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A CLINICO-DERMOSCOPIC STUDY OF FACIAL MELANOSIS IN MEN

Dermatology

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ABSTRACT

Background: Facial hyperpigmentation is a common presentation in Indian patients causing cosmetic disfigurement with psychological impact. Previous studies have been focused on hyperpigmentary conditions of face in general population , however number of male patients attending the dermatology OPD for facial melanosis have increased due to health and cosmetic awareness , hence this study has been taken up to determine the clinical and dermoscopic aspects of facial hyperpigmentary disorders predominantly affecting the male population. **Materials and methods:** A total of 60 patients male patients with facial melanosis attending the Department of Dermatology during the study period were enrolled in this study. A detailed history was elicited and a thorough physical examination was conducted according to a pre-structured proforma. All patients underwent dermoscopic and wood,s lamp examination. **Results:** Majority of the patients in the study belonged to 31-40 years of age, worked outdoor as part of their occupation (56.7%), had exacerbation in sun exposure (65% and did not use sun protection (90%), exposed to the sunlight for 3-5 hours (53.3%), used cosmetics in any form (55%), did not have family history (93.3%) and did not have any co-morbidity. Majority of the patients showed epidermal pattern on wood's lamp (45%) and showed reticuloglobular pattern on dermoscopy (51.7%). We found significant association between dermatitis and perifollicular sparing. The patients with riehl's melanosis showed telangiectasia and the association was highly significant when applied chi-square test ($p<0.001$). **Conclusions:** The study helps doctors better manage patients' illnesses and lessen the need for biopsies by providing an awareness of the many demographic factors associated with varied clinical and dermoscopic patterns of facial melanosis in men.

KEYWORDS

facial melanosis, melasma, dermoscopy, friction

INTRODUCTION

[1, 2] Facial pigmentary disorders are a diverse set of illnesses characterised by abnormal pigmentation that results in overt facial deformity. Hyper- or hypomelanotic skin pigmentary diseases are both possible.[2] In Indian patients, facial hyperpigmentation is a prevalent presentation that results in cosmetic deformity and psychological effects.[3] This is clear from the fact that one of the biggest international markets for products for fair skin is India.[4]Facial hyperpigmentation is a frequent and growing concern among people with darker skin when they visit a doctor.[5] Disfiguring facial lesions can have a serious impact on a person's emotional wellbeing overall and can lower social interaction, work or school productivity, and self-esteem.

[6,7]Hypermelanosis is a very prevalent condition that mostly affects the face and neck and frequently presents difficult diagnostic challenges. The increased pigmentation, which is more prevalent in those with dark skin, especially those with Middle Eastern or Asian ancestry, is largely influenced by racial and genetic factors.[8] Clinical differentiation between conditions such lichen planus pigmentosus, cosmetic dermatosis, ashy dermatosis, and lesions of benign and malignant skin malignancies is challenging. Dermatologists are faced with a severe diagnostic and treatment difficulty as a result.

In particular among Asians, notably Indians, facial hypermelanosis is a serious cosmetic problem that causes severe social shame and psychological suffering. Facial hypermelanosis can be caused by a number of clinical conditions, including the more common melasma, lichen planus pigmentosus, Riehl's melanosis, and erythema dyschromicum perstans, as well as the less common poikiloderma of Civatte, erythromelanosis follicularis of the face and neck, nevus of Ota, periorbital melanosis.

A collection of diverse conditions known as facial melanoses (FM) are characterised clinically by an increase in facial pigmentation. [6] They make up the majority of patients who consult a dermatologist and are more prevalent in Fitzpatrick skin types III and IV. Both light and photosensitizing compounds appear to play a significant role, even if the pathophysiology is frequently unclear. [6] Skin conditions, particularly those on the face, are frequently readily noticeable to others in contrast to the majority of internal disorders, which can have serious psychological effects.[9-11]

The development of several of these illnesses is heavily influenced by exposure to the sun and photosensitizing substances.[6] Since the majority of Indian men work in physical or agricultural labour, they are frequently exposed to lengthy periods of sunlight without using proper sun protection, which may increase their risk of developing face hypermelanosis. In recent years, there has also been a surge in the usage of cosmetics that might include some unlisted photosensitizing chemicals or have the potential to cause pigmented cosmetic dermatitis.[12] Indigenous and over-the-counter (OTC) medications that are used systemically or topically may have the ability to photosensitize some of these people and cause face pigmentation. [13, 14] Periorbital hypermelanosis may be more common today due to increasing urbanisation, increased television and computer use, and changed sleeping patterns. The prevalence of acanthosis nigricans, which can occasionally appear as face hypermelanosis, has increased as a result of an almost epidemic of obesity caused by sedentary lifestyle choices.

Dermoscopy is a non-invasive, in vivo procedure that makes it possible to see the skin's subsurface structures, which are often hidden from view by the human eye. Dermoscopy and histopathology offer a superior diagnostic tool for differentiating many illnesses due to overlap in many conditions. In order to see subtle clinical patterns of skin lesions and subsurface skin structures that are not visible to the untrained eye, a dermoscope is a rapid, non-invasive diagnostic tool. Different dermoscopic patterns seen with specific disorders can help with diagnosis and follow-up on how well the patient is responding to treatment.

It's interesting that studies on facial hypermelanosis tend to focus more on women than men, possibly because they are more concerned with appearance. [9,10,16] Males with face hypermelanosis, however, also make up a sizable portion of patients in outpatient clinics; for instance, they account for 10% to 25% of those with melasma.[17]However, the reasons for their face hypermeanosis are still not fully understood. In order to better understand the clinical and microscopic features of facial hyperpigmentary diseases, which primarily affect men, this study has been undertaken.

MATERIALS AND METHODS

This study is a Cross-sectional study .Study population includes all male patients attending the OPD of Department of Dermatology, at C.G. Hospital and Bapuji Hospital, attached to JJ.M. Medical College, Davangere, Karnataka.

Research study was conducted for 24 months from October 2020 to

October 2022. Inclusion criteria includes all male patients with facial melanosis attending the OPD of Department of Dermatology and who are consenting for the study.

Exclusion criteria includes all male patients who have already been diagnosed and receiving treatment for facial skin disorder and who are not consenting for the study

Sample size was calculated using $Z\alpha^2/d^2$, where $Z\alpha^2$ was standard normal variate 1.96, P was expected proportion from population and d was absolute error. Using this formula, the calculated sample size was 60.

After obtaining consent from the management and principal the data was collected. Informed consent was taken from parents. After obtaining ethical committee approval a descriptive cross sectional study was conducted from October 2020 to October 2022.

According to a pre-structured proforma, a comprehensive physical examination and a detailed history were obtained. demographic characteristics, length of time, occupation, usage of cosmetics, exposure to sunlight, drug use, presence of infections or systemic disorders, and relatives who have comparable hypermelanosis. A thorough systemic assessment for connected systemic illnesses was part of the medical checkup. Facial hypermelanosis was primarily diagnosed clinically.

A clinical diagnosis was reached after doing a cutaneous examination. As and when necessary, pertinent tests like haemoglobin, vitamin B12, TSH, and biopsy were performed. With a handheld, 10x-magnified polarised LED ILLUCO dermoscope, dermatoscopy was performed on all patients starting with the representative lesion. The morphology/organization of vascular structures, pigment depth, arrangement, and specific clues were considered when doing dermatoscopy. The diagnosis was made using dermatoscopic results that were associated with other factors such the history of prior dermatosis, the length of the illness, the symptoms, personal and family history, and the morphology and distribution of the lesion. In each case, a clinical image was obtained. The study excluded patients whose periorbital pigmentation was limited and who refused to be photographed.

Ethical clearance was taken from Ethical Committee of JJM medical college, Davanagere before conducting the study.

Statistical Analysis

Data was entered in excel sheet and analyzed using the Statistical Package for the Social Sciences 20(SPSS Inc. Chicago). Results were presented in tabular and graphical forms Mean, median, standard deviation and ranges were calculated for quantitative data.

Chi square analysis was used in testing for significant differences between proportions and frequencies. T test was done in testing for significant differences between two means. The confidence interval was set at 95% limit, with level of significance, $p < 0.05$.

RESULTS

Majority of the patients in the study belonged to 31-40 years of age, worked outdoor as part of their occupation (56.7%), had exacerbation in sun exposure (65% and did not use sun protection (90%).Majority of the patients were exposed to the sunlight for 3-5 hours (53.3%), used cosmetics in any form (55%), did not have family history (93.3%) and did not have any co-morbidity.

Majority of the patients did not give history of rubbing (66.7%), had lesions with reticular pattern (58.3%) and had pigmentation on the cheeks (81.7%).Majority of the patients showed epidermal pattern on wood's lamp (45%) and showed reticuloglobular pattern on dermoscopy (51.7%).Majority of the patients did not show perifollicular sparing (56.7%), did not show telangiectasia (98.3%).

Majority of the patients had melasma (51.7%)The association of facial melanosis with dermoscopy was statistically highly significant when applied chi-square test (<0.001).Majority of the patients with melasma showed perifollicular sparing (83.9%) and the association was highly significant when applied chi-square test (p<0.001).The patients with riehl's melanosis showed telangiectasia and the association was highly significant when applied chi-square test (p<0.001).

Table 1: Distribution of patients according to the facial melanosis.

Facial melanosis	Frequency	Percentage
Melasma	31	51.7%
Frictional facial melanosis	14	23.3%
Periorbital melanosis	8	13.3%
Acanthosis nigricans	5	8.3%
Riehl's melanosis	1	1.7%
Freckles and lentigens	1	1.7%
Total	60	100%

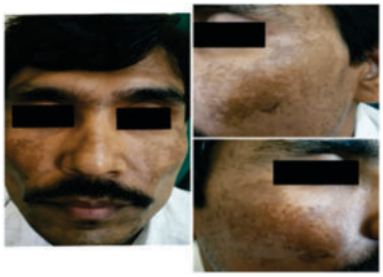

Figure 1 :Malar Melasma

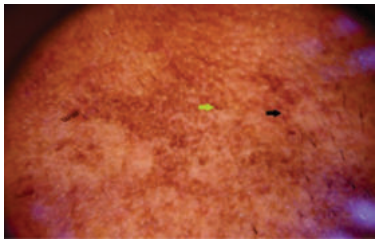

Figure 2:Dermoscopy of the melasma lesion revealing multiple brown dots and granules (green arrow) and sparing of the perifollicular region (black arrow)

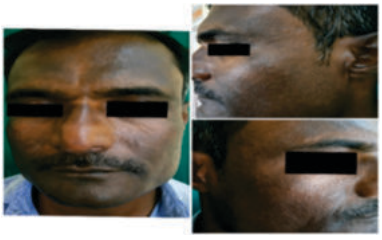

Figure 3: Panfacial Type Of Facial Frictional Melanosis: Pigmenation over the entire face with sparing of apex of nose

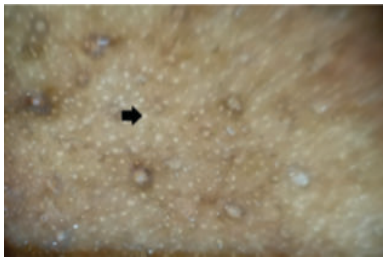

Figure 4 : Dermoscopy of frictional facial melanosis showing black pigment dots and patchy pigment distribution on the background of acanthotic skin with patulous follicular openings with plugs(black arrow)

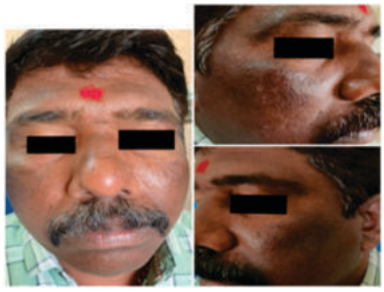

Figure 5: Riehl's Melanosis

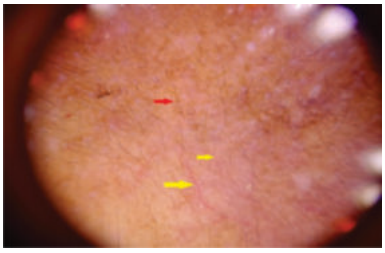

Figure 6: Dermoscopic Image Of Riehl's Melanosis Showing Telangiectasia(Yellow Arrow) And Brown Dots(Red Arrow)

DISCUSSION

The present study was conducted in the department of dermatology and venereology at J.J.M. medical college, Davanagere, Karnataka to study clinico-dermoscopic features of facial melanosis in men from october 2020 to october 2022. According to the inclusion criteria, 60 cases were studied in total.

Melasma is an acquired hyperpigmentary condition that causes extreme suffering. Females in the reproductive age range are affected. Males are less likely than females to be afflicted.[82] Melasma was found in 91 female participants (91%) and 9 male participants (9%) in a study by Simplepreet Kaur et al.[83] 20% of men were found to have Melasma in a Sarkar et al.[84] study. However, this study was limited to men exclusively.

The majority of the patients in our study were between the ages of 31 and 40, with 26.7 percent falling between 21 and 30. The study's average age was 36.4 +/- 8.5 years. A study by Kavya et al.[85] and another by Revathi et al.[86] revealed similar results. In a study by Simplepreet Kaur et al.[83], the average patient age at presentation was 34.86 years, and the study's average length was 42.5 months. According to a study by Achar et al.[87] the average age of presentation was 33.45 years. 34.22 years was the reported mean age by Hassan et al.[88] Our results agreed with those of these research.

Melasma has several different etiological causes, such as sun exposure, genetics, cosmetic use, pregnancy, hormone replacement treatment, oral contraceptive use, etc.[89] Numerous factors, including ultraviolet (UV) radiation-induced initial pigment-darkening reaction, due to photo-oxidation of preformed melanin, followed by delayed tanning, are thought to be to blame for enhanced pigmentation after sun exposure.[90,91]

In the current study, 56.7% of patients worked outside, and 65% of patients experienced an exacerbation of their lesions following sun exposure. 90% of people used no sunscreen every day, 53.3% spent 3-5 hours in the sun, 55% used cosmetics, and 3.8% took any drugs. Thyroid illness was one of the many reasons for these intakes (5%) and 3.3% of the patients were taking phenytoin. In 6.7% of the instances, family history was present. These results were nearly in line with those published by Hassan et al.[88], who found that sun exposure affected 65.75 percent of their patients, cosmetic use affected 61.6%, and positive family history affected 20.5% of their patients. In a study by Simple Preet Kaur[83] 84% of patients had sun exposure, 58% had cosmetic use, and 41% had a history of taking oral medications. In 17% of cases, melisma ran in the family. Another study by Achar et al.[87] found that oral contraceptives were used in 18.4%, cosmetics in 23.3%, and sun exposure in 55.1% of cases. It also found that 3.3% of cases had positive family histories.

Only 26.6% of the participants in our study had co-morbidities. 13.3% of the patients had diabetes mellitus, 5% had thyroid and hypertension issues, and 3.3% had a seizure disorder. 10% of individuals in a research by Simple Preet Kaur et al.[83] showed hypothyroidism connected to Photoallergic dermatitis. Thyroid dysfunction was identified in 10.9% of melasma patients in a different study by Hassan et al.[88]

Melasma's centrofacial pattern is the most prevalent pattern seen globally.[92] In our study, the majority of patients (81.7%) and patients with pigmentation on the forehead (18.3%) had pigmentation on their cheeks. Malar (54%) and centrofacial (46%), two prevalent patterns, were found in a study by Simple Preet Kaur.[83] None of the patients had a mandibular distribution pattern when they first arrived. These results corroborated those of Manjunath et al.[93] who found that malar pattern was present in 56% of cases and centrofacial pattern in 44%. In a research by Gupta et al.[94]the centrofacial pattern was present in 119 (51.7%) patients, the malar pattern in 99 (43%) patients, and the mandibular pattern in 12 (5.2%) patients. The level of pigment in a pigmented lesion can be determined by doing a dermatoscope examination, and the disease can then be categorised based on the level of pigment.

In the current study, the majority of patients (45%) had an epidermal pattern on the wood's light, while 28.3% of patients displayed a dermal pattern and 16.7% displayed a mixed pattern. 58 percent of patients in a research by Simplepreet Kaur et al. had epidermal pigment, 23 percent had dermal pigment, and 19 percent had mixed pigment. In their investigation, Shah et al.[95] found that epidermal Melasma accounted for 58.3% of cases and dermal Melasma for 41.7%. On the other hand, a different study by Manjunath et al.found that mixed pigment was present in 18% of instances, epidermal pigment in 36% of cases, and dermal pigment in 46% of cases. These results were consistent with the study by Kavya & Nataraj, where 55% of participants had epidermal pigmentation and 15% had dermal pigmentation. The prognosis of Melasma is also determined by the pigment level, for instance, dermal Melasma has a poor prognosis and will require longer-term treatment.

The polarised mode of the dermatoscope reduces surface light scattering and aids in the visualisation of subsurface changes. In our study, the majority of patients (51.7%) displayed reticuloglobular pattern, while 23.3% of patients displayed brown black globules, 13.3% of patients displayed speckled and blotchy pattern, 8.3% of patients displayed linea crista and sulcus cutis, and 1.7% of patients displayed accented pseudoreticular pattern and structureless homogenous pigmentation. These results were analogous to those reported by Simplepreet Kaur et al., who found that 88% of patients had an enhanced pseudoreticular network, which was followed by 81% of patients who had reticuloglobular patterns. Other patterns that were seen included an arcuate pattern in 17% of cases and a dotted pattern in 19% of cases. In their investigation, Neema et al.discovered that reticuloglobular pattern (83%) and dotted pattern (28%) were the two most typical patterns. The increased basal layer melanin pigment is what causes the reticuloglobular pattern to be present. Flattening of rete ridges with increased basal layer melanin causes the pseudoreticular network to emerge more prominently. In our study, majority of the patients did not show perifollicular sparing (56.7%) and 43.3% of the patients showed perifollicular sparing. Perifollicular involvement was seen in 8% cases in a study by Simplepreet Gaur.[83]

1.6% of the individuals in our study had telangiectasia. Dermal blood vessels in Melasma sufferers are larger and more numerous. These vessels, which appear as telangiectasia, can be seen with a dermatoscope. In patients with melasma, the presence of telangiectasia may be due to steroid usage, concomitant rosacea, or UVR-induced angiogenesis. These results were in contrast to studies by Simplepreet Gaur et al.and Neema et al.[9] which found that telangiectasia was apparent in 33% of cases and 52% of cases, respectively.

In our study, Melasma affected 51.7% of the patients, while frictional facial melanosis affected 23.3% of the patients. 13.3% of the patients had periorbital melanosis, 8.3% had acanthosis nigricans, and 1.7% each had reels melanosis, freckles, and lentigines. These results were in contrast to a research by Gupta et al.[94], which found that freckles, acanthosis nigricans, lichen planus pigmentosus, and pigmented contact dermatitis were all more common than periorbital hypermelanosis (10.7%, 8.7%, 4%, and 3.3%, respectively).

The use of a dermatoscope aids in both diagnosis and therapy decision-making for melasma. Every time the patient receives follow-up care, a dermatoscopic examination should be performed and the results should be compared to earlier observations. This aids in tracking the patient's treatment's therapeutic effectiveness. Additionally, it will assist in identifying any illness progression or adverse effects from the prescribed therapy. Dermatoscope has decreased the requirement for biopsy for histopathology by defining the distinctive characteristics of melasma.

CONCLUSION

There are several different types of facial melanosis with many different aetiologies. The main causes of face hypermelanoses in Indian males continue to be melasma, periorbital hypermelanosis, acanthosis nigricans, and lichen planus pigmentosus.

Particularly in those with skin of colour, diffuse face pigmentation is a severe concern. There are no specific recommendations for treating face melanomas. Due to their heterogeneity, diagnosis and treatment are difficult. Finding a diagnosis will be aided by recognising the clear clinical clues and doing a careful history. A dermatologist can diagnose facial pigmentary problems in vivo and non-invasively with a dermatologoscope. Melasma was found to be the most frequent cause of face melanosis among 60 patients. Reticuloglobular pattern was the most typical dermoscopic pattern seen. The study helps doctors better manage patients' illnesses and lessen the need for biopsies by providing an awareness of the many demographic factors associated with varied clinical and dermoscopic patterns of facial melanosis in men.

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