

# Ocular Findings in Psoriasis Patients

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## ABSTRACT

**Introduction:** Psoriasis is a common, chronic, disfiguring, inflammatory condition of the skin, with several extra cutaneous manifestations. Ophthalmic complications of psoriasis are numerous and affect almost all parts of eye. These effects also decrease the quality of life and can cause loss of vision. Ocular manifestations of psoriasis may be missed in absence of dedicated ocular examination.

**Material and methods:** An observational study was conducted on 70 patients who were positive on skin biopsy for psoriasis. A comprehensive ocular examination was done on these patients. Anterior segment evaluation was done with slit lamp biomicroscope and ocular surface evaluation was done with Fluorescein and Rose Bengal staining, tear film break up time and Shirmers test.

**Result:** Prevalence of ocular findings and complications were approximately 44% in our study. Most of the patients were asymptomatic. Multiple ocular involvement were present in 14.3% patients and 48.6% of the ocular findings were bilateral. Various ocular diseases encountered were conjunctivitis (11.4%), dry eye (8.6%), meibomitis (7.1%), cataract (20.7%) and uveitis (0.7%). Ocular complications seen were superficial punctate keratopathy, corneal opacity, trichiasis and posterior synchiae.

**Conclusion:** Ocular complications of psoriasis are numerous though they may remain subtle and hence clinically under appreciated. A comprehensive ocular examination should be done in all psoriatic patients.

**Keywords:** Psoriasis, Dry Eye, Conjunctivitis, Uveitis, Cataract

## INTRODUCTION

Psoriasis is a common, chronic, disfiguring, inflammatory and proliferative condition of the skin, in which both genetic and environmental influences have a critical role. The most characteristic lesions consist of red, scaly, sharply demarcated, indurated plaques, present particularly over extensor surfaces and scalp. It is a commonly encountered inflammatory disorder with an estimated global prevalence ranging from 0.5% to 4.6%.<sup>1</sup> The estimated prevalence in India is 0.7%.<sup>2</sup> The incidence of the disease has been estimated to be 60 individuals per 100000 per year.<sup>3</sup> Psoriasis is associated with several extra cutaneous manifestations. There are many co morbidities associated with psoriasis which include psoriatic arthritis, metabolic syndrome, Crohn's disease, depression, and cancer. Patients with severe psoriasis may be at an increased risk for myocardial infarction and this subgroup of patients tends to have a reduced life expectancy.

Ocular complications are also common. Signs and symptoms of psoriasis may be subtle and overlooked.<sup>4</sup> A number of ocular findings have been described in psoriasis and have

been reported to occur in 10% of patients.<sup>5</sup> Another study reported prevalence of 67% of single ophthalmic abnormality and 20% with more than one in patients of psoriasis. Ocular involvement in psoriasis is mainly bilateral. Ocular symptoms usually occur during disease exacerbations.<sup>6</sup> Ophthalmic complications of psoriasis are numerous and affect almost all parts of eye. In the present study, an attempt was made to study the occurrence and spectrum of ocular manifestations and their complications in psoriasis patients. It is hoped that if these ocular manifestations could be picked up early, these can be managed and further complications can be prevented.

## MATERIAL AND METHODS

An observational study was conducted on 70 patients who were positive on skin biopsy for psoriasis after taking approval of the ethical committee of Hindu Rao Hospital. A comprehensive ocular examination which included examination of eyelids, conjunctiva, cornea, anterior chamber, iris, pupils, posterior chamber, vitreous and retina was done on these patients.

Patients of either sex and aged between 18 to 60 years referred from dermatology department with clinical diagnosis of psoriasis and confirmed by skin biopsy were included in the study. Patients having age less than 18 and greater than 60 years, having immunosuppressive disease, Rheumatoid arthritis, on immunosuppressive drugs, on chronic topical ophthalmic medication, patients with history of trauma, Steven Johnson's syndrome, ocular surgery were excluded from the study.

Fifty five age and sex matched controls consisted of non-psoriasis patients who had come to the eye OPD with refractive error and satisfied the exclusion criteria. These patients also underwent detailed ocular examination including dry eye tests.

Signed and informed consent was taken from the patient for participating in the study and each patient underwent complete eye examination. New cases were defined as those patients who were recently diagnosed as psoriasis and proven by biopsy and who had not started the treatment at the time of our study. The old patients included those who were biopsy

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proven cases of psoriasis either on topical treatment or the disease was in remission stage. None of the patients were on systemic therapy. A detailed history was taken of all patients which included the duration of the disease and treatment taken. Anterior segment evaluation was done with slit lamp biomicroscope and ocular surface evaluation was done with Fluorescein and Rose Bengal staining, TBUT, Shirmers test without the use of topical anaesthesia. The Schirmer's test less than 10mm and TBUT below 10 sec were taken as abnormal.

The eyelids were examined for scales and flakes on lids, entropion, trichiasis, madarosis and loss of lid tissue. Meibomitis was diagnosed when the orifices of the meibomian glands showed oil globules and turbid discharge sprouted from them on pressing. Examination of conjunctiva was done to look for congestion, debris and discharge. Opacities of the cornea and any type of keratitis was noted. Examination of anterior chamber was done for signs of active or healed uveitis. Examination of lens, intraocular

pressure measurement, lacrimal sac syringing and fundus examination was done in all patients.

## STATISTICAL ANALYSIS

The data collected was entered into an Excel spreadsheet and analyzed using statistical software (SSPS). All variables were expressed as the mean  $\pm$  standard deviation. The confidence interval was set at 95% and probability values of  $p < 0.05$  was considered statically significant.

## RESULTS

A total of 70 patients were enrolled in the study. Majority of the patients i.e. 58 patients had plaque type of psoriasis (82.9%) followed by pustular type of psoriasis (14.3%) in ten patients (table 1). Mean age of patients was  $47.02 \pm 9.22$  years.. There was mild male predominance (55.7% versus 44.3%). Forty two (60%) cases were old biopsy proven cases while the rest (40%) were newly diagnosed cases.

The BCVA in 99 eyes (70.7%) ranged from 6/6-6/9, 23 eyes (16.5%) had visual acuity ranging from 6/12 to 6/18, 17 eyes (12.1%) had visual acuity ranging from 6/24-6/60 and one eye (0.7%) had visual acuity less than 6/60.

The dry eye tests were done to look for the stability of tear film, aqueous deficiency and mucus plaques or filaments.

The mean TBUT was found to be  $10.67 \pm 1.84$ sec and that of Shirmers was  $14.69 \pm 4.24$ mm in the psoriatic group. The TBUT and Shirmers test in age and sex matched healthy volunteers was found to be  $15.2 \pm 8.4$  and  $18.6 \pm 11.4$ mm respectively. The difference in means was found to be significant ( $P < .001$ ).

We found that TBUT test was positive in 8.6% of the eyes (mean  $6.5 \pm 0.90$  sec), Schirmer's test was positive in 5.7% of the eyes (mean  $6.25 \pm 2.71$  mm), fluorescein staining in 5.7% of the eyes and Rose Bengal staining in 1.4% of the eyes. None of the control eyes had positive vital staining of the cornea.

Both TBUT and Schirmer's test were positive in 6 eyes (4.3%). All the four tests were positive in 2 eyes (1.4%).

The various ocular manifestations seen in the psoriatic patients were cataract, conjunctivitis, dry eye, meibomitis, anterior uveitis and complications seen were Superficial punctate keratopathy corneal opacities, trichiasis and posterior synechia. The frequency distribution is shown in table 2 and 3.

There were ten patients who had multiple ocular involvement.

Type of psoriasis	Frequency(percentage)
Plaque type	82.9
Pustular type	14.3
Scalp type	1.4
Erythrodermic type	1.4

**Table-1:** Distribution of the various types of psoriasis

Ocular Manifestations	Number of patents	Number of eyes
Cataract	20	28.5%
Conjunctivitis	08	11.4%
Dry eyes	06	8.6%
Meibomitis	05	7.1%
Anterior uveitis	01	1.4%
Trichiasis	01	1.4%

**Table-2:** Ocular manifestations of psoriasis

Complication	Number of Eyes	Percentage
Superficial Punctate Keratopathy	06	4.3%
Corneal opacity	06	4.3%
Trichiasis	02	1.4%
Posterior Synachae	01	0.7%

**Table-3:** Ocular complications of psoriasis

Serial No.	Trichiasis	Conjunctivitis	Meibomitis	Dry eye	SPK	Corneal opacity	Cataract
1	-	+	-	-	+	-	+
2	-	-	+	-	-	-	+
3	-	+	-	+	+	-	-
4	-	+	-	+	-	-	+
5	-	-	+	-	-	+	+
6	+	+	-	+	-	+	-
7	-	-	+	-	-	-	+
8	-	+	-	-	-	-	+
9	-	+	-	+	-	-	-
10	-	+	-	+	-	-	-

**Table-4:** Details of patients having multiple features

The details of these patients are tabulated in table 4. The ocular findings were bilateral in 48.6% of cases.

## DISCUSSION

We found the prevalence of ocular manifestations and their complications to be 44%. None of these patients were overtly symptomatic. While Kilic B et al<sup>7</sup> found prevalence of ocular manifestations to be approximately 58%, Chandran et al,<sup>8</sup> Erbagci I et al<sup>9</sup> found the prevalence to be approximately 67% in psoriasis patients. The lower figure obtained by us may be due to small sample size or geographic variation.

Although all the patients had no primary ocular complaints however on probing it was found that 12.2% of them complained of redness, 7.1% complained of mild discharge and 2.1% had irritation in their eyes. The common ocular diseases seen were conjunctivitis, meibomitis, trichiasis, superficial punctate keratopathy, corneal opacity, dry eyes, cataract and anterior uveitis.

Ocular lesions are usually bilateral in psoriasis. In our study 48.6% had bilateral<sup>10</sup> involvement. Kilic B et al<sup>7</sup> found that ocular findings were bilateral in 58% of cases. Multiple ocular involvement was found in 14.3% of our patients while Chandran et al<sup>8</sup> reported more than one ocular abnormality in 20% of cases.

The statistical relationship between type of psoriasis and ocular findings could not be studied as the number of cases was inadequate in all types of psoriasis except for the plaque type.

Xerosis was present in 8.6% of patients in our study. The incidence of dry eye in patients with psoriasis has been variably reported as 2.7%<sup>11</sup> and 18%.<sup>12</sup>

Whether this dry eye is a disease process or it occurs as a complication of other manifestations is not clearly known.<sup>13</sup> The various dry eye tests indicated a tear film instability and aqueous deficiency in psoriasis patients. This can lead to ocular surface damage. In our study we found that fluorescein staining was positive in 8 eyes (5.7%) suggesting ocular surface damage. All the eyes which had fluorescein stain positive did not have TBUT or Schirmer's test positive thereby suggesting that mechanisms other than dry eye may play additional role in causing damage to the corneal epithelium. Therefore, it is hypothesised that the primary disease process in psoriasis may also have a role in damaging the corneal epithelium. Young Her et al<sup>14</sup> in their study also showed that fluorescein staining test was significantly higher in the patients of psoriasis than in the controls.

When all the tests for dry eye were analysed together, it was found that abnormal TUBT test was the highest followed by Schirmer's test. The cause for lower TUBT is either due to mucin deficiency or due to meibomian gland disease. In our study there were five patients who had meibomian gland disease. It is believed that blockage of meibomian gland ducts by desquamated ductal epithelium and inspissation of meibomian gland excreta results in inadequate flow of meibum resulting in tear film instability.<sup>15</sup>

We found 29 eyes (20.7%) had cataract in the study group and the incidence of cataract was more in the elderly

patients. 8 eyes had cataract in patients less than 50 years of age. This occurrence of cataract in the younger age group can be due to psoriasis per se or its therapy or it can be an incidental finding. Studies in literature have mentioned PUVA (psoralen and ultraviolet A radiation) therapy and steroids to be responsible for higher incidence of cataracts in these patients. However none of the studies suggested any direct correlation between the disease process and its therapy and development of cataract.<sup>8,9,16</sup>

Anterior uveitis was found in one patient (1.4%) and was a unilateral involvement. This patient had plaque type of psoriasis. There were no signs of arthropathy in this patient. These results are comparable to several studies. Few studies relate uveitis with psoriatic arthropathy.<sup>17,18,19</sup> while some studies have found it as an independent entity.<sup>8</sup>

Complications found in our study were superficial punctate keratopathy (4.3%), corneal opacity (4.3%), trichiasis (1.4%) and posterior synachae (0.7%). Erbagci et al<sup>9</sup> found corneal opacities in 4 eyes in his study population of 31 patients. The patient who had uveitis had posterior synachiae. It is well known that uveitis can lead to complications like hypopyon, posterior synachae and retinal vasculitis.<sup>8</sup>

Retinal examination in our study did not reveal any abnormality. This is in contrary to some studies who found bird shot chorioretinopathy<sup>20</sup> and cystoids macular edema<sup>7</sup>. This discrepancy is probably due to differences in sample size and disease characteristic of the study group.

## CONCLUSION

Ocular complications of psoriasis are numerous and they can affect many parts of the eye. These may remain subtle and hence clinically underappreciated unless a dedicated comprehensive ocular evaluation is done. Therefore patients with psoriasis should undergo periodic ophthalmic evaluation for early detection and management of ocular diseases.

Our dermatology and medicine colleagues who are usually the first contacts for psoriasis patients should be made aware of the need for ophthalmological evaluation at the time of diagnosis and subsequent follow ups.

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