes Superficial punctate keratitis, punctate epithelial erosion and filamentous keratitis were found in 10 patients (23.8%). Episcleritis was observed in 2 patients (4.8%), while uveitis was identified in 2 patients (4.8%) (Table 4).

The SPEED questionnaire demonstrated a broad range of dry-eye symptom severity. Eleven participants (26.2%) had normal scores, 11 (26.2%) had mild dry eye, 6 (14.3%) had moderate dry eye, and 14 (33.3%) had severe dry-eye symptoms (p=0.002). Thus, severe symptomatic dry eye constituted the largest individual category (Table 5).

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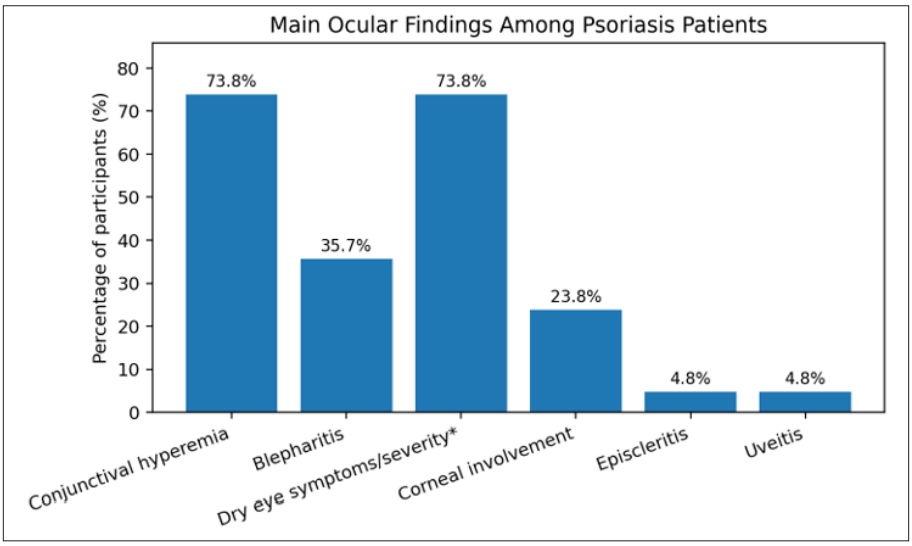

Figure 1.Distribution of major ocular findings among patients with psoriasis

Table 5: Distribution of Dry Eye Severity Based on SPEED Questionnaire Score Among Patients with Psoriasis (n = 42)

SPEED category	n (%)
Normal (0–4)	11 (26.2%)
Mild (5–8)	11 (26.2%)
Moderate (9–12)	6 (14.3%)
Severe (13–28)	14 (33.3%)

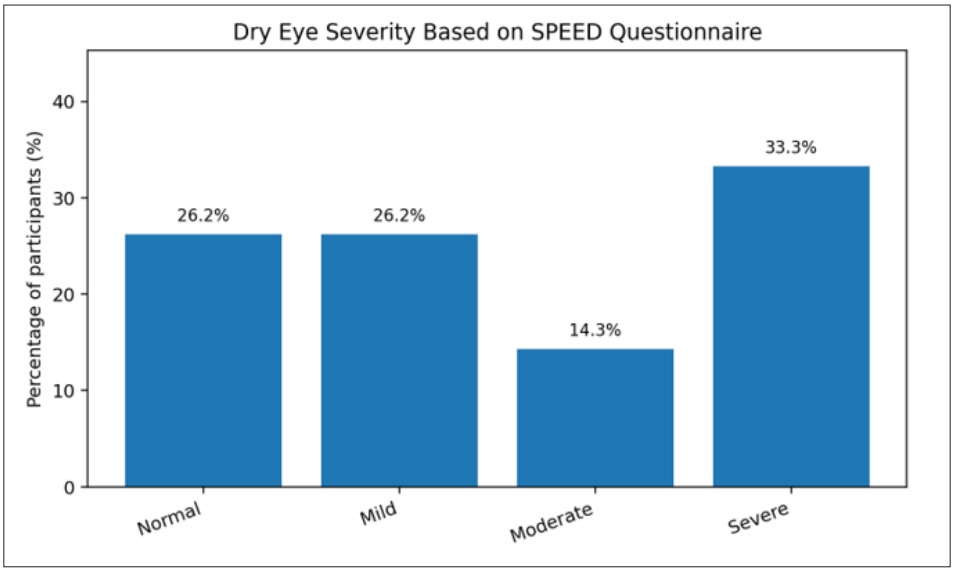

Figure 2.Distribution of dry-eye severity according to SPEED questionnaire score

Discussion

The present study evaluated the spectrum of ocular manifestations in 42 patients with psoriasis and demonstrated that ocular involvement is common, despite a large proportion of patients being asymptomatic. Psoriasis is a chronic immune-mediated inflammatory disorder that primarily affects the skin but may also involve the ocular surface, adnexa, and intraocular structures. Ocular manifestations are frequently underdiagnosed because dermatological symptoms often dominate the clinical presentation. Our findings emphasize the importance of routine ophthalmic evaluation in patients with psoriasis.

The mean age of the study population was 37.59 ± 18.57 years, with an almost equal gender distribution (47.6% males and 52.4% females). This differs from some previous studies. Kharolia et al. reported a mean age of 43.69 years with 79.4% male patients, while Chandran et al. reported ocular disease in a predominantly adult psoriasis cohort; Her

et al. evaluated dry-eye and tear-film abnormalities in 30 patients with psoriasis[8–10]. Differences in demographic characteristics may reflect regional variation, referral patterns, and the relatively small sample size.

The most common dermatological presentation in our study was plaques over the trunk and lower limbs (35.7%), followed by scalp involvement (23.8%). These findings are consistent with the well-established observation that plaque psoriasis is the predominant clinical subtype. The chronic inflammatory nature of psoriasis and increased epidermal turnover are responsible for the characteristic scaling and plaque formation[13,14,15].

Although 66.7% of patients were asymptomatic from an ocular standpoint, objective examination revealed a high prevalence of ocular abnormalities. This finding suggests that ocular involvement may be clinically silent and supports the value of systematic ophthalmic assessment in selected patients with psoriasis[4,8,9].

Dry, gritty sensation was the most common ocular symptom, reported by 19.0% of patients. This symptom is typically associated with tear-film instability and ocular-surface disease. The relatively low frequency of symptoms compared with the prevalence of objective signs suggests that patients may adapt to chronic ocular discomfort or fail to recognize mild symptoms.

Blepharitis was observed in 35.7% of patients and represented one of the most common adnexal manifestations. Ocular psoriasis has been associated with eyelid-margin disease, meibomian gland dysfunction and chronic ocular-surface inflammation[4–6,9]. Kharolia et al. reported ocular manifestations in a predominantly male cohort with moderate-to-severe psoriasis, supporting the relevance of systematic ophthalmic assessment in patients with more extensive disease[8].

Conjunctival hyperemia was the most common ocular sign in our study, occurring in 73.8% of patients. Conjunctival injection and other ocular-surface abnormalities have also been reported in psoriasis cohorts [9,11]. Chronic ocular-surface inflammation, tear-film instability, and eyelid disease may contribute to conjunctival vascular congestion. The observed p value (<0.001) indicates a statistically significant finding within this study; however, the absence of a control group limits interpretation of this p value.

Corneal involvement was identified in 23.8% of patients and included superficial punctate keratitis, punctate epithelial erosions, and filamentary keratitis. Corneal staining and tear-film abnormalities have been reported in psoriasis cohorts, supporting an association with ocular-surface disease[9,10]. The p value of 0.018 indicates a statistically significant finding within the study; however, because there was no healthy control group, it should not be interpreted as proof of causality.

Episcleritis and uveitis were each observed in 4.8% of patients. Although relatively uncommon, intraocular inflammation is clinically important because delayed recognition may threaten vision. Uveitis has been reported in patients with psoriatic disease, including in the Singaporean Asian cohort studied by Chandran et al[11]. Clinicians should therefore maintain a high index of suspicion in patients presenting with ocular redness, photophobia, pain, or decreased vision.

Assessment of dry-eye severity using the SPEED questionnaire revealed that 73.8% of patients had some degree of symptomatic dry eye, while severe dry eye was present in 33.3%. These findings are consistent with previous studies demonstrating dry-eye symptoms, tear-film instability, reduced tear-breakup time and ocular-surface abnormalities among patients with psoriasis[9,10,12]. Chronic eyelid and meibomian gland inflammation may contribute to tear-film instability and evaporative ocular-surface disease.

The coexistence of blepharitis, conjunctival hyperemia, corneal epithelial disease, and dry-eye symptoms in our study suggests that ocular-surface disease represents the predominant form of ocular involvement in this cohort. This pattern is consistent with previous reviews and observational studies describing dry eye, blepharitis, conjunctivitis and corneal-surface abnormalities among patients with psoriasis[4-7,9,10].

Strengths and Limitations

The major strength of the present study is the comprehensive ophthalmic evaluation of all participants, enabling identification of both symptomatic and asymptomatic ocular disease. However, the study has certain limitations. The sample size was relatively small, and a healthy control group was not included for comparison. In addition, the cross-sectional nature of the study limits the ability to establish temporal relationships between psoriasis severity and ocular involvement.

Conclusion

Psoriasis patients have ocular manifestations, which primarily affect the ocular surface and adnexa. The most common findings in the current study were conjunctival hyperemia, dry eye disease, and blepharitis, and a significant portion of patients had corneal involvement. Episcleritis and uveitis were relatively uncommon but significant.

The findings are consistent with the systemic inflammatory nature of psoriasis and its potential ocular involvement. Routine ophthalmic assessment should be considered according to symptoms, disease severity and clinical risk. Multidisciplinary management involving dermatologists and ophthalmologists may facilitate early recognition and treatment of ocular disease.

Ethics Approval

The study was conducted after clearance from the Institutional

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Ethical Committee. Written informed consent was obtained from participants or their parents/legal guardians where applicable, and confidentiality of participant information was maintained.

Funding

No external funding was received for this study.

Data Availability

The data that support the findings of this study are available from the corresponding author on reasonable request, subject to institutional and ethical restrictions.

Conflict of Interest

The authors declare no conflict of interest.

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