

ORIGINAL RESEARCH

A hospital-based assessment of the prevalence of ocular manifestations in various types of common skin disorders

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ABSTRACT

Aim: The article aimed to study the prevalence of ocular manifestations in various types of common skin disorders at a tertiary hospital.

Methods: The study is an observational prospective study. The materials for this study were collected from outpatients and inpatients of Ophthalmology and Dermatology Departments at Shri Shankaracharya institute of medical sciences. Different types of skin diseases were seen, Five were studied in detail. 50 patients were included in the study, within a time period of 6 month from October 2021 to April 2022.

Results: Of the 50 patients that were included in our study, 6 (12%) had Neurofibromatosis type-1, 12 (24%) patients had Psoriasis, 10 (20%) patients had Stevens-Johnson syndrome, 7 (14%) patients had Herpes zoster ophthalmicus and 15 (30%) patients had Cicatricial pemphigoid. Of 15 patients with Neurofibromatosis Type 1, 7 (46.66%) were males and 8 (53.34%) were females. Among the 15 patients with Neurofibromatosis Type 1, 3 (20%) patients belonged to the age group of <20 years. Out of the 12 patients with psoriasis, 7 (58.34%) patients were males and 5 (41.66%) patients were females. Of the 12 patients with Psoriasis, the commonest age group affected was 21-40 years. Out of 10 patients with Stevens-Johnson Syndrome, 6 (60%) patients were males and 4 (40%) patients were females. Out of 10 patients, 6 (60%) belonged to 21-30 age group. Out of 6 patients with Ocular Cicatricial Pemphigoid, 4 (66.66%) patients were males and 2 (33.34%) patients were females. Out of 10 patients, 4 (66.66%) belonged to >60 years the age group.

Conclusion: We concluded that ocular involvement in skin disease is common feature and could be the major component for the development of various systemic skin disorders.

Key words: Lagophthalmos, skin diseases, psoriasis, neurofibromatosis, acne, HSV, HZO, prevalence, ocular manifestations

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INTRODUCTION

There is a rising magnitude of skin diseases worldwide.¹ These disorders range from simple acne to some serious ones like Toxic epidermal necrolysis & Paraneoplastic pemphigus.^{2,3} The pattern of skin diseases in a certain area is dependent upon a number of factors such as geographical location, genetics, living standards, nutrition and the social practices.¹⁻³ Although mortality caused by skin diseases is not significant but its effect on the overall

quality of life & psychological health of the patients is profound.³⁻⁵ Many a times cutaneous manifestations are the sole representation of a patient's internal disease prompting him to see a doctor thus leading to diagnosis and treatment of the original cause. Improvements in the overall hygienic standards, public awareness and a balanced diet can help in reducing the incidence of skin diseases in an area.^{1,2,4,6} Ocular involvement in skin disease is a common feature and could be a component of systemic disease

as well. The spectrum of involvement of the eye is varied and is largely, dependent on the dermatological disease. This overlap needs to be examined to throw further insight on the nature of the problem as both the Ophthalmologist and Dermatologist could work in concurrence, treating the same dermatological diseases causing ocular involvement which could be due to infections or autoimmune diseases.⁷

Herpes simplex virus (HSV) type 1 causes ocular manifestations like herpes keratitis, stromal keratitis, iridocyclitis, and acute retinal necrosis in older patients leading to visual impairment. Conventionally, the diagnosis of HSV keratitis is based on a history of recurrent keratitis, as well as typical clinical manifestations in the infected eye.⁸ Primary herpetic infection is found in non-immune persons. The primary infection may take a mild or a fatal course if encephalitis develops. The disease may cause mild fever, malaise, and non-suppurative preauricular lymphadenopathy. The infection remains subclinical in affected persons. Reactivation of the virus occurs following poor general body resistance in conditions like debilitating diseases, stress, use of corticosteroids and immunosuppressive agents. In Tomaet *al.* study, HSV-1 DNA was found in 93% of human trigeminal ganglia.⁹ Ocular rosacea is a chronic inflammatory condition that affects the skin and oil glands. Meibomian glands in the eyelid, which produce the oil component of the tear film, are affected in rosacea. Ocular manifestations include chronic red eyes, styes, chalazion, and severe photophobia. Patients can develop infiltrative marginal keratitis and scarring of the cornea. It involves more than 50% of patients with dermatology diseases.¹⁰ Neurofibromatosis (NF) is a type of phacomatosis with a genetic abnormality that affects neural tissue growth and affects the nervous system, skin, eyes, and other organs. Genetic abnormalities are either passed on by parents or occur spontaneously at conception. NF is divided into two primary subgroups: type 1 (NF1) Peripheral neurofibromatosis and type 2 (NF2) Central neurofibromatosis. Eyelid neurofibroma is a type of phacomatosis where progressively fast-growing lid tumor tends to develop early in younger age groups, obscures the visual axis, and eventually affects the vision of the patient.

The article aimed to study the prevalence of ocular manifestations of the various types of common skin disorders at a tertiary hospital.

Materials and Methods

The study is an observational prospective study. The materials for this study were collected from outpatients and inpatients of Ophthalmology and Dermatology departments. Different types of skin diseases were seen, five were studied in detail. 50 patients were included in the study from a time period of October 2021 to April 2022.

Methodology

A preliminary ophthalmic examination was carried out with oblique illumination and slit lamp to assess the ocular involvement. External deformities and adnexal involvement were noted. Extra ocular movements were assessed in all patients followed by a detailed examination using Slit lamp. Examination comprised of evaluation of the anterior segment, vitreous and posterior segment. Indirect ophthalmoscopy and Slit lamp Biomicroscopy was performed on all patients to examine for retinal involvement. Intraocular tension was recorded with Goldmannapplanation tonometer. Other investigations like corneal staining and gonioscopy was done wherever situation required. Fundus photographs were taken if retinal involvement was present. Conservative (medical) management for the patients with ocular involvement was advised. Conservative management included topical cycloplegics, topical steroids, topical antibiotics artificial tears and taping of lids.

Results

Table 1: Distribution of Skin Disorders

Primary diagnosis	N	%
Neurofibromatosis	15	14%
Psoriasis	12	24%
Stevens-Johnson Syndrome	10	20%
Herpes Zoster Ophthalmicus	7	30%
Ocular Cicatricial Pemphigoid	6	12%

Of the 50 patients that were included in our study, 15 (30%) had Neurofibromatosis type-1, 12 (24%) patients had Psoriasis, 10 (20%) patients had Stevens-Johnson syndrome, 7 (14%) patients had Herpes zoster ophthalmicus and 6 (12%) patients had cicatricial pemphigoid.

Table 2: Sex and age distribution in patients with Neurofibromatosis Type 1

Sex	N	%
Male	7	46.66
Female	8	53.34
Age groups		
<20 years	3	20
21-30 years	7	46.66%
41-60 years	4	26.66%
>60 years	1	6.66%

Of 15 patients with Neurofibromatosis Type 1, 7 (46.66%) were males and 8 (53.34%) were females. Among the 15 patients with Neurofibromatosis Type 1, 3 (20%) patients belonged to the age group of <20 years, 7 (46.66%) patients belonged to the age group 21-30 years, 4 (26.66%) patients belonged to the age group of 41-60 and 1 (6.66%) patient was >60 years of age.

Table 3: Sex and age distribution in patients with Psoriasis

Sex	N	%
Male	7	58.34
Female	5	41.66
Age groups		
<20 years	1	8.34
21-30 years	7	58.34
41-60 years	3	25
>60 years	1	8.34

Out of the 12 patients with Psoriasis, 7 (58.34%) patients were males and 5 (41.66%) patients were females. Of the 12 patients with Psoriasis, the commonest age group affected was 21-40 years.

Table 4: Sex and age distribution in patients with Stevens-Johnson Syndrome

Sex	N	%
Male	6	60
Female	4	40
Age groups		
<20 years	1	10
21-30 years	6	60
41-60 years	3	30
>60 years	-	-

Out of 10 patients with Stevens-Johnson Syndrome, 6 (60%) patients were males and 4 (40%) patients were females. Out of 10 patients, 6 (60%) belonged to 21-30 age group.

Table 5: Sex and age distribution in patients with Herpes Zoster Ophthalmicus

Sex	N	%
Male	5	71.43
Female	2	28.57
Age groups		
<20 years	1	14.28
21-30 years	4	57.14
41-60 years	2	28.57
>60 years	-	-

Out of 7 patients with Herpes Zoster Ophthalmicus, 5 (71.43%) patients were males and 2 (28.57%) patients were females. Out of 10 patients, 4 (57.14%) belonged to 21-30 age group.

Table 5: Sex and age distribution in patients with Ocular Cicatrical Pemphigoid

Sex	N	%
Male	4	66.66
Female	2	33.34
Age groups		
<20 years	-	-
21-30 years	-	-
41-60 years	2	33.34
>60 years	4	66.66

Out of 6 patients with Ocular Cicatrical Pemphigoid, 4 (66.66%) patients were males and 2 (33.34%) patients were females. Out of 10 patients, 4 (66.66%) belonged to >60 years the age group.

Table 6: Eyelid and conjunctival findings in dermatology diseases

Eyelid finding	Steven Johnson's syndrome (SJS)	Ocular Cicatrical Pemphigoid	Psoriasis	Herpes zoster Ophthalmicus (HZO)	Neurofibromatosis(NF)
Blepharitis	0	0	0	1	0
Chalazion	0	0	0	0	0
Crusting	8	0	0	0	0
Ectropion	0	0	0	0	0
Lagophthalmos	0	0	0	0	0
MGD	0	0	0	0	0
PlexiformNF	0	0	0	0	4
Scarring	0	0	0	1	0
Stye	0	1	0	1	0
Vesicles	0	0	0	3	0
Normal	2	5	12	1	11
Total	10	6	12	7	15
Conjunctival Findings					
Allergic kerato conjunctivitis	0	0	0	0	0
Conjunctivalxerosis	0	2	9	0	0
Conjunctivitis	1	0	0	2	0
Papillary conjunctivitis	0	0	0	0	0
Pseudomembrane	7	0	0	0	0
Normal	2	4	3	5	15
Total	10	6	12	7	15

In our study, scarring was seen in 1 HZO patients. 7 patients with Steven Johnson's syndrome (SJS) had

pseudo membrane. Two patients with Psoriasis had Conjunctival xerosis.

Table 7: Cornea and uvea findings in dermatology diseases

Corneal findings	Steven Johnson syndrome (SJS)	Ocular Cicatrical Pemphigoid	Psoriasis	Herpes zoster ophthalmicus(HZO)	Neurofibromatosis(NF)
Decreased					
Corneal	0	0	0	0	0
Sensation					
Epithelial					
keratitis,	0	0	0	0	0
Endotheliitis					
Endotheliitis	0	0	0	1	0
Epithelial keratitis	0	0	0	1	0
Epithelial					
keratitis, Hutchison's	0	0	0	1	0
Sign					
KPs	0	0	0	1	0
Megalocornea	0	0	0	0	0
Opacification	2	0	0	0	0
Stromal keratitis	0	0	0	1	0
Normal	8	6	12	2	15
Total	10	6	12	7	15
Uveal Findings					
Anterior uveitis	0	0	0	2	0
Heterochromia	0	0	0	0	0
Iris pearls	2	0	0	0	0
Lisch nodules	0	0	0	0	12
Normal	8	6	12	5	3
Total	10	6	12	7	15

In our study, keratitis was seen in 1 HZO patient. Anterior uveitis was seen in 2 patients with HZO, while Lisch nodules were seen in 12 patients with NF.

Discussion

Dermatology disorders can have numerous ocular manifestations. Common dermatological disorders can manifest with mild to severe ocular manifestations that can result in ocular damage, and sometimes it can even cause vision loss. Dermatology patients are prescribed long-term medications like steroids, hydroxychloroquine, retinoic acid, immunosuppressive agent, which can cause indirect side effects on the eyes and is one of the leading causes of ocular manifestations in dermatology patients. So thorough examination, Ophthalmological referral, and long-term follow-up of Dermatology patients are paramount important. The early detection of the clinical relationship between Ocular manifestations and Dermatological disease is important for the proper management of the patient because many Dermatology diseases can manifest initially with ocular findings.

Of 15 patients with Neurofibromatosis type 1, 7 (46.66%) were males and 8 (53.34%) were females. In

a study done by Husonsm and Harper, there was a slight female preponderance.¹¹ This is in contrast to a study conducted by Odebode, in which there was a definite male preponderance affecting 60 males and 38 females with a total of 98 patients.¹² Among the 15 patients with Neurofibromatosis type 1, 3 (20%) patients belonged to the age group of <20 years, 7 (46.66%) patients belonged to the age group 21-30 years, 4 (26.66%) patients belonged to the age group of 41-60 and 1 (6.66%) patient was >60 years of age. On comparing this with the study done by Genet *et al*, the commonest age group affected was > 20 years of age.¹³

Out of the 12 patients with psoriasis, 7 (58.34%) patients were males and 5 (41.66%) patients were females. This finding was found to be in concordance with a German study done by Henseler *et al*,¹⁴ where the ratio 1.74:1. Smith AE also noted the male preponderance.¹⁵ Of the 12 patients with psoriasis, the commonest age group affected was 21-40 years. Farber and Nall¹⁶ found that the average age of onset was 28 years, while in the study on psoriasis done in China by YuiYie,¹⁷ the average age onset was 36 years. In a recent U.K based study done by Nevitt and Hutchinson,¹⁸ the mean age of onset was 3 years with

the mode in the second decade, This is in contrast to a study done by Lomholt¹⁹ who reported the average age of onset as 12 years. This finding is similar to the study reported earlier.²⁰ Among the 12 patients with psoriasis, in our study, we found Conjunctivitis to be the most common manifestation seen in patients. Catsaru-Catsariet *al.* found that Blepharoconjunctivitis was the most common ocular manifestation of psoriasis.²¹

Out of 10 patients with Stevens-Johnson Syndrome, 6 (60%) patients were males and 4 (40%) patients were females. We found a male preponderance in our study. This is in concordance with the study done by Letkoet *al*²² in 2005 in which they noted a clear male dominance. Out of 10 patients, 6 (60%) belonged to 21-30 age group. The study done by Kompella also found that majority of the Patients (55.78%) was between 20 and 40 years of age.²³ 7 patients with Stevens-Johnson Syndrome had pseudo membrane. Cicatricial ectropion was found in half of the patients with ichthyosis.²⁴

Out of 7 patients with Herpes Zoster Ophthalmicus, 5 (71.43%) patients were males and 2 (28.57%) patients were females. This found to be in concordance with a study done by Dubey *et al* in 2005 in South India where the ratio was 1.84:1.²⁵ Chaudhary, Sehgal, Nigarn and Mathur also noted this, male preponderance.²⁶⁻²⁸ Out of 10 patients, 4 (57.14%) belonged to 21-30 age group. Out of 6 patients with Ocular Cicatricial Pemphigoid, 4 (66.66%) patients were males and 2 (33.34%) patients were females. Similar findings were seen in a study done by Egan CA and Yancey KB in which they had found a female to male ratio of 2.6:1.²⁹ This is in contrast to a study done by John Chang & Peter in 2005, in which there was only a slight female preponderance.³⁰ Out of 10 patients, 4 (66.66%) belonged to >60 years the age group. Similar findings were noted by John H chang & peter J mc Cluskey in their study.³¹ In our study, anterior uveitis was seen in 2 patients with HZO. Herpetic anterior uveitis was the most common cause of viral anterior uveitis accounting for 5-10% of all uveitis cases in the western world and 0.9-8.3% of all infectious uveitis in India.³²

Conclusion

We concluded that Ocular involvement in skin disease is common feature could be major component for the development of various systemic skin disorders. Viral skin diseases are common and potentially devastating diseases that demonstrate significant ophthalmic morbidity if not adequately diagnosed and treated. As the majority of dermatological diseases are associated with ocular features, complete ocular evaluation is necessary for every patient with dermatological disease.

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