Section: Dermatology

Original Research Article

A STUDY OF OCULAR FINDINGS IN PATIENTS WITH PSORIASIS

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ABSTRACT

Background: Psoriasis is a persistent disease that is caused by the immune system and has a strong genetic component. It can cause damage to multiple systems in the body.[1] Approximately 50 to 60% of psoriasis patients exhibit ocular manifestations. However, there is a scarcity of data specifically pertaining to the Indian population in existing studies.[2]

Materials and Methods: A Case-Control study to evaluate eye involvement in 100 psoriatic patients. A comprehensive skin and 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 breakup time and shimmer's test.

Results: The study included a total of 100 patients. the age distribution ranges from 11 to 73 years with an average age of 45.71 years. 58% Of the study group were males. chronic plaque psoriasis was seen in 69% of the patients. The most common eye findings in our study include Arcus -seinisius, Pseudophakia, dry eye, blepharitis, uveitis, pterygium, complicated cataract, glaucoma, and corneal opacities.

Conclusion: Eye complications in psoriasis patients are numerous and clinically underappreciated. A comprehensive eye examination should be done periodically for early detection and management of ocular disease.

Keywords: Psoriasis, PASI, PUVA, Dry eye, Blepharitis, Uveitis, Cataract.

INTRODUCTION

Psoriasis, a condition that affects a significant portion of the global population, can have a major impact on one's quality of life 3 and it is no longer considered as a disease exclusively affecting the skin as it is associated with several systemic complications including cardiovascular, metabolic, cerebrovascular, articular, hepatic, autoimmune &ocular damage. The incidence of ophthalmological manifestations in psoriasis patients ranges from 10% to 12%.[4,5] The ocular symptoms and manifestations appear to worsen as the disease becomes more severe, as indicated by the Psoriasis Area and Severity Index (PASI) score6. It's easy to miss the subtle ocular manifestations in psoriasis.[1]

According to embryology, the ectoderm is undeniably the shared origin of both skin and the eyes.[7] This undoubtedly suggests that the eye conditions are intricately connected to the skin conditions through an immune-mediated mechanism. The histology of the skin unquestionably resembles that of the eyes, especially when psoriatic lesions are observed on the eyelids.[8,9]

Ocular manifestations of psoriasis include blepharitis, dry eye disease, conjunctivitis, scleritis, episcleritis and uveitis. Ocular problems are even caused due to the treatment used for psoriasis. These may affect the quality of life and lead to sight-threatening complications.

In 1976, Lambert and Wright observed that individuals with psoriasis also had ocular inflammation, including conjunctivitis, iritis, and psoriatic arthritis.[10]

HLA B27 positivity is linked to psoriatic arthritis, an inflammatory, seronegative spondyloarthropathy (SPA) that affects 10 to 25% of people.[11,12] It often manifests as uneven oligo arthritis and has been

observed in as many as 30% of individuals with psoriasis.[13] Psoriatic arthritis and other HLA-B27 spondyloarthropathies are known to be associated with uveitis.[13,14] Uveitis, the ocular manifestation of psoriatic arthritis, is a severe and recurring condition.[13,14] Most clinicians are familiar with this finding as it is a severe ocular manifestation that, if not promptly treated, can result in permanent vision loss.

It's crucial to conduct thorough examinations and screenings for both symptomatic and asymptomatic patients. This can help prevent vision-endangering complications, and also enable early detection and treatment of any ocular conditions.

Objectives: To Assess the frequency of ocular manifestations in patients with psoriasis.

To study various eye manifestations in patients with psoriasis.

MATERIALS AND METHODS

This case-control study was conducted after receiving approval from the institutional ethics committee. This study was conducted between January 2021 to August 2022. Patients diagnosed with psoriasis at the dermatology department of NRI Medical College were evaluated for ocular manifestations at the ophthalmology department of the same institution. The study involved 100 individuals over time, with a total of 200 eyes being examined. The patients were informed about the significance of undergoing an ocular examination. We thoroughly explained the evaluation procedures and obtained informed consent from all the patients. All Psoriasis patients who are willing to participate are included in the study. Patients who are receiving PUVA therapy or have any other systemic diseases such as diabetes, hypertension, and bronchial asthma and with similar ocular findings are ineligible to participate in the clinical trial. The participants' data included their age, gender, duration, and clinical type of psoriasis, and the current treatment. The degree of skin involvement was assessed using the psoriasis area and severity index (PASI), if a score of 10 or higher indicates moderate to severe disease.[15] Normal vision was defined as having a visual acuity of 0.66 or higher.[19] Complete ophthalmological evaluation was done in all the patients. Visual acuity recording was done with Snellen's charts, slit lamp examination, fundus examination with 90D lens, intraocular pressure measurement by Non-Contact Tonometry. Dry eye disease evaluation was done by SCHIRMER'S test and tear break up time. Glaucoma evaluation was done with gonioscopy, automated perimetry, optic disc evaluation by direct ophthalmoscopy, slit lamp bio microscopy with 90D Lens and applanation tonometry.

Ocular Procedures

Dry Eye Evaluation

Schirmer's test:

Schirmer's, I test measures the total tear secretion. It is performed with a Whatman 41 filter paper placed in the lower fornix. Patient is instructed not to blink. After five minutes, reading was taken from the wetting on the filter paper. Normal values are more than 15mm.Any reading less than 10mm are considered as DRY EYE DISEASE(DED). 5-10 mm is moderate dry eye, less than 5mm is severe dry eye.

Tear film break up time (TBUT)

TBUT:1%Flourescein stain is instilled in the eye, tear film break up time is noted under cobalt blue light of slit lamp. Interval between a blink and appearance of a dry spot is noted under the cobalt blue filter in the slit lamp. Normal range is 15- 35 seconds. Values of less than 10 seconds is considered as abnormal.

Statistical Analysis

The chi-square test will be used to compare categorical variables, and the t-test will be used to compare continuous variables.

By utilizing the method of logistic regression, we will assess the correlation between ocular findings and factors such as nail involvement, age, sex, duration of psoriasis, PASI score, presence of psoriatic plaques on the eyelid, and psoriatic arthritis.

Individual statistical analyses for the right and left eyes will be carried out.

RESULTS

The study included a total of 100 patients. The age distribution ranges from 11 to 73 years, with an average age of 45.71 years. 42% of the study population were females and 58% were males. Male to female ratio 29:21(table 1). Chronic plaque psoriasis was 69%, scalp involvement was seen in 7% and nail involvement in 12%patients, joint involvement in 5% of patients (table 2).

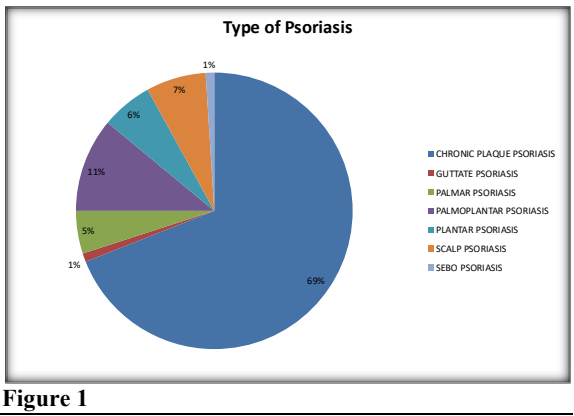

Figure 1

Table 1

Age	Fi	%
10-19	4	4
20-29	7	7

30-39	24	24
40-49	22	22
50-59	19	19
60-69	20	20
70-79	4	4
Total	100	100

There is significant Association between Age and Complications in both Right and Left Eye with p values 0.001 & 0.2 respectively.

Table 2

Age	Fi	%
FEMALE	42	42
MALE	58	58
Total	100	100

In this study, there is no association between complications and gender.

Table 3

Type of Psoriasis	Fi	%
CHRONIC PLAQUE PSORIASIS	69	69
PALMOPLANTAR PSORIASIS	11	11
SCALP PSORIASIS	7	7
PLANTAR PSORIASIS	6	6
PALMAR PSORIASIS	5	5
SEBO PSORIASIS	1	1
Total	100	100

Table 4: Side of injury

Duration in months	Fi	%
≤12	70	70
13-60	20	20
61-120	6	6
121-180	4	4
Total	100	100

Table 5

Nail involvement	Fi	%
No	88	88
Yes	12	12
Total	100	

Table 6

PSORIATIC ARTHRITIS	Fi	%
No	95	95
Yes	5	5
Total	100	100

Table 7

PASI SCORE	
Mean	1.095
Standard Deviation	9.17
Median	9.12
Range	0.2- 38.4
IQR	3.9-14

Complications were similar in this class intervals of PASI Score.

Table 8

Eye complications	Right Eye	Left Eye
Present	38	36
Non Present	62	64
Total	100	100

Table 9: Right Eye Complications

Right Eye Complications				
Sex	**No**	**YES**	**Total**	Chisquare value- 1.61 P -value - 0.20 No Significant association found between gender and complications in right eye
FEMALE	23	19	42	
MALE	39	19	58	
Total	62	38	100	

Dynamic Hip Screw fixation required significantly less fluoroscopic time as compared to Proximal Femur Nailing.

Table 10

Right Eye Complications				
Duration of Psoriasis	**No**	**YES**	**Total**	Chisquare value- 1.43 P -value - 0.48 No Significant association found between duration and complications in right eye
≤ 12	46	24	70	
13-60	11	9	20	
61-120	2	4	6	
121-180	3	1	4	
Total	62	38	100	

There is increase in incidence in duration, whereas last class interval such as 121 to 180 months duration, there is decrease in incidence is observed. But statistical significance is not found between duration and the complications.

Table 11

Right Eye Complications				
PACI SCORE	**No**	**YES**	**Total**	Chisquare value- 1.09 P -value - 0.77 No Significant association found between PACI score and complications in right eye
0.2-10.2	33	24	57	
10.2-20.2	19	9	28	
20.2-30.2	7	3	10	
30.2-40.2	3	2	5	
Total	62	38	100	

Table 12

LEFT Eye Complications				
Age	**No**	**YES**	**Total**	Chisquare value- 5.39 P -value - 0.02 Significant association found between age complications in left eye
10-19	3	1	4	
20-29	6	1	7	
30-39	18	6	24	
40-49	15	7	22	
50-59	14	5	19	
60-69	6	14	20	
70-79	2	2	4	
Total	64	36	100	

In Left Eye, 50% of complications are observed between 61 to 120 months, while the other 50% are observed between 121 to 180 months.

Table 13

LEFT eye Complications				Chisquare value- 0.62 P -value - 0.42 No Significant association found between gender and complications in left eye
Sex	**No**	**YES**	**Total**	
FEMALE	25	17	42	
MALE	39	19	58	
Total	64	36	100	

Table 14

LEFT Eye Complications				
Duration of Psoriasis	**No**	**YES**	**Total**	Chisquare value- 1.94 P -value - 0.37 No Significant association found between duration and complications in left eye
≤ 12	44	26	70	
13-60	15	5	20	
61-120	3	3	6	
121-180	2	2	4	
Total	64	36	100	

There is increase in incidence of complications with duration; but whereas statistically significant association is not found between duration of psoriasis and complications

Table 15

LEFT Eye Complications				
PACI SCORE	**No**	**YES**	**Total**	Chisquare value- 3.01 P -value - 0.38 No Significant association found between PACI score and complications in left eye
0.2-10.2	33	24	57	
10.2-20.2	21	7	28	
20.2-30.2	6	4	10	
30.2-40.2	4	1	5	
Total	64	36	100	

There were significantly better mean post-operative range of movement in PFN than DHS with 84.25 degree mean in DHS group and 98.75 degree mean in PFN group.

Table 16

Duration	Right Eye	Left Eye	Right Eye	Left Eye
Complications	Present		Not Present	
Mean	24.68	23.8	21.58	22.18
Stnadard Deviation	40.43	43.41	38.95	37.21
Median	6	5.5	6	6
Minimum	1	1	1	1
Maximum	180	180	180	180

Table 17

Age	Right Eye	Left Eye	Right Eye	Left Eye
Complications	Present		Not Present	
Mean	53.57	52.44	41.75	42.76
Stnadard Deviation	12.9	14.51	13.63	13.36
Median	55.5	57	40.5	44
Minimum	16	16	11	11
Maximum	71	71	73	73

P = 0.012 S

Table 18

Complications	Right Eye	Left EYE	Total
Arcus-seinisius	17	16	33
PSUDOPHAKIA	8	8	16
Dry eyes	4	5	9
Complicated Cataract	4	0	4
BLEPHARITIS	3	3	6
Ptergium	3	2	5
UVEITIS	2	3	5
Pinguecula	2	0	2
Glucoma	1	2	3
Corneal Opacities	0	1	1
Corneal degen	0	0	0
Total	44	40	84

Table 19

PASI Score	Right Eye	Left Eye	Right Eye	Left Eye
Complications	Present		Not Present	
Mean	10.41	9.8	11.28	11.59
Stnadard Deviation	9.18	8.53	9.22	9.52
Median	8.8	8.2	9.2	9.6
Minimum	0.2	0.2	1	1
Maximum	38.4	33.7	36.3	38.4

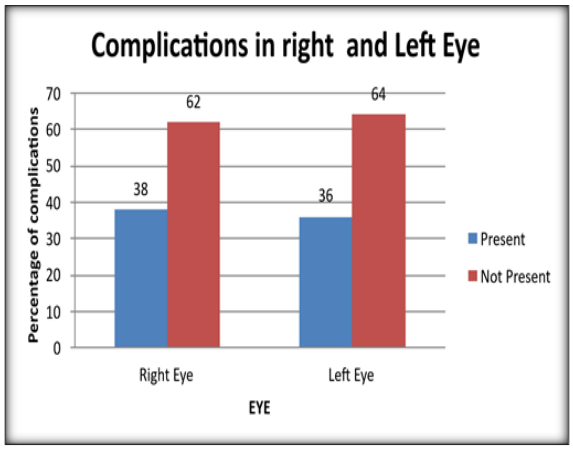

Figure 2

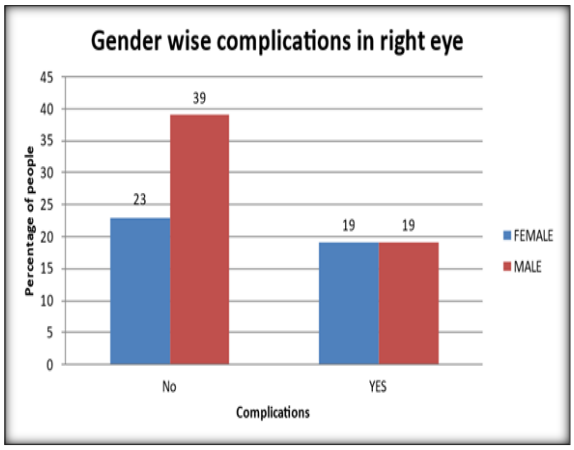

Figure 3

DISCUSSION

The patients in our study are between the ages of 10-79, with an average age of 45.7 years. Men comprised the majority of the study's subjects. Our findings, which were consistent with those of Chandran et al,[11] and Aditya Maitray,[17] showed that the mean

age was 44±12 years, with a male preponderance, and 46.8± 11.65 years, ranging from 18-68 years.

The results were in concurrence with a study by Ankita Singh et al18; which found that there was no statistically significant correlation between the duration of psoriasis and ocular symptoms.

In our study, we found a strong positive correlation between the duration of the disease and PASI values. This is in line with previous studies conducted by Ghalamkarpour et al,[19] and Chandran NS et al,[11] also reported that ocular findings significantly correlated with PASI scores and disease duration. Patients diagnosed with blepharitis typically have low PASI scores in a study by Maria-Magdalena,[20] while patients diagnosed with keratitis generally show moderate to severe PASI scores.[20] Contrary to expectations, a study conducted in 2013 on a sample of 100 psoriasis patients found no notable connection between severe psoriasis cases and eye lesions.

As a result, it is recommended that all patients undergo ophthalmological evaluation in order to establish a precise diagnosis.[20]

In our research, there was no discernible correlation between nail involvement and ocular results. On the other hand, no significant correlation was found between nail involvement and ocular results, despite Brooks UK's,[21] early hypothesis that nail involvement could predict ocular involvement in psoriasis.

For our patients, we were unable to determine the predictive value of arthropathy for ocular involvement. Our research suggests that it is important to pay special attention to the involvement of the cornea in individuals with psoriasis.

The most commonly found presentation in this study (69%) was plaque psoriasis, which was compatible with results of Anjali Kharolia et al,[22] study.

However, other forms of ocular involvement, such as dry eye syndrome, blepharitis, uveits, complicated cataract, and glaucoma, have been more common in older patients. These findings are consistent with this study conducted by Zeinab Aryanian,[23] et al.

In the studies conducted by Kilic B et al,[24] and Erbagcil et al,[25] dry eye syndrome and blepharitis were identified as the most common ocular findings in the patients with psoriasis. These results are consistent with the findings in our study.

CONCLUSION

The eye symptoms of psoriasis were found to be % in this research. We did not find any statistically significant correlation between the duration of disease and the presence of ocular symptoms. In patients with a PASI score of 10 or higher, ocular manifestations were more prevalent. Our study found that blepharitis, dry eye, and uveitis are the most common eye symptoms among psoriasis patients. Patients with psoriasis should have their eyes checked regularly to catch any signs of progression that might otherwise go undetected and to help with the early diagnosis and treatment of any eye problems that may arise.

Limitations of the Study: This study has certain limitations because it was carried out in a dermatology clinic, where the majority of the patients had previously undergone psoriasis treatment before having their eyes examined. This might have made the ophthalmological results less significant. Second, patients who might have had an impact on the outcome were left out due to the broad exclusion criteria.

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Conflicts of Interest: None

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