

Original Research Article

Clinical spectrum of facial hypermelanosis: a descriptive study from a tertiary care centre

Mohammed Thoyyib, Roshni Menon, Brinda G. David*

Department of Dermatology, Venerology and Leprosy, Sri Venkateshwara Medical College Hospital and Research Centre (SVMCH), Ariyur, Pondicherry, India

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***Correspondence:**

Dr. Brinda G. David,

E-mail: docbrinz@gmail.com

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ABSTRACT

Background: Facial melanosis (FM) which refers to brown, black or blue pigmentation over the face is a common cosmetic concern in Indian patients. This increased incidence could be due to remarkable diversity of Indian ethnic population. Pigmentary disorders of the face are a great cosmetic and psychological concern for the patients.

Methods: This is an extensive descriptive clinico epidemiological study comprising of 1024 patients, conducted at Sri Venkateshwara Medical College Hospital and Research Centre, Puducherry, for a period of one and a half years. A detailed clinical history and examination was done, and all the clinical photographs and data were recorded. Necessary investigations like skin biopsy and patch testing was done wherever required.

Results: The maximum number of patients belong to the age group of 21-35 years with a female predominance (67.2%). Among patients of FM, post inflammatory pigmentation (35.3%) was the most common comprising of 362 patients, followed by melasma (17.2%), periorbital melanosis (15.7%), seborrheic melanosis (7.5%) followed by other causes.

Conclusions: FM is common in Indian skin, several of which have overlapping features, and some have defined clinical classification. Additionally, climatic conditions, cosmetic usage and social parameters predispose to the increased incidence of FM.

Keywords: Facial hypermelanosis, Melasma, Post inflammatory hyperpigmentation

INTRODUCTION

Facial melanotic disorders are a diverse group of altered pigmentation over the face thus is an easily visible cosmetic problem and affects the quality of life of the affected individuals.¹⁻³ There is an increased incidence of such pigmentation in Indian population due to the presence of diverse ethnic groups, climatic condition, and social parameters. The altered facial pigmentation can be black, blue or brown in colour depending upon the distribution of melanin pigmentation. Due to the impact

in social life the facial melanotic disorders are gaining more importance in recent days. In spite of its common occurrence a proper classification and clinical studies in this context is still lacking. Our study is aimed to describe the various clinical types of facial hypermelanosis and to find its associations with lifestyle changes.

METHODS

This is a prospective observational study conducted in the dermatology outpatient department (OPD) of

Sri Venkateshwara Medical College Hospital and Research Centre, Puducherry, for a period of one and half years i.e., from September 2017 to March 2019. The study was conducted after obtaining ethical clearance from the institutional committee. After obtaining informed consent, patients with facial dyschromias attending the dermatology OPD were included in this study. After obtaining demographic data, a detailed clinical history regarding the onset, duration, familial association, occupational exposure, photoexposure, hair dye and cosmetic usage and associated systemic illnesses were taken and were noted in a pre-structured proforma. Statistical analysis was done using Epi info software ver 3.5.4. Clinical examination was performed and photographs of all the patients were recorded. Relevant blood investigations and skin biopsy were performed wherever required.

RESULTS

This study comprised of 1024 participants with facial melanosis, the minimum age of enrolled participants was 16years and the maximum age was 73. Maximum number of patients belonged to the age group 21-30 years were 322 (31.4%) and minimum number belongs to above 60 years (3.6%) (Table 1). Less than 20 years of age there were 86 (8.4%) participants. The mean age was found to be 35.64±12 years. Significantly females 688 (67.2) were more in numbers than male 336 (32.8) (<0.005).

Table 1: Demographic profile of patients of facial melanosis.

Age group (years)	Frequency (%)
<20	86 (8.4)
21-30	322 (31.4)
31-40	290 (28.3)
41-50	193 (18.8)
51-60	96 (9.4)
>60	37 (3.6)
Mean age±SD	35.64±12.0
Gender distribution	
Female	688 (67.2)*
Male	336 (32.8)
Total	1024

*<0.05 significance.

Table 2 shows, authors came across 13 varieties of facial melanosis. Out of 1024 participants, post inflammatory pigmentation was significantly common about 362 (35.3). Significantly, males 231 were more in numbers than females 131. Followed by other facial melanosis such as melasma 177 (17.2), peri orbital melanosis 161 (15.7), seborrheic melanosis 77 (7.5), perioral melanosis 71 (6.9), facial acanthosis nigricans 60 (5.85), frictional melanosis 50 (4.88), photo melanosis 41 (4), lentiginos 9 (0.87), freckles 7 (0.68), riehl’s melanosis 4 (0.39), lichen

planus pigmentosus (LPP) 3 (0.29) and erythema dyschromicum perstans 2 (0.19).

Table 2: Types of facial melanosis.

Diagnosis	Male	Female	Frequency (%)
Post inflammatory pigmentation*	231*	131	362 (35.3)
Melasma	45	132*	177 (17.2)
Peri orbital melanosis	69	92	161 (15.7)
Seborrheic melanosis	25	52	77 (7.5)
Perioral melanosis	20	51	71 (6.9)
Facial acanthosis nigricans	35	25	60 (5.85)
Frictional melanosis	31	19	50 (4.88)
Photo melanosis	23	18	41 (4)
Lentiginos	5	4	9 (0.87)
Freckles	1	6	7 (0.68)
Riehl’s melanosis	1	3	4 (0.39)
Lichen planus pigmentosus	-	3	3 (0.29)
Erythema dyschromicum perstans	-	2	2 (0.19)

*<0.05 significance.

In melasma, female patients were significantly more in numbers than male patients. According to the distribution of lesions, three clinical patterns of melasma were observed and among these, the malar type was the most common, seen in 106 (59.6) cases (Figure 1). Other types noted were centrofacial and mandibular in 64 (35.7) and 7 (4.5) cases respectively. Most common site of facial melanosis in our study cheek (74.6%) followed by forehead (47.6%). Least common site was temporal region (3.1%) and nasolabial fold (1.8%). The facial melanosis, about the pattern 487 (47.5) patients had diffuse pattern and 537 (52.5) had patchy pattern.



Figure 1: Malar melasma - brownish black pigmentation over malar area.

The most common cause for post inflammatory pigmentation was post acne pigmentation 204 (56.3%) which is significant compared to the other causes such as contact dermatitis 67 (18.5), post traumatic pigmentation 47 (12.9), secondary to varicella 7 (1.9), secondary to tinea faciei 9 (2.4), polymorphic light eruption 9 (2.4) and blister beetle dermatitis 7 (1.9).

Table 3 explains the aggravating factors and the associated conditions for the facial melanosis. Maximum number of cases post inflammatory pigmentation and melasma gave history of acne vulgaris and sunlight exposure respectively.

Table 3: Associations of facial melanosis.

Facial melanosis (n)	Aggravating /predisposing factors	N (%)	Associated disease
Post inflammatory pigmentation (362)	Acne vulgaris	228 (63)	-
	Pyodermas	68 (19)	
	Contact dermatitis	59 (16)	
	Trauma	7 (2)	
Melasma (177)	Sunlight	83 (47)	-
	Cosmetics	31 (18)	
	Pregnancy	44 (25)	
	Oral contraceptive pills	19 (11)	
Peri orbital melanosis (161)	Cosmetics	27 (14)	Atopy, anemia
	Sunlight	34 (21)	
	Spectacle usage	16 (10)	
	Rubbing of eyes	84 (52)	
Seborrheic melanosis (77)	Winter season	62 (80)	-
Perioral melanosis (71)	Lip licking	32 (45)	-
Facial acanthosis nigricans (60)	Obesity	42 (70)	Metabolic syndrome, obesity
	Rubbing of face	26 (43)	
Frictional melanosis (50)	Vigorous rubbing with towels	43 (86)	-
Photo melanosis (41)	Sunlight	41 (100)	-
Lentigines (9)	Chronic sun exposure	9 (100)	-
Freckles (7)	Sunlight	7 (100)	-
	summer season		
Riehl's melanosis (4)	Sunlight	4 (100)	-
	Cosmetics		
	Fragrances		
Lichen planus pigmentosus (3)	Sunlight	3 (100)	-
	Cosmetics		
Erythema dyschromicum perstans (2)	-		-



Figure 2: Periorbital melanosis constitutional type- hyperpigmentation covering the orbital rim.



Figure 3: Frictional melanosis over temporal area.

Patients of periorbital melanosis (161) gave a history of associated atopy. Constitutional type of POM (Figure 2) was the common type followed by vascular type. Obesity was found to be significantly associated with patients of facial AN. Patients with frictional melanosis (Figure 3) gave a positive history of constant rubbing of the face.

Patients with Riehl's melanosis and LPP (Figure 4) gave history of usage of topical steroids, whitening creams and ayurvedic medications. Patch testing with cosmetic series was done which showed a positive finding in patients with Riehl's melanosis.



Figure 4: LPP- bluish black pigmentation over forehead and cheeks.

Table 4 describes the characteristic colour of facial melanosis with proportion of participants. The commonest colour noted was brownish black 638 (62.3) which is significantly higher than the Reddish black 328 (32), Brown 54 (5.3), Reddish brown 2 (0.19) and bluish black 2 (0.19). Skin texture was found to be significantly normal in 874 (85.6) and few patients had thick skin texture 88 (8.59) (Figure 5) and velvety 62 (6). The thick and velvety skin texture may be due to the climatic conditions and friction.



Figure 5: Thick skin texture over forehead and cheeks with lichenification.

Table 4: Characteristics of facial melanosis with proportion of participants.

Characteristics of facial melanosis		N	%
Colour of facial melanosis	Brownish black*	638	62.3
	Reddish black	328	32
	Brown	54	5.3
	Reddish brown	2	0.19
	Bluish black	2	0.19
Skin texture	Normal*	874	85.6
	Thick	88	8.59
	Velvety	62	6
Use of cosmetics and dye	Cosmetics	52	6.5
	Hair dye	61	7.6
Photosensitivity	Present*	804	78.6
	Absent	220	21.4
Sun exposure at workplace	Photo exposed*	644	62.8
	Non-photo exposed	380	37.2

Among 1024 participants, 804 (78.6) had photosensitivity out of which only 52 patients had used cosmetics and 61 patients had used hair dye. Positive family history of facial melanosis was found in 19 (1.9) individuals whereas significantly 1005 (98.15) patients had no family history of facial melanosis.

DISCUSSION

This study was done as a cross sectional study, to assess the demographic and clinical profile of patients with facial melanosis and factors associated with it in the Department of Dermatology and Venereology. In this present study among 1024 patients with facial melanosis, maximum number of patients of about 322 were in the age group of 21-30 years, in a similar study conducted by Kavya et al had mean age 35.04 which is consistent with our study.⁴ In this study the mean age was found to be 35.64±12.0 years. Similarly Achar et al reported the mean age of patients with melasma was 33.45 years, ranging from 14 to 54 years.⁵ In our study 67.2% of the patients were females and males were 32.8% similarly Achar et al in their study they reported that they found female preponderance with a female to male ratio of approximately 4:1.⁵ In a study conducted by Hassan et al found that female to male ratio of 1.92:1.⁶

In this study on facial melanosis, post inflammatory pigmentation 362 (35.3%) was the commonest cause followed by melasma 177 (17.2%). This contradicts with the study conducted by Shah et al and Gupta et al.^{6,7} They concluded that the melasma was the most common cause among facial melanosis. According to Shah et al found PIH was the second most cause for facial melanosis.⁶ Both the studies showed melasma as the commonest cause which is second commonest cause in our study. Among post inflammatory pigmentation (PIH), post acne pigmentation was the commonest 204 (56.3%) followed by contact dermatitis 67 (18.5%) and post traumatic pigmentation 47 (12.9%). In a study done by Taylor et al on acne in skin of color and found that 65.3% of African-American, 52.7% of Hispanic and 47.4% of Asian patients developed acne induced post inflammatory hyperpigmentation.⁸ This study had 15.7% peri orbital melanosis which is similar to the study conducted by Gupta et al showed periorbital melanosis in 10.7% patients.⁷

The aggravating and predisposing factors for each type of facial melanosis were assessed. Among 362 patients with post inflammatory melanosis commonest predisposing factor was found to be acne vulgaris (63%), followed by pyoderma (19%), dermatitis (16%) of various nonspecific causes and trauma (2%). These findings correlate with the study done by Hassan et al. Aggravating factors for melasma (177) were found to be chronic sunlight exposure (47%), pregnancy (25%) and oral contraceptive pills (11%).⁹ Similar findings were observed in the studies done by Jagannathan et al.¹⁰ Regarding POM (161) cases constant rubbing of eyes (52%) and spectacle usage (10%) was found to be frequently associated which correlates with the study done by Sheth et al by Winter seasonal exacerbation of seborrheic melanosis was observed in our study.¹¹ AN and frictional melanosis patients gave a history of constant rubbing of face. As seen in the literature prolonged sunlight exposure were observed in patients with photomelanosis, lentiginos, freckles, Riel's melanosis.

In the present study out of 177 melasma participants, malar melasma, Centrofacial melasma and mandibular melasma was seen 59.6%, 35.74% and 4.5% patient respectively. Malar pattern was commonly seen in this study which is similar to other studies from south India but contradicts with other studies which stated centrofacial pattern to be the commonest.^{9,12-17} Usage of facial cosmetics was the possible precipitating factors of facial hypermelanosis. Use of cosmetics and hair dye, and its proportion with photosensitivity was calculated. Photoexposure and photosensitivity was seen in 804 (78.6) patients; in which 52 (6.5%) patients used cosmetics and 61 (7.6%) have used hair dye. The predominance of cosmetic usage in melasma was also reported in studies done by Achar et al and Grimes.^{5,15} The most common site of facial melanosis in our study was cheeks (74.6%) followed by forehead (47.6%). The

least common site was temporal region (3.1%) and nasolabial fold (1.8%). In a similar study conducted by Hassan et al, correlates with our study found that (65%) patients had lesion over the cheeks.⁹ The distributions of facial melanosis were patchy in 52.5% patients and diffuse in 47.5% patients. The colour of facial melanosis was brownish black in 62.3% patients, reddish brown in 32% patients, brown in 5.3% patients, slate grey in 0.19% patients and bluish black in 0.19% patients. Skin texture was found to be normal in 85.6% patients, thick among 8.59% and velvety in 6% patients.

CONCLUSION

Facial hypermelanosis is a clinical feature of a diverse group of disorder most commonly encountered in females who expose to sunlight and using over the counter cosmetic creams. Etiology in most facial hypermelanosis is unknown, but some factors such as UV radiation, use of cosmetics and hair dye, genetic predisposition can contribute to it. Diagnosis is based on detailed personal, family history and clinical features aided with relevant investigations depending on individual case. It is important to have a comprehensive understanding and information on the epidemiological and ecological factors of various clinical entities of facial hyperpigmentation for better managements of patients.

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