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Original Research Article

Spectrum of Periorbital Dermatoses in Central India: Unique Observations

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Abstract:

Background: Periorbital dermatoses are the dermatological manifestations involving area around the eyes. Although these are commonly encountered conditions but sometimes it becomes challenging to diagnose them due to similar clinical presentation and worrisome for the patients since this area is cosmetically very important.

Aim: To study clinical pattern and to determine frequency and distribution of periorbital dermatoses in patients presenting in dermatology outpatient department at tertiary care centre.

Methods: This was a hospital based observational descriptive study carried out among 300 patients with skin lesions affecting periorbital region irrespective of their age & gender attending Dermatology outpatient department between January 2021 to June 2022.

Results: Periorbital pigmentary disorders were the most common periorbital dermatoses seen in 74 (24.66%) cases and periorbital skin tumours in 67 (22.33%) cases, followed by periorbital infections in 48 (16%), periorbital dermatitis in 38 (12.6%) and disorder of pilosebaceous and sweat gland in 16 (5.3%) cases.

Conclusion: Most frequent condition encountered in this study was perorbital pigmentary disorders, which was distinctive observation compared to contemporaneous researches which describe periorbital skin tumors to be commonest entity. Our study may help clinician to enhance their understanding about patterns of periorbital dermatoses in central India and thus to focus on availability and execution of various medicinal and procedural modalities targeted to deliver best possible therapeutic and cosmetic outcome.

Keywords: Periorbital dermatoses, pigmentation, tumors, infections.

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Introduction

The periorbital area is a complex region having a three-dimensional anatomy as well as function and eyes are the most important aesthetic unit showing youthfulness and robustness of an individual. Periorbital dermatoses are the dermatological manifestations involving area around the eyes.[1]

Periorbital dermatoses are often multifactorial in origin and may serve as an indicator of underlying systemic diseases and can aid in early diagnosis & treatment of the conditions.[2] The periorbital area may present with various conditions like wide range of infections, different non-infectious diseases like inflammatory dermatoses, benign and malignant diseases, traumatic lesions, adverse drug reactions and disorders of pigmentation. These are commonly encountered conditions but sometimes it is challenging to diagnose them due to similar clinical presentation and also worrisome for the patients since this area has easy visibility, making it cosmetically distressing to them. Due to limited studies available in the last few years in central India as well as increasing aesthetic concern in population of various races and ethnicity, present study would be useful to investigate current trends of clinical pattern of periorbital dermatoses.

Subjects and Methods

This was a hospital based observational descriptive study carried out among 300 patients with skin lesions over periorbital region irrespective of their age & gender attending dermatology outpatient department between January 2021 to June 2022 after taking approval from institutional ethical committee.

Non consenting patients and patients having periorbital lesions due to trauma, burns, age related wrinkling and laxity were excluded.After taking informed written consent, patients were enrolled in

the study. All the details were noted in predesigned proforma.

Routine investigation such as complete blood analysis, liver and renal function tests, complete urine examination & other laboratory and specific investigations including KOH mount, wood's lamp examination, dermoscopic evaluation and skin biopsy were done wherever necessary to further establish diagnosis.

Data entry and analysis were done in Excel sheet version 2016 and SPSS version 25. Collected data was tabulated and described in terms of descriptive statistics, frequency, mean, standard deviation and percentages were calculated. The statistical analysis for association among these parameters were determined using the Chi square test and ANOVA was used to find relation between age and periorbital dermatoses.

Results

Table 1: Frequency of various periorbital dermatoses in study population

Periorbital Dermatoses	Male	Female	Total	Percentage
Periorbital Pigmentary Disorders	22	52	74	24.66%
Periorbital Skin Tumors	30	37	67	22.33%
Periorbital Infections	24	24	48	16%
Periorbital Dermatitis	22	16	38	12.66%
Disorder of Pilosebaceous & Sweat Gland	7	9	16	5.33%
Periorbital Nevi &Nevoid Conditions	06	07	13	4.33%
Autoimmune & Related Disorders	3	9	12	4%
Metabolic Disorder	2	5	7	2.33%
Cutaneous Adverse Reactions	3	2	5	1.66%
Disorder of Abnormal Vascular Response	1	3	4	1.33%
Autoimmune Bullous Disorders	1	2	3	1%
Papulosquamous Disease	1	1	2	0.66%
Genodermatoses	2	0	2	0.66%
Miscellaneous	5	4	9	3%

Table 2: Relationship between age and various periorbital dermatoses (by one way ANOVA test)

Classification	N	Mean	SD	P Value
Periorbital skin tumors	67	42.29	15.63	<0.001(significant)
Periorbital pigmentory disorders	74	30.67	11.89	
Periorbital infections	48	26.97	14.10	
Periorbital dermatitis	38	36.76	20.56	
Disorder of sebaceous & sweat gland	16	30.06	13.86	
Periorbital nevi &nevoid conditions	13	21.31	12.93	

Table 3: Frequency and Gender Distribution of Various Periorbital Pigmentary Disorder

Periorbital Pigmentary Disorders	Male	Female	Frequency	Percentage
Periorbital Hyperpigmentary Disorders (N=54, 73%)				
Periorbital melanosis	6	17	23	31.08%
Melasma	3	8	11	14.86%
Freckles	2	7	9	12.16%
Nevus of Ota	1	3	4	5.40%
Pigmentary demarcation lines	1	2	3	4.05%
Lichen planus pigmentosus	0	2	2	2.70%
Lentigines	0	1	1	1.30%
Riehl's melanosis	0	1	1	1.30%
Periorbital Hypopigmentary Disorders (N=20, 27%)				
Vitiligo	5	10	15	20.27%
Pityriasis alba	3	1	4	5.40%
Nevus depigmentosus	1	0	1	1.30%
Total	22(29.72%)	52(70.27%)	74	

Table 4: Relationship between age and various periorbital tumors (ANOVA with Bonferroni post hoc test)

S.No.	Periorbital Tumors	N	Mean Age	S.D.	P value
1	Seborrheic keratosis	25	51.96	10.31	0.001 (significant) (Seborrheic Keratosis vs Syringoma)
2	Dermatosis papulosa nigra	12	37.83	12.15	
2	Acrochordon	11	48.81	9.05	
3	Syringoma	10	32.5	9.03	

Table 5: Frequency and Gender Distribution of Various Periorbital infections in study population

Periorbital Infections	Male	Female	Frequency	Percentage
Viral Infections (N=20, 42%)				
Molluscum contagiosum	2	6	8	16.66%
Verruca vulgaris	2	3	5	10.41%
Herpes zoster	2	2	4	8.33%
Varicella	2	1	3	6.25%
Fungal Infections (N=19, 39%)				
Tinea faciei	9	9	18	37.5%
Pityriasis versicolor	1	0	1	2.08%
Bacterial Infections (n=9, 19%)				
Hansen's disease	6	2	8	16.66%
Furuncle	0	1	1	2.08%
Total	24(50%)	24(50%)	48	

Figure 1:

Figure 2:

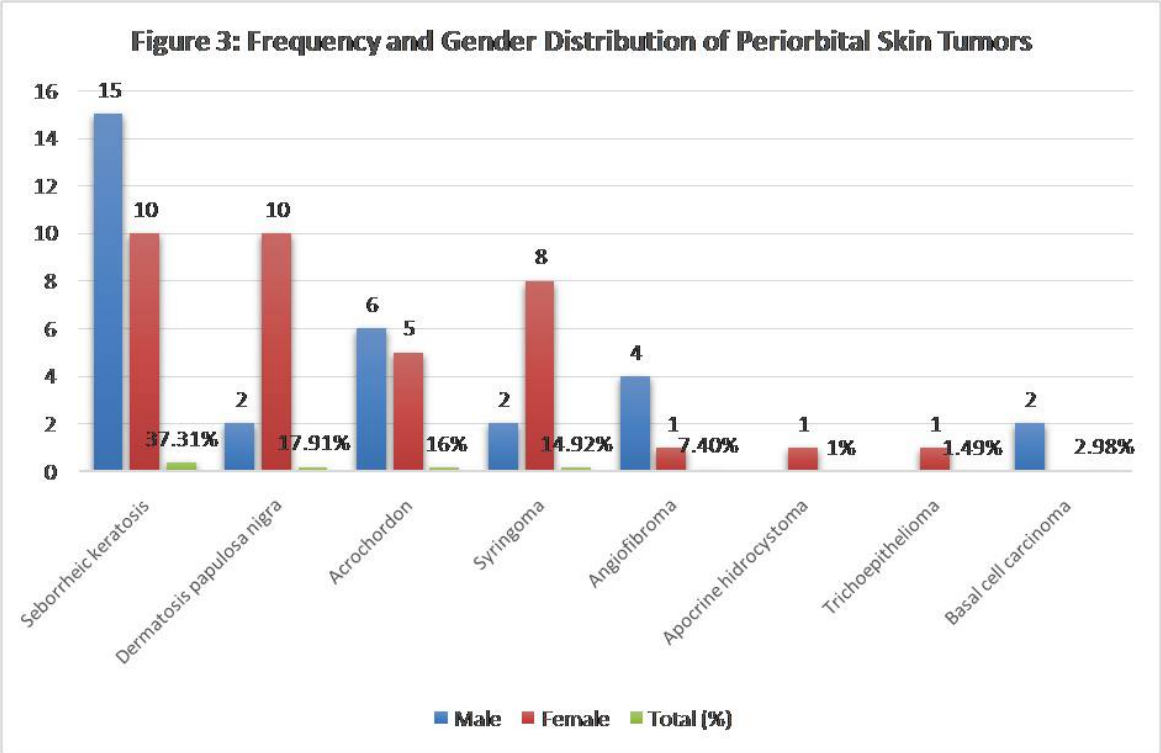

Figure 3: Frequency and Gender Distribution of Periorbital Skin Tumors

Figure 4:

Figure 5:

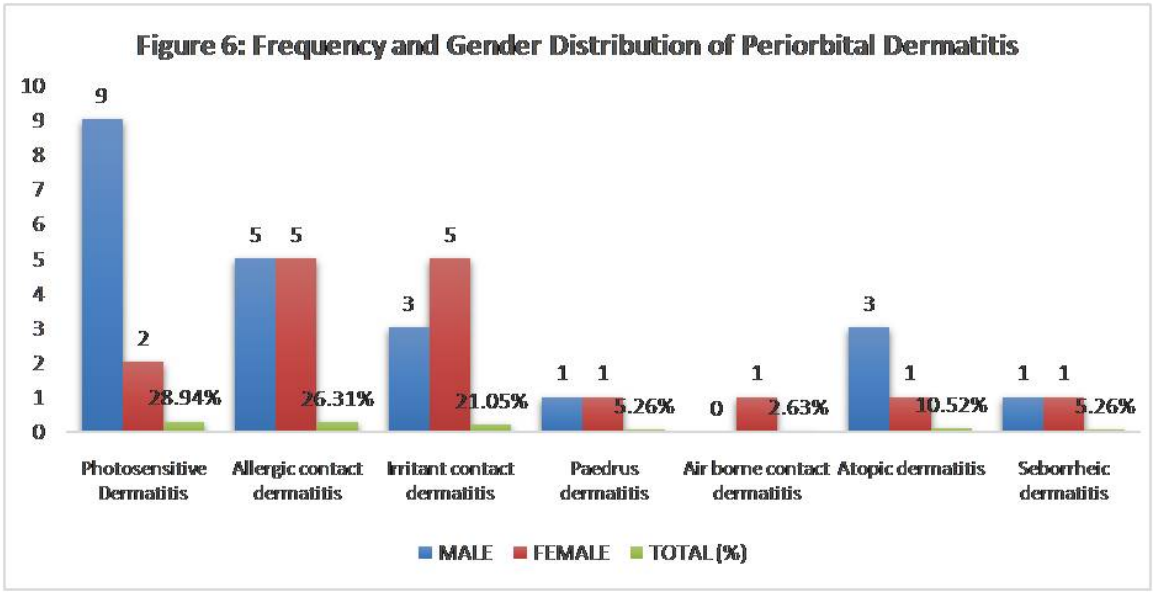

Figure 6: Frequency and Gender Distribution of Periorbital Dermatitis

Figure 7:

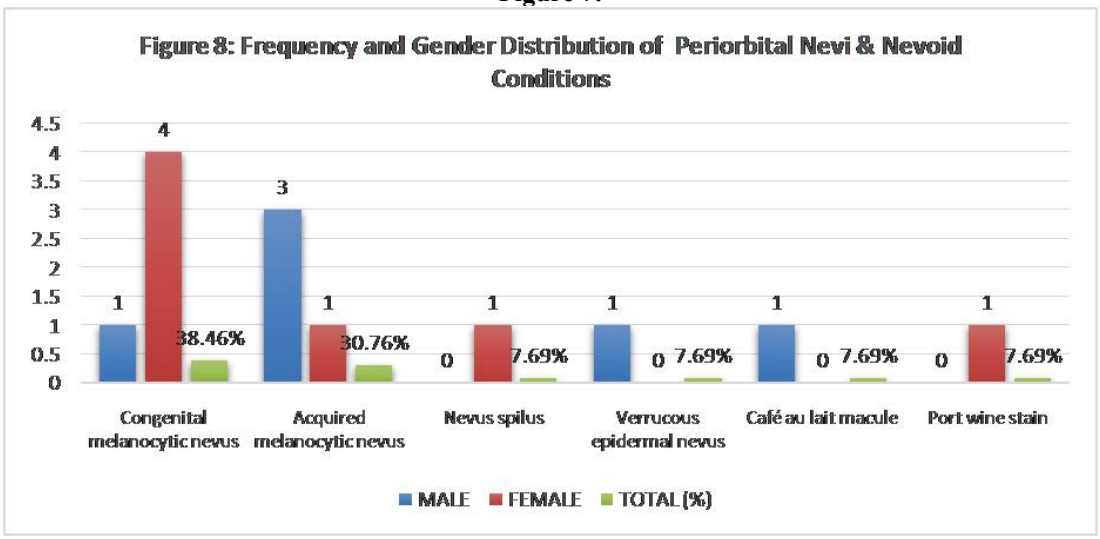

Figure 8: Frequency and Gender Distribution of Periorbital Nevi &Nevoid Conditions

A total of 300 patients with various periorbital dermatoses were included in our study. Among them 130 (43%) were male and 170 (57%) were female with female to male ratio of 1:0.7. The commonest age group affected by periorbital dermatoses was 31-40 years (26%) followed by 41-

50 years (19%) & 21-30 years (17.66%). Although most cases presented asymptomatically (62.33%), commonest symptom was pruritus (in 22.6%). Various periorbital dermatoses encountered in our study are shown in Table1.

In present studyperiorbital skin tumors, periorbital pigmentary disorders, periorbital dermatitis and majority of other diseases were more common in middle and older age group individuals whereas periorbital infections, genodermatoses, periorbital nevi and nevoid conditions were common in younger age group and this difference was statistically significant (p value <0.001) as depicted in Table 2.

Site Distribution

The most affected site was infraorbital crease in 179 (59.66%) cases followed by nasojugal fold in 169 (56.33%) and preseptal area in 138 (46%). The least common affected sites were medial canthus & close proximity in 86 (28.66%) cases and temple area in 91 (30.33%) cases.

Comorbidity associated with periorbital dermatoses.

A total of 44 (14.6%) patients had associated comorbidity in our study and commonest of all was diabetes mellitus (n=16, 5.3%) followed by hypertension (n=12, 4%).

Periorbital Pigmentary Disorders

Periorbital pigmentary disorders were the commonest dermatoses observed in 74 (24.66%) patients. There was female preponderance with female to male ratio of 1:0.4. The most common periorbital pigmentary disorder was periorbital melanosis (27.71%) followed by vitiligo (20.27%) and melasma (14.86%) (Table 3). The majority of patients belong to age group between 31-40 years (48.64%) followed by 21-30 years (18.91%).

Periorbital melanosis (27.71%) was the most common hyperpigmentary disorder with female to male ratio of 1:0.3.(Figure 1)The frequently affected age group was 31-40 years (91.30%). The most commonly affected sites were upper eyelid margin (95.65%) and nasojugal fold (95.65%).

Melasma was the second common periorbital hyperpigmentary disorders with female to male ratio of 1:0.3. (Figure 2) The mean age of patients was 36.09 years. The most common age group affected was 31-40 years (90.90%). The most common periorbital site affected was supraorbital rim area (90.90%) followed by infraorbital crease (72.72%).

Vitiligo was most prevalent hypopigmentary disorder affecting periorbital area with male to female ratio of 0.5:1. Periorbital site involvement was exclusively present in 9 (47.36%) patients. The common periorbital site involved was pretarsal area (80%) followed by pre-septal area (73.33%) and upper eyelid margin (33.33%).

Periorbital Skin Tumours (Figure 3)

Periorbital skin tumours were second common periorbital condition encountered in our study observed in 67 (22.33%) patients with female to male ratio of 1.1:1and commonest age group observed was between 41-50 years (32.83%) followed by 31-40 years (16.41%).

SK was the most frequent benign periorbital skin tumour observed with male to female ratio of 1.5:1. (Figure 4). The most commonly involved site was infraorbital crease (n=23, 92%) followed by nasojugal fold (n=20, 80%) and lateral canthus & close proximity (n=19, 76%). We also observed that SK in periorbital region were more common in obese patients when compared to patients with normal BMI and this difference was statistically significant (P value=0.01 by Chi square test).

DPN followed SK and were commonly found benign periorbital skin tumour in our study. It had female preponderance with female to male ratio of 1:0.2. The mostcommon periorbital site involved was infraorbital crease (n=11, 91.66%) followed by temple area (n=7, 58.33%), nasojugal fold (n=6, 50%) and lateral canthus & close proximity (n=6, 50%).

Acrochordon were most commonly observed in age group between 41-50 years (n=7, 63.63%). The most common periorbital sites involved were infraorbital crease (n=4, 44.44%). Acrochordon in periorbital region were more common in obese patients when compared to patients with normal BMI and this difference was statistically significant (P value=0.01 by Chi Square test).

Syringoma was observed in patients with age group between 21-30 years (n=5, 50%) followed by 31-40 years (n=3, 30%) and 41-50 years (n=2, 20%). The most common periorbital sites involved was medial canthus & close proximity (n=7, 70%) followed by infraorbital crease (n=7, 70%). SK and acrochordon were common in elderly whereas DPN and syringoma were common in middle age group and this difference was statistically significant using ANOVA as given in Table 4.

Periorbital Infections

Periorbital infections (n=48, 16%) were the third commonest periorbital dermatoses encountered in our study. Among which most common were the viral infections (42%) (Figure 5) followed by fungal (39%) and bacterial (19%). The most common age group affected was 21-30 years (25%) with male to female ratio of 1:1. (Table 5).

Molluscum contagiosum was the most prevalent viral infection. The common age group observed was between 1-10 years with female to male ratio of 1:0.3.

The most frequent observed periorbital fungal infection was tinea faciei noted in 18 cases in the current study. The mean age of tinea faciei was 30.27 years with male to female ratio of 1:1.

Hansen's disease was encountered in 8 cases involving periorbital region, the commonest type noted were tuberculoid leprosy and borderline tuberculoid leprosy.

Periorbital Dermatitis (Figure 6)

Exogenous dermatitis (84%) outnumbered endogenous dermatitis (16%) in this study. Most common age group affected by periorbital dermatitis was 51-60 years (18.42%) with male preponderance. (Figure 5). Photosensitive dermatitis was more common in elderly age group and in males when compared to allergic contact dermatitis and irritant contact dermatitis and this difference was statistically significant by ANOVA with Bonferroni post hoc test (P value <0.002).

Disorder of Pilosebaceous & Sweat Gland

Out of 16 patients (5.33%) of disorders of pilosebaceous and sweat glands, the most common disorder encountered was milia (n=11,68.75%). The mean age of milia observed was 27.63 years with female to male ratio of 1:0.5. The most common age group affected was 21-30 years (5) followed by 11-20 years (4).

On the other hand, congenital melanocytic nevus (n=5, 38.46%) was the most frequent nevoid condition observed amongst all periorbital nevi (Figure 7) (Figure 8). Thecommonest autoimmune & related disorder observed was alopecia areata (n=6, 50%) followed by DLE (n=5, 41.66%.) and morphea (n=1, 8.33%). Single patient had alopecia areata over eyebrows and eyelashes as an isolated finding, whereas 5 patients had involvement of both eyebrows and scalp together. Single patient had DLE affecting lower eyelid margin as an isolated finding, whereas rest 4 patients had involvement of periorbital area and other body sites as well. Out of 7 patients of Xanthelasma palpebrum, 2 were overweight (BMI >25) and one female patient had Diabetes mellitus as associated comorbidity. The other less commonly involved periorbital dermatoses were toxic epidermal necrolysis (TEN), drug reaction with eosinophilia and systemic symptoms (DRESS), angioedema, urticaria, pemphigus vulgaris, linear IgA disease, psoriasis vulgaris, generalized pustular psoriasis, xeroderma pigmentosum, Darier's disease, atrophoderma, erythroderma, erythema nodosum leprosum and Parry Romberg syndrome.

Discussion

The periorbital area is prone to a wide array of dermatoses and due to its discernible feature, is a cause of concern to the patients affected. In the present study, females (57%) outnumbered males (43%), since the female population is more concerned about external appearance owing to their higher attendance in dermatology outpatient department when compared to males.

Majority of the patients belong to the age group of 31-40 years (26%), followed by 41-50 years (19%) which is in concordance with the study done by Nalini P et al. where the most common age group was 31-40 years in 22.7% cases.[3] The population belonging to this age group is physically more active and exposed to external damaging factors, making them prone to develop periorbital skin lesions. Furthermore, this age group possess higher concern about their external demeanour urging them to visit dermatologist.

The most common periorbital dermatoses encountered in the present study was periorbital pigmentary disorder (24.66%) followed by periorbital skin tumours (22.3%), this observation was distinctive when compared with the studies done previously.[1,2,3] This difference may be attributed to cumulative commonest age group presented in our study was 31-40 years in 48.64% cases followed by 21-30 years in 18.91% cases which accounted more to periorbital pigmentary disorders whereas periorbital skin tumours were more common in older age groups.

Among patients of periorbital pigmentary disorders, the majority of patients had periorbital melanosis (n=23;27.71%). This is comparable to study done by Besra et al[1]and Nalini et al[3] where periorbital melanosis was present in 64.7% and 57.1% cases respectively, but the study done by Shetty Met al[2] differs as they found melasma predominantly in 44.4% cases. Housewives contributed majority of cases of periorbital melanosis which was similar to study done by PB Seth et al where 81% females and 45.50% housewives were affected[4]. The lifestyle factors like stress, sleep deprivation and hormonal factors like pregnancy & menstruation causing increased superficial vasculature with thin skin overlying eye muscles are crucial determinants for periorbital hyperpigmentation in females, thus increased incidence in them[5]. Strachan et al[6] asserted the genotype is fixed at conception while the phenotype can manifest in adulthood, favouring the penetrance to be age-related which backup our observation as mean age of periorbital melanosis to be 35.08 years. The other possible causes were use of hair dyes and contact or allergic reactions following cosmetic applications leading to post inflammatory hyperpigmentation seen in few cases

in our study. Although the paramount factors causing periorbital melanosis are increased dermal melanin deposition, the individual's anatomical structure and vasculature of the periorbital region[7].

Melasma is pigmentary disorder present over face, with increased incidence amongst females in comparison to males constituting 10% cases[8,9] The increased propensity of melasma in females is accountable by the risk factors associated with female gender like increased estrogen levels during pregnancy, use of OCPs and sun exposure[10].Among various types, malar followed by centrofacialmelasma encountered more often in our study on contrary to study conducted by Tamega Ade A et al on 302 patients, the preferred facial topographic pattern observed was zygomatic (83.8%), labial superior (51.3%) and frontal (49.7%).[11]

Vitiligo (20.27%) was leading hypopigmentary entity affecting periorbital area. Mean age of patients was 19.26 years, with younger individuals of age group 11-30 years (80%) were in majority. This is in concordance with the study of Speeckaert R[12] in which periorbital vitiligo was more common in younger age. Positive family history was present in 4 female patients which is in conjunction with the fact that about 30% of vitiligo patients have positive family history and hence genetic role in causation of vitiligo.[13] The periorbital skin tumour were the second commonest dermatoses encountered in the present study and benign skin tumours outnumbered malignant skin tumours. Although, among benign skin tumours, the most encountered entity was seborrheic keratosis (37.31%) and its variant, dermatosis papulosa nigra (17.91%) similar finding were observed by Bhavsar N et al[14]where they found skin tumours to be the commonest of all periorbital dermatoses (25.1% cases)and out of 275 cases, the most frequent tumour was seborrheic keratosis in 10.2% cases.

In present study, SK were more common in elder age group 41-50 years (44%) followed by 51-60 years (20%) with mean age of 51.96 years. Also mid to old age group is identified as a crucial risk factor for occurrence of SK, attributable to the somatic FGFR3 mutation in their skin which furnish proliferative signals for the keratinocytes in SK.[15,16,17] There occurred an increased incidence of periorbital skin tumours in patients doing outdoor work (40) than indoor work (31) and this is imputable to the cumulative UV exposure in appearance of SK.[18]

Acrochordon were the second commonest benign skin tumours encountered in 16.41% cases in our study while the study done by Shetty M et al. shows acrochordon to be the most frequent periorbital skin tumours in 16% cases in their study[2]. A study done by Kochet K et al shows, acrochordons have a reported incidence of 50 to 60% in the general population overall.[19]A study done by Bhargava P et al on acrochordons, diabetes and association, noted the common site of acrochordon to be neck (90%) followed by axilla (38%) and eyelid (34%) and association of obesity, diabetes mellitus and pseudo acanthosis nigricans with acrochordon.[20] As observed in present study, six patients also had acrochordon located over neck whereas periorbital site was exclusively involved in five patients. Nonetheless, acrochordon are the common benign skin tumours that can be found at any body part, specifically in women with increasing age.[21]

Syringoma was observed in 14.92% patients in our study with mean age of 32.5 years. Females (8) were affected more than males similar to study done by Ghanadan A et al[22] on 34 cases of syringoma, where he found female preponderance with mean age of 32.93 years and periorbital area as the commonest site for predilection for localized syringoma in 13 (86.6%) patients.

We found 2 cases of BCC presenting with periorbital lesion, belonging to elderly age group owing to more than 80% risk in patients aged 65-79 years in comparison to patients aged less than 50 years. Both patients were outdoor worker and had chronic sun exposure. UV radiation and chronic photodamage acts as important risk factor in pathogenesis of BCC.[23]

The most prevailing periorbital infection noticed in our study was viral infections (42%) followed by fungal (39%) and bacterial (19%) whereas Besra et al[1] found equal number of bacterial and viral infection in 45.4% cases and viral warts were the commonest viral infection observed in their study contrary to ours, as we found molluscum contagiosum as leading viral infection. We found male preponderance in periorbital dermatitis when compared to other periorbital dermatoses. Periorbital dermatitis was more prevalent among patients involved in outdoor work (28 cases) due to increased exposure to sunlight, various airborne allergens, pollens, dust and mites making them susceptible for this condition. The frequent allergen found in our study were nail varnish, cosmetic products including eye make-up, hair care products, topical antibiotic preparations, topical corticosteroids and metal allergy. In a study done by Hong KC et al[24]on causative diseases for eyelid dermatitis, out of 405 patients, females (303) were affected more than males (152) and the most common cause of eyelid dermatitis was found to be allergic contact dermatitis (42.6%) followed by atopic dermatitis (27.9%) and irritant contact dermatitis (12.7%).

Milia was observed in 3.66% cases over periorbital area. As asserted by Al-Mutairi N et al periorbital region is the commonest site for milia.[25] Xanthelasma palpebrum was the only metabolic disorder found in our study in 2.33% patients.

Our study suggests, among the various periorbital ailments, periorbital pigmentary disorders and periorbital skin tumours are the two major aesthetic concern encountered in Central India. Patient's satisfaction in terms of treatment and improvement in their facial appearance, revolves around how these conditions are managed by dermatology experts, using different basic to advanced remedies and modalities, alone or in combination, designed or customized according to individual patient's needs and demands under practical limitations.

References

1. Besra L, Jaisankar TJ, Thappa DM, Malathi M, Kumari R. Spectrum of periorbital dermatoses in South Indian population. Indian J Dermatol Venereol Leprol. 2013; 79:399-407.
2. Shetty M, Sowmya. A cross sectional study of periorbital dermatoses in a tertiary care hospital in South India. Indian J Clin Exp Dermatol 2018;4(4):297-301.
3. Nalini P, Manickam N, Gopalan K, Muthusamy K. A study on spectrum of periorbital dermatoses in a tertiary centre. Int J Res Dermatol. 2018; 4:149-56.
4. Sheth PB, Shah HA, Dave JN. Periorbital hyperpigmentation: a study of its prevalence, common causative factors and its association with personal habits and other disorders. Indian J Dermatol 2014; 59(2):151- 7.
5. Ranu H, Thng S, Goh BK, et al. Periorbital hyperpigmentation in Asians: an epidemiologic study and a proposed classification. Dermatol Surg 2011; 37(9):1297-303.
6. Strachan T, Read AP. Genes in pedigrees and population. In:Strachan T, editor. Human Molecular Genetics. 3rd ed. New York: Garland Science; 2003. pp. 106-7.
7. Matsui MS, Schalka S, Vanderover G, Fthenakis CG, Christopher J, Bombarda PC, et al. Physiological and lifestyle factors contributing to risk and severity of peri-orbital dark circles in the Brazilian population. Ann Bras Dermatol. 2015; 90:494–503.
8. Pasricha JS, Khaitan BK, Dash S. Pigmentary disorders in India. Dermatol Clin. 2007; 25:343–522.
9. Sivayathorn A. Melasma in Orientals. Clin Drug Investig 1995;10(Suppl 2):24–40.
10. Sarkar R, Jain RK, Puri P. Melasma in Indian males. Dermatol Surg. 2003; 29:204-6.
11. Tamega Ade A, Miot LD, Bonfietti C, Gige TC, Marques ME, Miot HA. Clinical patterns and epidemiological characteristics of facial melasma in Brazilian women. J Eur Acad Dermatol Venereol. 2013; 27:151-6.
12. Speeckaert R, van Geel N. Distribution patterns in generalized vitiligo. J EurAcad Dermatol Venereol. 2014;28(6):755-62.
13. Lerner AB. On the etiology of vitiligo and gray hair. Am J Med 1971; 51:141–7.
14. Bhavsar N, Nair PA. A study on pattern of dermatoses affecting periorbital region and its clinicodermoscopic correlation. Clin Dermatol Rev 2021; 5:153-60.
15. Hafner C, Hartmann A, Van Oers JM, et al. FGFR3 mutations in seborrheic keratoses are already present in flat lesions and associated with age and localization. Mod Pathol. 2007; 20:895–903.
16. Ko CJ, Shintaku P, Binder SW. Comparison of benign keratoses using p53, bcl1, and bcl2. J Cutan Pathol. 2005; 32:356–9.
17. Conscience I, Jovenin N, Coissard C, et al. P16 is overexpressed in cutaneous carcinomas located on sunexposed areas. Eur J Dermatol. 2006; 16:518–22.
18. Kwon OS, Hwang EJ, Bae JH, et al. Seborrheic keratosis in the Korean males: causative role of sunlight. Photodermatol Photoimmunol Photomed. 2003; 19:73–80.
19. Kochet K, Lytus I, Svistunov I, Sulaieva O. Skin pathology in diabetes mellitus: clinical and pathophysiological correlations. Georgian Med News. 2017 Dec;(273):41-46.
20. Bhargava P, Mathur SK, Mathur DK, Malpani S, Goel S, Agarwal US, et al. Acrochordon, diabetes and associations. Indian J Dermatol Venereol Leprol. 1996; 62:226-8.
21. Peralejo B, Beltrani V, Bielory L. Dermatologic and allergic conditions of the eyelid. Immunol Allergy Clin North Am 2008; 28:137-68.
22. Ghanadan A, Khosravi M. Cutaneous syringoma: A clinicopathologic study of 34 new cases and review of the literature. Indian J Dermatol 2013; 58:326.
23. Khalesi M, Whiteman DC, Tran B, et al. A metaanalysis of pigmentary characteristics, sun sensitivity, freckling and melanocytic nevi and risk of basal cell carcinoma of the skin. Cancer Epidemiol. 2013; 37:534–43.
24. Hong KC, Kim SH, Kim MS, Lee UH, Park HS. A Study of the Causative Diseases for Eyelid Dermatitis. Korean J Dermatol. 2013;51(8):579-585.
25. Al-Mutairi N, Joshi A. Bilateral extensive periorbital milia en plaque treated with electrodesiccation. J Cutan Med Surg. 2006 Jul-Aug;10(4):193-6.