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RESEARCH ARTICLE

CLINICO-EPIDEMIOLOGICAL STUDY OF FACIAL MELANOSIS

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Abstract

Introduction: Melanosis affecting face and neck occur from a myriad of conditions. The similar overlapping clinical, histological and dermoscopic features poses an intricate diagnostic problem for the clinician. Attempts to classify them have been partially successful.

Methods: This was a prospective hospital based study conducted in a tertiary hospital over a period of one year involving 120 patients of facial melanosis. Relevant investigations including skin biopsy and patch testing were done wherever required.

Results: Study sample ranged from nine to 60 years with maximum number of patients in 21-40 years of age. Females predominated in the study. Most common diagnosis was melasma followed by pigmented contact dermatitis, periorbital melanosis, lichen planus pigmentosus, erythema dyschromicum perstans, poikiloderma of Civatte and erythromelanosis follicularis.

Conclusion: There was considerable clinical, histological overlap between these clinical entities. UV exposure in melasma and lichen planus pigmentosus, exposure to allergens in pigmented contact dermatitis were the main etiological factors implicated. Key words: facial melanosis, melasma, pigmented contact dermatitis, lichen planus pigmentosus.

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Introduction:-

Facial melanosis, a common presentation of Indian patients, is a complex diagnostic problem that may occur from a variety of clinical entities of which, few are well defined and others have overlapping features.[1] Some of the well defined causes include – melasma, lichen planus pigmentosus, Reihl's melanosis, erythema dyschromicum perstans, post inflammatory hyperpigmentation, poikiloderma of Civatte, periorbital hyperpigmentation. Some less common causes include erythromelanosis follicularis faciei, erythromelanosis peribuccale pigmentaire of Brocq, exogenous ochronosis, acanthosis nigricans.

Materials and Methods:-

The study was a prospective one conducted over a period of one year in the department of dermatology at a tertiary care hospital. Ethical clearance and patients consent were taken and 120 patients with facial pigmentation were enrolled in the study.

Detailed history regarding age of onset of disease, duration of disease, occupation, family history, any predisposing factors like sun exposure, pregnancy, cosmetic use, atopy was taken.

Clinically site, pattern, color of lesions, pigmentation on other body part, and any associated sign was noted. Woods lamp examination was done to know the depth of pigmentation. Melasma area and severity score was calculated in patients of melasma. Biopsy was done wherever indicated. Relevant hematological investigations like hemoglobin level, thyroid profile were performed when indicated. At the end of study data was analysed using appropriate statistical methods.

Patients with pigmentation secondary to other dermatological disorders, drugs, metabolic disorders, disorders of naevi were excluded from study.

Results:-

120 patients were included in the study. The age of study sample ranged between nine to 60 years with majority of patients between 21-40 years of age with mean age of 32 ± 8.59 (table 1). Females outnumbered males with 87 patients being females and 33 males (table 2). Majority of patients were housewives followed by students. Mean duration of symptoms was 28.49 ± 29.12 months.

The most common diagnosis was melasma (Fig 1) in 69 patients (57.5%) followed by pigmented contact dermatitis (Fig 2) in 18 patients (15%), periorbital melanosis in 17 patients (14.17%) and lichen planus pigmentosus (Fig 3) in 12 patients (10%). Two cases of erythema dyschromicum perstans (Fig 4) and one case each of poikiloderma of civatte (Fig 5) and erythromelanosis follicularis (Fig 6) was seen (table 3).

48 (40%) patients gave history of cosmetic application. All of pigmented contact dermatitis patients, 21 patients (30.43%) of melasma, five (41.66%) patients of lichen planus pigmentosus and four patients (23.52%) patients of periorbital melanosis had a history of cosmetic application. The most common cosmetic used by patients was fairness creams, followed by hair color. Sun exposure was the most common aggravating factor in 51 (42.50%) patients. Family history was significant in 22 (31.88%) patients of melasma and four (23.53%) patients of periorbital melanosis.

Cheeks were the most common site involved in 79(65.83%) cases, followed by forehead in 46(38.33%), nose in 38(31.67%), temple in 28(31.67%) cases. 49(40.83%) patients showed brown pigmentation (epidermal pigmentation) and 71(59.17%) patients showed grey/slate pigmentation (dermal pigmentation).

All cases of lichen planus pigmentosus, erythema dyschromicum perstans, and 31(44.92%) cases of melasma, eight (44.44%) cases of pigmented contact dermatitis had grey/slate colour. Rest all cases had brown pigmentation. This was confirmed by wood's lamp examination. Patchy pigmentation was seen in 75 (62.5%) patients, followed by diffuse in 44(36.67%) patients. Reticulate pigmentation was seen in a single case of poikiloderma of civatte. 67(97.10%) cases of melasma, seven (38.89%) cases of pigmented contact dermatitis had patchy pigmentation.

Pigmentation on other body parts was seen in 10(9.16%) patients including six cases of lichen planus pigmentosus, both cases of erythema dyschromicum perstans, and two cases of extrafacial melasma.

As melasma was the most common diagnosis in our study, its patterns were studied and MASI scoring was also done. The predominant clinical pattern seen in melasma was centrofacial in 44 cases followed by malar in 21 and mandibular in four patients. The mean MASI score was 15.89 ± 7.01 and mean Hb and mean TSH levels in melasma patients were 10.26 ± 1.21 and 3.57 ± 2.14 respectively. A statistically significant association was found between the pattern of melasma and age and also between severity of melasma as per MASI and the pattern of melasma.

Table 1:- Age wise distribution of patients.

Type of melanoses	<20Years	21-30 Years	31-40 Years	41-50 Years	>50 Years	Total
	NO. (%)	NO. (%)	NO. (%)	NO. (%)	NO. (%)	
Melasma	1 (1.44)	37 (53.6)	26 (37.6)	6 (8.6)	-	69
Pig. CD	-	2 (11.1)	8 (44.4)	6 (33.3)	2 (11.1)	18
POM	3	12	2	-	-	17

	(17.6)	(70.5)	(11.7)	-		
LPP	-	6 (50)	3 (25)	3 (25)	-	12
EDP	1 (50)	-	1 (50)	-	-	2
POC	-	-	-	-	1 (100)	1
EMF	1 (100)	-	-	-	-	1
Total	6 (5)	57 (47.5)	39 (32.5)	15 (12.5)	3 (2.5)	120

Table 2:- Sex wise distribution of patients.

Sex	Melasma	Pig. CD	POM	LPP	EDP	POC	EMF	Total
	NO. (%)	NO. (%)	NO. (%)	NO. (%)	NO. (%)	NO. (%)	NO. (%)	NO. (%)
Female	59 (85.5)	14 (77.77)	11 (64.7)	8 (66.6)	1 (50)	-	-	87 (72.5)
Male	10 (14.49)	4 (22.2)	6 (35.29)	4 (33.3)	1 (50)	1 (100)	1 (100)	33 (27.5)

Table 3:- Diagnosis wise distribution of patients.

Diagnosis	No. Of patients	Percentage
Melasma	69	57.5
PigCD	18	15
POM	17	14.17
LPP	12	10
EDP	2	1.67
POC	1	0.83
EMF	1	0.83



Figure 1:- Showing a patient of melasma with centrofacial pattern.



Figure 2:- Showing a patient of Pigmented contact dermatitis with diffuse pattern of pigmentation.



Figure 3:- Showing a patient of lichen planus pigmentosus.



Figure 4:- Showing a patient of erythema dyschromicum perstans with lesions showing erythematous elevated borders.



Figure 5:- Showing a patient of Poikiloderma of Civatte with submental sparing.



Figure 6:- Showing a patient of Erythromelanosis follicularis et coli with follicular papules, erythema and pigmentation.

Discussion:-

Hyperpigmentation of the skin is a common complaint among patients consulting dermatologists. The majority of the world's population is brown-skinned, and an enormous amount of interest worldwide is focused on restoring hyperpigmented skin to its natural color.

Several factors may be responsible for the hyperchromatic processes affecting the epidermis and/or dermis namely hereditary, endocrine, nutritional, neoplastic, inflammatory, drugs, physical and chemical including cosmetics.

We studied clinicoepidemiology of 120 patients of facial melanosis over a period of one year. The age of patients ranged from nine to 60 years with a mean age of 32.1 ± 8.59 years. Hyperpigmentation was most prevalent in 21-30 year age group comprising of 57 patients(47.5%) whereas majority of patients(96) were between age group 21-40 years of age (80%).

Females predominated the study comprising of 87 cases (72.70%). Previous literature also stated that facial hypermelanoses is common in middle-aged women.[2] Facial melanoses causes significant cosmetic disability and female gender is vulnerable to the social and psychological impact related to it which might be the reason why females predominated the study. The largest group in the study was constituted by housewives which were 55(45.83%) in number involved in both indoor and outdoor activities followed by students 29 (24.17%) in number. In a similar study by Hassan et al, housewives were found to be the predominant group (22.59%).[3]

The most common diagnosis among facial melanoses in our study came out to be melasma which was observed in 69(57.5%) cases. In a study done among the melasma patients, 59(85.5%) were females and 10(14.5%) were males compared to 19.87% males [4] and 10% males in another study conducted on melasma patients. [5]

Mean age of onset in our study was 31.17 years and majority patients belonged to 20-29 and 30-39 age group in accordance with a previous study where the mean age was 33.45 years. [4] A positive family history was observed in 22 (31.88%) in the present study. A previously conducted study has reported a similar 31.1% proportion of positive family histories among melasma patients.[7] Sun exposure, pregnancy and cosmetics cause aggravation in 37(53.62%), 14(20.29%) and three (4.35%) cases respectively in our study and is in accordance with existing literature. [4] Associated thyroid dysfunction was seen in 13(18.84%) cases, lower than that seen previously. [8]

In 21(30.43%) of patients, there was a history of association with the application of various cosmetic products and topical steroids, available as over the counter fairness creams. This association of melasma with these cosmetic products has also been reported previously. [8,9]

The predominant clinical pattern seen was centrofacial in 44(63.77%) patients comparable to a previous study [4] but in contrast to a previous study where, malar type was most common. [3]

Wood's lamp examination revealed epidermal pigmentation in 38(55.07%), dermal pigmentation in 22(31.88%) and mixed in 9(13.04%) patients which has been noted in literature.[10] It was noted that patients with hypothyroidism had a dermal type of pigmentation.

The mean MASI score in our study was 15.89 ± 7.01 . While analysing relation between severity of melasma as per MASI, with the duration of disease and with Hb levels (mean 10.26 ± 1.21) no positive correlation was found. However, a significant association was found between severity of melasma as per MASI and pattern of melasma. Centrofacial pattern of melasma showed a higher MASI (18.85 ± 6.34) followed by mandibular pattern (10.5 ± 0.27) and malar pattern (9.8 ± 2.78). 24(54.54%) patients with centrofacial pattern, belonged to age group 30-39 years and 16(76.19%) of patients with malar pattern were in 20-29 year age group. Similar findings have been reported previously. [11]

Pigmented contact dermatitis was the second most common cause of pigmentation in our study comprising 18(15%) of cases. The mean age was 41.33 and was more common in females comprising of 14(77.77%) cases. The results were comparable to studies done previously. [3] All the patients had a history of use of cosmetics like hair dye, moisturizing creams and fairness creams.

Pruritis was observed in six (33.33%) patients of pigmented contact dermatitis before the onset of pigmentation. The lesions were mainly grey and brown in color, in eight (44.44%) and nine (50%) patients respectively and were predominantly present on forehead, temple area and cheek mainly in diffuse pattern in 11(61.11%) patients. These findings were in accordance to previous studied data. [12]

Periorbital melanoses was the third most common cause of facial melanoses in our study constituting of 17(14.17%) cases with 11(64.7%) females and six(35.29%) males and the mean age was 26.17. However in another study there was male preponderance consisting of 62.6% males[13] but the mean age of 26.4 was in accordance with our study. Three (17.64%) patients had a positive family history which was comparable to a previous literature [3] but a higher incidence of positive family history has been noted previously. [13,14].

History of atopy in periorbital melanosis was found in two (11.76%) patients compared to 21.42% in an earlier study. [13] In the present study, history of refractive error was present in four (23.52%) patients of periorbital melanosis comparable to a previously done study. [14] History of inadequate sleep in patients of periorbital melanosis was reported in six (35.29%) patients in our study as compared to 51.1% in an earlier study. [13]

Lichen planus pigmentosus, a common pigmentary disorder was seen in 12(10%) patients with males double the number of females comparable to an earlier study. [15] However, there are studies which couldn't find any sex predilection [16] in lichen planus pigmentosus. Maximum number of patients belonged to 21-30 age group with a mean age of 33. This may be attributed to increased outdoor activity leading to excess sun exposure and using various cosmetics in this young age group and photoexacerbation was noted in 11(91.67%) of cases.

Topical mustard oil application was noted in six (50%) patients which acts as a potent photosensitizer and has been a triggering factor as also stated earlier. [17] Pruritis was associated with lesions in six (50%) cases which was also seen in an earlier study. [18]

Pigmentation varied from slate grey to grey black indicating dermal pigmentation which was also confirmed by Wood's lamp examination. Diffuse pattern of pigmentation was seen in all patients. Pigmentation was predominantly present over temple, forehead and involved body parts other than face in five (41.66%) patients, with only one patient (8.3%) showing oral cavity involvement and none showing nail involvement. The findings were in accordance with previous literature except for nail changes which were seen in 14% of their patients. [17]

Hepatitis serology was negative in all patients although its prevalence has been as high as 60% [19] in some studies but a low prevalence of hepatitis serology has also been reported. [17] Also, no lichen planus lesion along with lichen planus pigmentosus was seen in our study whereas a 27% association with lichen planus has been reported.[16] The differences in the above findings may be due to lesser patients studied.

Erythema dyschromicum perstans was seen only two (1.67%) patients in our study. One was a male child aged nine year and another was a 32 year old female. Age group of our patients was in contrast to earlier reported data, where the mean age of occurrence was in second decade of life and more common in female. [20,21] The lesions in these patients were present symmetrically on face, neck, trunk, limbs in both cases. An erythematous border along the lesions was seen in our female patient and is also reported previously. [20]

Poikiloderma of civatte was seen in only one male patient aged 52 years. It's a rare disorder. The mean age as noted previously was 47.8 years. [22] Our patient had a symmetrical distribution of lesion over sides and v area of neck and the clinically the lesions were of erythematotelangiectatic type. Our patient gave history of application of an ayurvedic oil prior to appearance of lesions.

A single case of Erythromelanosis follicularis in a 17year old, male child was included in our study. In a previous study on 12 patients of erythromelanosis follicularis the mean age of onset was found to be 12 years. The classical triad consisting of erythema, pigmentation and follicular papules was seen in our patient as observed in 100% cases reported previously. [24] Sites involved were bilateral cheek, mandibular and preauricular area in corroboration with earlier reported data. [25]

Conclusion:-

Facial melanosis is a clinical feature of a diverse group of disorders. It was most common in middle aged females and the commonest type of melanosis was melasma. There was considerable overlap in clinical features amongst the patients of pigmented contact dermatitis, lichen planus pigmentosus, and erythema dyschromicum perstans. UV radiation in melasma, and lichen planus pigmentosus, sleep deprivation in periorbital melanosis and exposure to allergens in pigmented contact dermatitis were the main etiological factors implicated.

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