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Original Research Article

Psoriasis and the eye: A clinical profile of patients attending a tertiary care hospital

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Abstract

Background: Psoriasis often presents clinically by means of multi-system involvement, one among which are the eyes. There is a strong correlation between psoriatic patients with or without joint and/or scalp involvement and the development of ocular pathology. Approximately 40–43% of patients with psoriasis develop arthritis. Strong genetic factors and increased risk in those with family history of the disease has been established in various studies in the past. This study was conducted to understand the various clinical dimensions of this broad-spectrum disease, and helps draw an association between the time intervals, disease presentation and progression and gives an overall insight into the ocular presentation of psoriasis.

Aim and Objectives: To determine the most common ocular manifestations in psoriatic patients, and its association with the duration of disease and onset of ocular signs and symptoms

Materials and Methods: A total of 75 patients visiting the dermatology OPD in SRM Medical college and Hospital from April 2023 to April 2024 were included in this study. Examination included a detailed ocular history, visual acuity, slit lamp evaluation, intraocular pressure assessment, dry eye test (schirmer's, TBUT, etc), fundus examination, and general and systemic examination. Relevant details pertaining to the duration and treatment of psoriasis were also noted.

Results: Out of a total of 75 psoriatic patients aged between 16 to 80 years, Scalp(72%), nail(42.7%) and joint (17.3%) involvement was seen of which 57.33% of the patients were asymptomatic and 42.67% had a few non-specific symptoms. The most common ocular manifestation was blepharitis (23.3%) and conjunctivitis (12.5%). Among the asymptomatic patients, Blepharoconjunctivitis was found to be a common finding. Among the symptomatic patients, irritation, redness, pain, defective vision and photophobia were among the common symptoms seen to occur.

Conclusions: The various manifestations of Ocular Psoriasis include Blepharoconjunctivitis, Episcleritis, Uveitis and Dry eye disease. These were also seen in patients without joint involvement which necessitates routine screening of all patients along with a holistic combined treatment approach.

Keywords : Psoriasis; Blepharitis; Dry eye disease; Uveitis; Joint involvement; Defective vision; Schirmer's; Evaluation; Scalp involvement; Irritation; Photophobia; Episcleritis; Blepharoconjunctivitis.

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1. Introduction

Psoriasis is a chronic skin condition that characteristically presents with reddish-coloured patches that are lined with silvery scales present over the body. It is an autoimmune disease, non contagious with associated extra cutaneous manifestations. Ocular inflammation in psoriasis has a very subtle presentation. Around 7% of the patients develop acute anterior uveitis shortly after disseminated disease has set in. Marginal keratitis, conjunctivitis, ectropion, madarosis, trichiasis, meibomian gland dysfunction and secondary Sjogren syndrome are also seen frequently in these patients.

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During an exacerbation of psoriasis, the immune system targets the body's healthy tissues and accelerates cellular functions at an abnormal rate, including cellular replication and cell growth. The process that would normally require around 30 days to complete is now accomplished within 3–4 days. This results in an excessive build-up of corneocytes/dead skin flakes on the surface of the eyelids. The consequent symptoms that patients develop are indicative of over active skin cells causing inflammation, oedema, hyperpigmentation and pruritis. The common risk factors in psoriatic patients

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that increase the risk of developing ocular signs and symptoms include stressful triggers, anxiety, bacterial/viral infections such as Streptococcus throat infections or HIV/AIDS, obesity and smoking. There is a delay in the presentation which may be due to reduced awareness and shared knowledge among patients, decreased number of signs and symptoms and at times is recognised only once a more advanced stage of the disease has set in. There is also a profound sense of social stigmatisation, physical discomfort and emotional anxiety that revolves around the spectrum of disease manifestations in psoriasis.¹

After the development of the characteristic psoriatic skin lesion, the joints are often involved next by means of spondyloarthropathies and different forms of peripheral arthritis. It can vary from a span of diseases involving only a single joint to a more serious destructive type of polyarthritis. These are often followed by inflammations of eyelids (Blepharitis, Dry eye) and ocular adnexa (keratitis, conjunctivitis, uveitis etc). These findings arise as a consequence of the auto-immune mediated damage to ocular tissues or perhaps as a result of the effect of long term treatments prescribed to psoriatic patients.²

Thorough ocular examination and diagnosis is essential for a holistic treatment strategy in the management of psoriasis patients.

2. Materials and Methods

Patients presenting to the Dermatology OPD, diagnosed with psoriasis were examined for ocular manifestations at the Ophthalmology OPD after receiving appropriate informed consent, SRM Medical College and Hospital from April 2023 to April 2024. Ethics committee approval for conducting the study was received and documented.

This is a cross sectional study with a consecutive sampling technique and 75 patients (150 eyes) were enrolled.

The following evaluation was done:

1. Relevant ocular history
2. Best corrected visual acuity
3. Duration of psoriasis and the treatment taken
4. Slit lamp evaluation of the anterior segment
5. Indirect ophthalmoscopy and slit lamp biomicroscopy using 90D of the posterior segment
6. Intra-ocular pressure measurement (Goldmann applanation tonometry)
7. Dry eye evaluation by Schirmer test (Schirmer's 1 and Schirmer's 2) using Whatmann 41 filter paper.
8. TBUT: Tear break up time of less than 10 seconds was taken as abnormal.

2.1. Inclusion criteria

All psoriasis patients

2.2. Exclusion criteria

1. Patients with other serious/ life-threatening co-morbidities
2. Patients on Psoralen plus ultraviolet-A therapy for psoriasis
3. History of systemic disorders like hypertension, bronchial asthma, Diabetes mellitus etc.

3. Results

The population study included patients from the age of 16 to 80 years most of whom were in the range of 31-40 years as shown in **Figure 1**. The mean age group of the patients is 48.1(±19.7) years and about 44% of the study population had disease duration of less than or equal to 5 years.

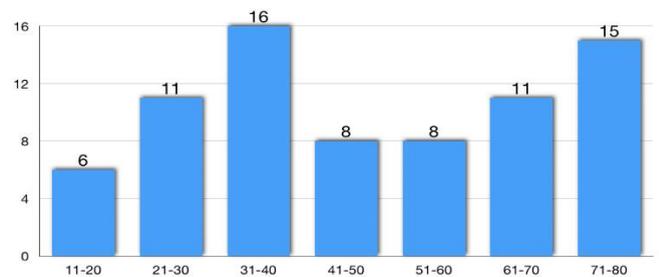


Figure 1: Showing the age wise distribution of subjects in the study population

It was noted that scalp (72%), nail (42.7%) and joint (17.3%) involvement was seen of which 57.33% of the patients were asymptomatic and 42.67% had some symptoms such as redness, irritation and pain.³

There was a slight male preponderance in the prevalence of psoriasis cases among the study population with 56% males (**Table 1**).

Table 1: Percentage of males and females in the study population

Sex	Number of cases	%
Males	42	56%
Females	33	44%

The sex distribution in each age group is almost equal with males higher in the 71-80 years age group and less than 30 years age groups. The distribution seemed to be equal in middle year age groups from 31-50 years.

The study population presented with 80% psoriasis vulgaris cases followed by erythrodermic psoriasis followed by pustular and guttate type, respectively, as shown in **Figure 2**.⁴

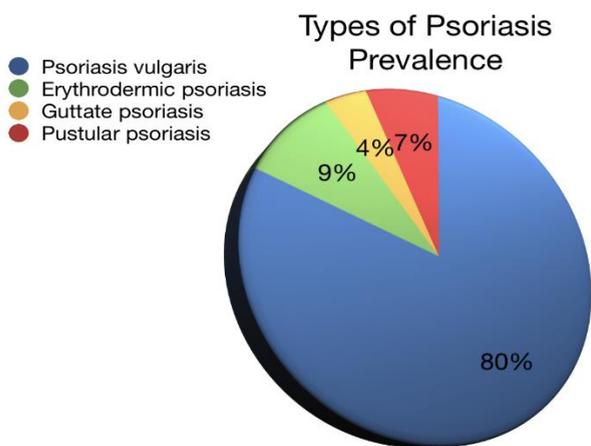


Image 2: Percentage of the different types of psoriasis and it's prevalence in the study group.

Figure 2: Percentage of the different types of psoriasis and it's prevalence in the study group

An increased duration of psoriasis at the time of presentation (more than 10 years) in majority of patients was seen as depicted in **Figure 3**. The most common ocular manifestation was blepharitis (23.3%) and conjunctivitis (12.5%).

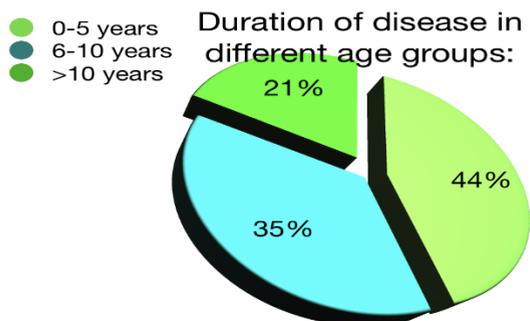


Figure 3: Duration of disease in different age groups

Additionally, non-granulomatous acute anterior uveitis (5 eyes) with associated joint involvement and chronic uveitis (2 eyes of 2 patients) without joint involvement were also seen.⁵

4. Discussion

Patients of both sexes were equally distributed in terms of age. The duration of disease in the study population had a mean range of 7.5 years.⁶ The visual signs and the length of the disease did not significantly correlate. In our investigation, the vast majority of the individuals had no symptoms. The most often seen ocular symptoms were uveitis, conjunctivitis, episcleritis, blepharitis, and corneal involvement (as shown in clinical photographs 3,4,5,6).⁷ This is depicted in **Figure 4**. The most prevalent symptom among the symptomatic group was redness, and the most frequent finding was blepharitis (23.3%). Conjunctivitis (21.3%), pterygium (6%) and pingecula (6.6%) were among the other

clinical findings that were observed, as shown in **Figure 5**. There were no cases of active keratitis.⁸

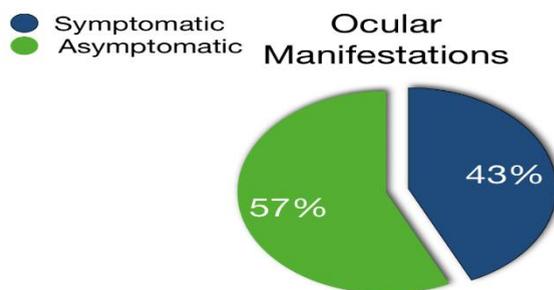


Figure 4: Percentage of symptomatic and asymptomatic patients with ocular involvement

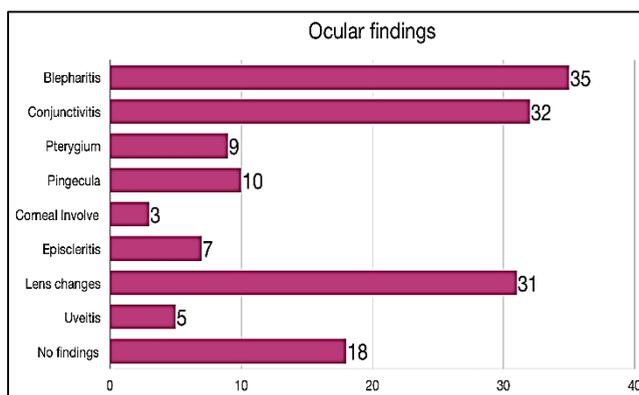


Figure 5: The different ocular findings in the study group

In the study group, psoriatic patients with concomitant scalp involvement comprised a total of 72% out of which 83% of the group developed blepharitis as the primary ocular finding (**Table 2, Table 4**). Concurrent nail and joint involvement was seen in 42.7% and 17.3% of the study group, respectively (**Table 2**). About 57% of the study group showed no symptoms, and only about 42% of the patients had some symptoms, some of which included conjunctival hyperaemia, mild ocular pain, sensitivity to light, foreign body sensation/gritty sensation and intermittent blurring of vision (**Table 3**).

Table 2: Table shows the different sites of involvement of psoriasis and percentage of patients affected

Findings	Number of patients	% of patients
Scalp involvement	54	72%
Nail involvement	32	42.7%
Scalp and nail involvement	23	30.7%
Joint involvement	13	17.3%
Scalp and joint involvement	10	13.4%
Nail and joint involvement	8	10.7%
Scalp, nail and joint involvement	8	10.7%

Table 3: Symptom profile of the study population

Ocular symptoms	Number of patients	% of patients
No symptoms	44	58.6%
Burning sensation	6	8%
Redness	14	18.6%
Irritation	3	4%
Defective vision	5	6.6%
Defective vision + Redness	2	2.6%
Defective vision + Pain + Photophobia	1	1.33%

Table 4: Scalp involvement with Blepharitis

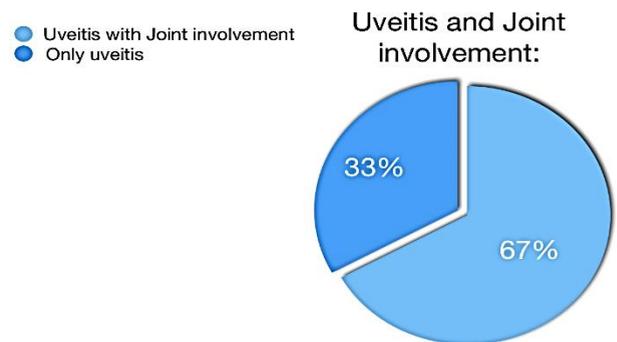
Scalp Involvement	Blepharitis - Yes	Blepharitis- No	P value by Chi sq test
Yes	45 (83.3%)	9 (16.6%)	< 0.001%
No	5 (23.8%)	16 (76.1%)	

The possible mechanism in the pathogenesis of blepharitis could be explained by the disruption of the normal eyelid flora causing cultivation of Staphylococcus species. Dry eye disease was also a chief finding in almost all cases of psoriasis, and this was demonstrated by the abnormal parameters obtained during dry eye evaluation (Schirmer's and TBUT) as seen in **Table 5**. This is seen to occur in psoriasis not solely limited to the skin, but also can affect both the lacrimal glands as well as the cornea directly, leading to dry eye disease. In such cases, it is essential to counsel patients regarding adequate lid hygiene and six-hourly warm compression of the eyelids. It is also recommended to practice biweekly washing of the lid/lash region using a gentle soap (or a diluted baby shampoo) or mild cleanser. Topical corticosteroids maybe used in non-responsive or recurrent cases. However use of certain topicals must be done with caution, as some of them cause an increased risk of development of glaucoma and cataracts. Topical tacrolimus (0.03%) eye ointment is also equally effective. Oral antibiotics can also be initiated in case of infection. At home remedies which may provide mild relief of symptoms include use of natural oils or wet wraps around the affected areas of the lid skin.

Table 5: Ocular surface disorders in psoriasis patients

Test	Number of eyes
Schirmer's test I <10mm	40 (26.6%)
Schirmer's test I >10mm	110 (73.3%)
Schirmer's test II <5mm	45 (30%)
Schirmer's test II >5mm	105 (70%)
TBUT>10sec	87(58%)
TBUT<10sec	63(42%)

In patients experiencing dry eye symptoms, lubricants or topical tear substitutes may help alleviate most symptoms. Particularly beneficial to the patient in such scenarios would be the use of extended action lubricant gels/ointments that may be applied to the inner tarsal conjunctiva in the morning and before bedtime everyday. The study group showed a prevalence of about 3-4% of cases of uveitis. One case demonstrated non-granulomatous acute anterior and intermediate uveitis (clinical photograph 1).⁹ Uveitis in psoriatic arthritis is characterised by a bilateral, persistent condition that involves the posterior pole and has an insidious beginning. The exact mechanism connecting both psoriasis and uveitis is quite complex, and involves multiple innate and environmental factors. Both entities share a common immune-mediated pathophysiological process that involves over-activity of the pro-inflammatory cytokines which play a role in the immune mechanisms. Axial skeletal involvement is a significant predictor of the occurrence of uveitis in patients with joint involvement. Another patient with chronic uveitis had psoriasis for 20 years but no joint involvement, the association is depicted in **Figure 6**.¹⁰ It was concluded that among the patients presenting with some form of uveitis, it can either present alone (20%) or in association with co-existing joint/articular lesions (80%). Blepharoconjunctivitis was the most common finding (25%) seen even among the asymptomatic group of patients (48%). Chronic uveitis was also seen among asymptomatic patients and this indicates that regular screening of all psoriatic patients is crucial (**Figure 7**). No association was found between the duration of disease and the occurrence of ocular manifestations.¹¹

**Figure 6:** Uveitis and its association with or without joint involvement

Duration of psoriasis did not show any significant association with the onset of clinical disease, as shown in **Figure 8**. Posterior involvement was seen in 40% of the patients. In the study, two cases demonstrated macular oedema and vascular sheathing. Bilateral involvement was seen in 20% of the patients. 83.3% of the cases with blepharitis had scalp involvement which demonstrates that patients with scalp lesions were more prone to develop lid inflammation.^{12,13}

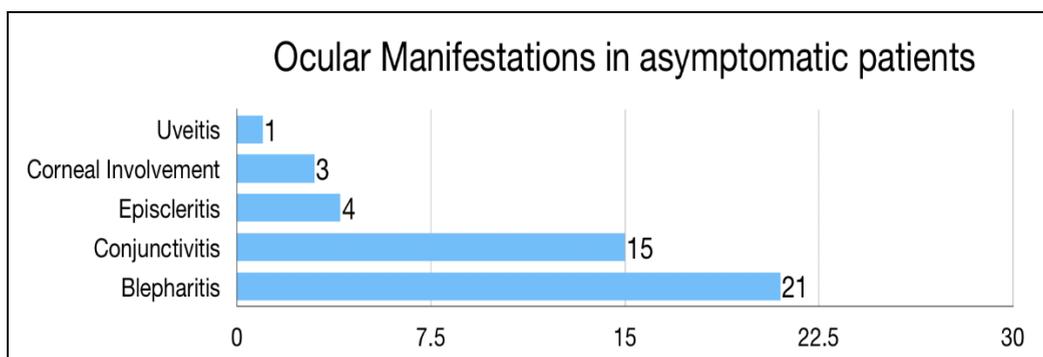


Figure 7: Ocular manifestations in asymptomatic patients

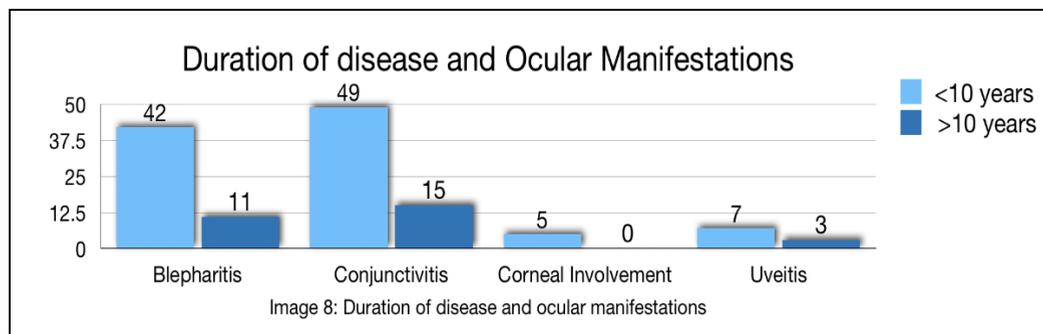


Figure 8: Duration of disease and ocular manifestations

Old nebular opacities present over the cornea were seen in 1% patients. Repeated attacks of ocular inflammation if not dealt with promptly, can lead to visual impairment, scarring and in severe cases, blindness. Due to the fact that prompt recognition of early signs and symptoms not always being possible, it is important for both ophthalmologists and dermatologists to work hand in hand and increase the number of cross-referrals and increase the overall degree of caution when dealing with psoriatic patients. These patients have to be screened on a regular basis and counselled regarding the recurrent nature of ocular signs and made aware of the long term and time-consuming management narrative adopted in such situations. Phototherapy with PUVA or UVB is seen to have dual effectiveness in managing for ocular and skin symptoms but is sometimes avoided due to accelerated cataract formation. In fact, the patients may be prescribed treatment and advised by the dermatologists themselves and don't require two separate consultations. General measures that may be employed for psoriatic patients include use of an effective emollient moisturiser on a daily basis or when exposed to harsh/cold climates; and avoiding environmental/chemical triggers that can precipitate an attack of psoriasis. Sunscreens with a minimum sun protection factor equivalent to 50 help protect the lid skin and prevent complications.^{14,15}

Ocular findings though common, most individuals were asymptomatic, underlining the often subclinical nature of these complications. Among symptomatic patients, redness was the most prevalent symptom, and blepharitis was the leading clinical finding, particularly associated with scalp

involvement. These findings underscore the need for clinicians to routinely assess for eye involvement, even in the absence of overt symptoms. The observed pathogenesis of blepharitis is multifactorial, often involving the disruption of eyelid flora and abnormal lid margin secretions, which promote colonisation by staphylococcal species and may trigger chronic inflammation. Dry eye disease was also frequently identified, suggesting direct effects of psoriasis on lacrimal glands and ocular surface stability. While uveitis was relatively rare in the cohort, its presence-sometimes in the absence of joint disease-highlights the heterogeneity and complexity of ocular surface inflammation in psoriasis. Notably, the duration of psoriasis did not correlate with ocular disease onset, supporting the idea that complications emerge at any stage. These results reinforce the importance of multidisciplinary care for patients with psoriasis, with proactive ocular monitoring to detect and manage potentially sight-threatening complications.

5. Conclusions

In conclusion, the study emphasises the need for good lid hygiene and regular warm compresses as the primary preventive protocol in these patients in order to alleviate possible symptoms. Additional home care measures include gentle lid cleansing and, if required, the use of topical corticosteroids or tacrolimus, but these must be used cautiously due to risks like glaucoma and cataracts. Systemic antibiotics and natural remedies can offer further symptomatic relief when indicated. Nail and joint involvement were present in a significant subset of patients, and over half of the cohort were asymptomatic, while others

experienced symptoms such as conjunctival redness, discomfort, and visual disturbances. Rare instances of uveitis and macular oedema highlighted the importance of early detection and intervention to prevent serious outcomes like vision loss. Regular screening and synergistic care between ophthalmologists and dermatologists are crucial due to the recurring and potentially sight-threatening nature of ocular symptoms in psoriasis. An all-encompassing management strategy—including photoprotection, moisturizers, and avoidance of triggers—should be individualized for comprehensive care.

6. The Limitations of the Study Include

1. The observational cross-sectional design limits causal inferences and only provides a snapshot of associations at one point in time.
2. Exclusion of pre-existing ocular conditions was challenging, which may have resulted in misclassification even with careful history and examination.
3. The sample size for certain clinical variants of psoriasis other than plaque-type was small, restricting the ability to analyse or generalise findings for less common forms.
4. Short study duration may limit detection of relapsing or long-term ocular outcomes, and long-term progression was not captured.
5. The reliance on patient-reported symptoms and single-time clinical assessments could underestimate the prevalence of mild or subclinical ocular findings, as mild symptoms may go unnoticed by patients.

7. Source of Funding

None.

8. Conflict of Interest

None.

9. Ethical Approval

Ethical No.: 1173/IEC/2017.

10. Acknowledgement

None.

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