International Journal of Biomedical Research
ISSN: 0976-9633 (Online); 2455-0566 (Print)
Journal DOI: 10.7439/ijbr
CODEN: IJBRFA

Original Research Article

Study of clinical patterns of facial pigmentation

Mohammed Shahana*, A Padma and P. Mahaboob Khan

Department of Dermatology Venereology and Leprosy, Gandhi Medical College, Walker town, MIGH Colony, Padmarao Nagar, Secunderabad, Telangana 500003

***Correspondence Info:**
Dr. Mohammed Shahana,
Department of Dermatology Venereology and Leprosy,
Gandhi Medical College, Walker town, MIGH Colony,
Padmarao Nagar, Secunderabad, Telangana 500003
E-mail: drshahena@gmail.com

Abstract

Introduction: Pigmentary disorders of the skin are a great concern to the patient, more so when it involves the face. It is one of the common clinical presentations to the dermatology OPD. Facial pigmentation may be multifactorial and in some etiology may be known by a detailed history.
Aim: To study the various clinical types and different patterns of facial pigmentation presentation.
Materials and Methods: A one year study was done in the skin out-patient department in a tertiary hospital. All the patients with pigmentation of face were included in our study after their consent.
Results: A total 102 cases were recorded during this period and the common facial pigmentation noticed was melasma. There was a female preponderance and among few there was a positive family history.
Conclusions: Occurrence of pigmentation of face was more common in females and seen among age group of 21-30years.
Keywords: facial pigmentation, melanosis, melasma, peri-orbital pigmentation.

1. Introduction

Skin is one of the vital organs and also a protective covering of the body. It acts as a shield to the ultraviolet rays of sun and the important function is thermoregulatory. It has a normal protective flora on it and prevents the entry of various pathogenic microbial organisms. It adds cosmetic appearance to a person. Any change in skin color is viewed with dismay and is of concern to an individual. And if such a change occurs on the face, it gives a lot of anxiety and tension to the patient. One such common dermatological disorder of considerable cosmetic importance is facial pigmentation. It causes a lot of psychological, emotional and in some mental disturbance.

Facial pigmentation is relatively common but difficult to know the exact etiology. Multiple factors including genetic and racial factors also play an important role.

The various clinical presentations of facial pigmentation described are Melasma, Reihl's melanosis, Poikiloderma of civatte, Erythrose peribuccale pimentaire de Brocq, Erythromelanosis follicularis of the face, neck and Peri-orbital pigmentation.

1.1 Review of Literature

The skin colour of the individual is determined by the relative concentration of melanin it contains. It is dependent on many factors genetic, environmental, hormonal and drugs. Hyperactivity of melanocytes causes hyper-pigmentation resulting darkening of skin. Melanocytes are present in the skin, hair, eye, mucous membranes and central nervous system. They have a protective role in the skin and eye against UV radiation.[1]

The number of melanocytes varies with age and body site. Every 10 years there is 8%-10% reduction in their number and a decrease in activity with age. Chronic sun exposure increases their activity but not the number. Dark individuals have more active melanocytes. In animals melanophores are present which help them to change their color.

The melanocyte resides in the basal layer and each is associated with 36 keratinocytes which forms the Epidermal Melanin Unit. They transfer their melanin to the surrounding keratinocytes which increases with exposure to UV light.

Melanin is the pigment of skin, hair, and eye. It is derived from tyrosine and related compounds by oxidative phosphorylation [2-4]. They are of two types Eumelanin and Phaeomelanin. It is degraded in keratinocytes during its ascent to the stratum corneum [2,3].

Melasma -chloasma, mask of pregnancy, hypermelaonis.[1,2]

Background

It is an acquired hypermelanosis of sun exposed areas. And presents as symmetric hyperpigmented macules, which can be confluent or punctate. The cheeks, forehead, upper lip, chin are the most common sites. Chloasma is melasma of pregnancy.

Factors influencing are female hormonal activity, thyroid or ovarian dysfunction, photosensitizing medications, and certain cosmetics. Exposure to sunlight is an important aetiological factor and hence in treatment of melasma, avoidance of sunlight is of prime importance.

Genetic predisposition is seen in women, >30% have family history of melasma. It is common in dark skin types and females of reproductive age groups.

Clinical features

Commonly occurs on the face which may be well demarcated or diffuse. There are 3 clinical patterns Centrofacial, Malar, Mandibular[1,2].

Histopathology shows 3 patterns of pigmentation depending on the level of melanin deposition – Epidermal, Dermal and Mixed types.

Reihl's Melanosis [pigmented cosmetic dermatitis, melanosis faciei feminae]

Reihls melanosis is a non-pruritic pigmentary dermatosis affecting face. It is characterized by brownish grey pigmentation more marked on forehead and temples. It is commonly seen in dark individuals and women are more affected.

Clinical features:

Clinical features include Diffuse, reticular or patchy brown pigmentation of cheeks and forehead, which may be of sudden onset. Histopathology shows interface dermatitis with liquefactive basal cell degeneration with increased melanin [5-8].

Poikiloderma of civatte [Berkshire neck, mottled pigmentation of neck, Poikilodermatous lesions]

It is a reddish brown reticulate pigmentation of the face with talengectasia and atrophy of face and neck, commonly seen in females.

Benign conditions associated with it are genodermatosis, connective tissue diseases, mycosis fungoides, and radiodermatitis.

It is commonly seen in fair skinned, middle aged and elderly females [2]. Chronic exposure to ultraviolet light, genetic predisposition, hormonal influence and few photosensitizing chemicals present in cosmetics are thought be the causative factors.[2,9,10]

Clinical Features:

Sun exposed areas are more commonly affected. There is a reddish brown discolouration with atrophy and talengectasia seen on the lateral aspects of cheeks and sides of neck [2].

Histopathology shows hydropic degeneration of basal layer with melanin incontinence and inflammatory infiltrate in the upper dermis.

Erythromelanosis follicularis of face and neck [Erythromelanosis follicularis faciei et colli, Erythromelanosis][2]

It is an erythematous pigmentary disease affecting the follicles. A chromosomal instability is thought be the causative factor. Young adult males are commonly affected.

Clinical features:

Well defined reddish brown lesions with talengectic vessels and papules in the pre-auricular and maxillary areas [11].

Erythrose peribuccale pigmentare de broco [Erythrose peribuccale pigmentaire, erythrosis pigmentata faciei][2]

There is erythema and diffuse brownish pigmentation of peri-oral region. More common in middle aged women. There are fluctuations in erythema.

Periorbital pigmentation [Familial periorbital hyperpigmentation, dark circles][1,2]

It presents as brown or dark pigmentation around the eyes occurs in both the sex. Lack of sleep, refractive errors, physical and mental strain is probably the etiological factors

2. Material & Methods

2.1 Study Group

The patients attending OPD with complaints of pigmentation of face of both the sex were included. A 2 year study from Jan2012 to Dec2013 was done in a tertiary care hospital.

2.2 Inclusion Criteria

All age groups and patients of both the sex with facial pigmentation were included.

2.3 Exclusion Criteria

Pigmentation secondary to other dermatological disorders and Nevi were excluded.

2.4 Examination

Patients were thoroughly examined and a detailed history concerning regarding the duration, onset was noted. The necessary investigations with further evaluation were done. In some cases if indicated, Patch test was done. Consent was taken from all the patients.

3. Observations and Results

The present study was done in 100 patients with facial pigmentation among total 1264 patients who attended the skin out-patient department during Jan to Dec 2012.

Age – Most of the group presented with pigmentation of face were between 15-50yr s. Majority of them [49%] were in the age group of 21-30yrs. And 9% were in < 20yrs of age, 7% in 41-50yrs. Common age group was <40yrs [93%].

Sex Distribution

The present study showed a female predominance. The female [80] to male [20] ratio being 4:1

Type of Facial Pigmentation

Out of the total cases of various facial pigmentation 55% had Melasma, 35% had Reihl's melanosis and 10% Periorbital melanosis.

Other types of pigmentations like Poikiloderma of civatte, Erythrose peribuccale, Erythrose melanosis were not found.

Melasma –

Sex Distribution: 55 cases of Melasma were studied out of which 24 were female and 1 was male, ratio being 24:1

Age Distribution

Majority [46%] of the patients belonged to 21-30 yrs. 36% were in 31-40yrs age group, 9% each were in age <20yrs and >40yrs. No cases were seen in age > 50yrs.

In all age groups females were more commonly affected. In our study youngest was 12yrs and oldest patient with, melasma was 48yrs.

Clinical Patterns of Melasma

Malar type was seen in 69% [38] centrofacial in 27% [15] and 4% [2] had melasma of nose. Mandibular pattern was not seen any patients.

Risk Factors

Family history [15], sun exposure [26], pregnancy induced [8], oral contraceptives [4] and with hypothyroidism [2] were found to be the risk factors.

Reihl's Melanosis

Females 21 and males 14 presented with Reihl's melanosis, ratio being 3:2.

It was more common in age group of 21-40 yrs. Females were affected in their younger age.

Common sites were forehead & temples [63%, 22] followed by face [23%, 8] and cheek [14%, 5].

Risk Factors

Sun exposure [20], positive family history [5] and use of cosmetics in remaining [10] patients were found to be associated with Reihl's melanosis.

Peri Orbital Pigmentation

Out of 10 cases 6 were females and 4 were males, with a female to male ratio of 3:2

40% each were in age group <20yrs and < 30yrs with 20% in <40yrs.

Females were more commonly affected. Youngest patient was 15yrs and the oldest was 39yrs of age. Majority [8] presented with infra-orbital involvement.

Stress [40%], family history [40%] and refractory errors [20%] were probably the causative factors for peri-orbital pigmentation.

Most of them were between 21-30yrs with a female preponderance. In this study 55% had Melasma, 35% Reihl's melanosis, 10%with Periorbital pigmentation. Other type of facial pigmentation was not seen.

Melasma was more common among age group 21-30yrs. Malar type being common 69%. Family history was found in 27%., sun exposure in 54%, and pregnancy in 17%.

Reihl's melanosis was seen among 21-30yrs age in females whereas in males it was between 31-40yrs. Cosmetics were the aetiological factor in all with sun exposure in 57%.

Periorbital pigmentation showed female preponderance and involved mostly the infra-orbital regon. 40% each had a positive family history and stress factor, 20% with refractive errors.

Figure 1: Melasma with peri-orbital pigmentation

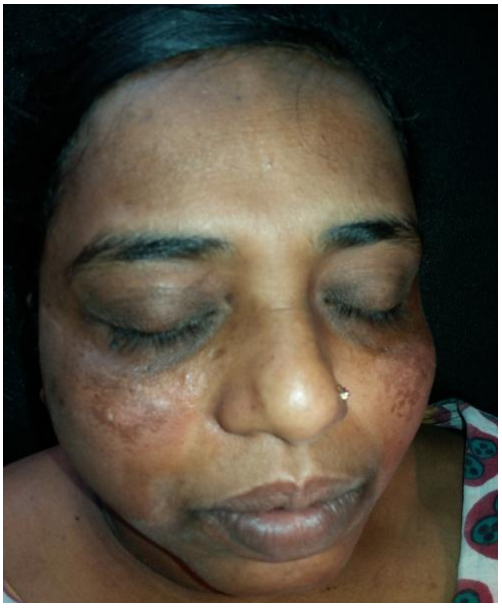
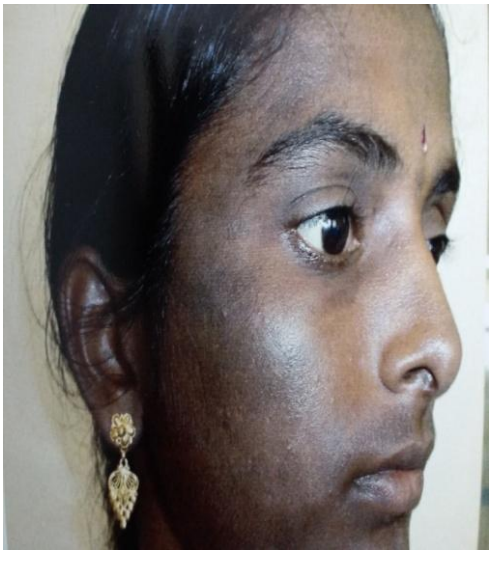


Figure 2: Reihls melanosis in a young female



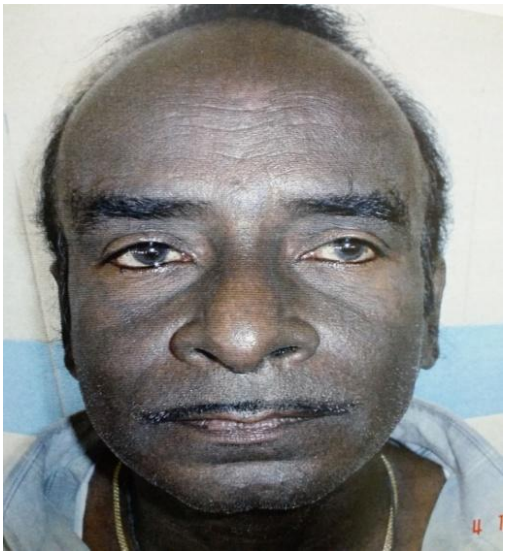


Figure 3: Male patient with diffuse facial pigmentation

Table 1: Table showing the age group affected with facial pigmentation

Age(yrs)	Male	Female	Total	Percentage (%)
<20	1	8	9	9
21-30	9	40	49	49
31-40	9	26	35	35
41-50	1	6	7	7
>50	0	0	0	0

Table 2: Table showing the sex distribution of facial pigmentation

Sex	Total	Percentage
Male	20	20
Female	80	80

4. Discussion

Facial melanosis is a common pigmentary disorder and is also of concern to the patient. During our study period of 1yr a total of 100 cases were clinically detected with pigmentation of face.

The age, sex, occupation of patient and a detailed history of duration, sun exposure, family history, any hormonal therapy or use of cosmetics were noted. And depending on the aetiology the required investigations were done.

Melasma was seen in 55 patients, Reihl's melanosis in 35 patients and 10 patients had Peri-orbital pigmentation.

Malar type of Melasma was a more common presentation [69%] followed by centrofacial [27.3%] and nasal [3.6%]. It was 73% and 21% in studies carried by Sanchez *et al* and Griffith *et al*.

In our study average age of onset of Melasma was 30yrs which was similar to the Griffith *et al* study.[12] The female to male ratio of 24:1 is almost the same as in a study done by Goh *et al* where this ratio was 21:1[13]. It indicates that melasma is more common among females.

A history of oral contraceptives was found in 12.7% similar to Goh's and Lufti *et al* studies [13,14]. Our study had 16.36% pregnant females in second trimester with chloasma which was 12.1% in their study [13].

In a study by Vanquez males were less affected with melasma which was similar to our study [15].

Reihl's melanosis was predominant in 21-30yrs group1. Peri-orbital pigmentation was more common among females.

A positive family history of melasma was seen in 27% in our study which varies with that of 47% as reported by Candance [16].

In Peri-orbital pigmentation there was positive family history in 40%, suggesting autosomal dominant inheritance and probability of role of hormones [17].

In all the patients with Reihl's melanosis there was a history of use of cosmetics in the form of creams, oils, perfumes, dyes etc[17].

Sun exposure was an aetiological factor in 54% of our patients whereas it was low, 26.8% in study by Goh & Dolva [13].

In all cases of facial pigmentation the level of pigmentation can be assessed with woods lamp [18].

5. Conclusions

Facial pigmentation is commonly seen in 21-30yrs age group. A female predominance has been noted. The most common clinical facial pigmentary disorders were Melasma, Reihl's melanosis, and Periorbital pigmentation. Melasma was the commonest of all the pigmentary disorders of face.

Sun exposure, family history and cosmetics were the aetiological factors in most of the cases. Stress and refractive errors were other risk factors in Periorbital pigmentation.

References

[1] Fitzpatrick's textbook and atlas of Dermatology in General Medicine, Fifth edition [page no's 986,996,998]

[2] Rook's text book of Dermatology; Seventh edition: Edited by Tony Burns, Stephen Brethnac, Neil Cox, Christopher Griffths[page no's-39.16,39.40] Published by Black Well Science Ltd.

[3] Alhaidri Z,Olivry T *et al* "Melanocytogenesis and melanogenesis: genetic regulation and comparative clinical diseases" *Vet Derm* 1999; 10 (1): 3-15.

[4] White S, Yager J. "Resident Dendritic Cells in the Epidermis: Langerhans Cells, Merkel Cells and Melanocytes" *Vet Derma* 1995; 6 (1): 1-8.

[5] Nagao S, Iijima S: Light and electron microscopic study of Reihl's melanosis. Possible mode of its pigmentary incontinence. J *Cutan Pathol* 1974; 1(4):165-75.

[6] Nakayama H, Harada R, Toda M: Pigmented cosmetic dermatosis. *Int J Dermatol* 1976 Nov; 15(9): 673-5.

[7] Nakayama H, Matsuo S, Hayakawa K *et al*: Pigmented cosmetic dermatitis *Int J Dermatol* 1984 Jun; 23(5): 299-305.

[8] Osmundsen PE: Pigmented contact dermatitis. *Br J Dermatol* 1970 Aug; 83(2): 296-301.

[9] Rorsman H: Reihl's melanosis. *Int J Dermatol* 1982 Mar; 21 (2): 75-8.

[10] Pierni LE, Bosq P. Maladie de civatte. *Ann Dermatol syphilol* 1938; 9: 381-420.

[11] Juhlin I, Alkemede H, Erythrosis pigmentosa mediofacialis[Broq] and erythromelanosis follicularis faciei et colli in the same patient. *Acta Derm Ven* [Stockh] 1999; 79: 65-6.

[12] Griffiths CE, Finkel LT *et al*. Topical tretinoin improves Melasma: A vehicle controlled clinical trial. *Br J Dermatol* 1993; 129:415-21.

[13] Goh, Dolva, *et al*. Clinical and histological study. *Arch Dermatol* 1994; 130: 727-33.

[14] Lufti RJ, Fridmanis M, Misrunas AL, *et al* Association of melasma with thyroid autoimmunity and other thyroid abnormalities and their to the origin of melasma. *J Clin Endocrinol Metab* 1985; 61:28-31.

[15] Vanquez M, Maldonado *et al*. Melasma in men: a clinical and histological study. *Int J Dermatol* 1988; 27:25-7.

[16] Candace, *et al*. Etiological and therapeutic considerations in Melasma. *Arch Dermatol* 1995; 131:1453-7.

[17] Hassan I, Kaur I, Sialy R, *et al* hormonal profile in melasma. Book of abstracts, 25th National conference IADVL, Guwahati, Jan 1997: p-27.

[18] Gilchrest BA, Fitzpatricks TB Andersn RR, *et al* Localization of melanin pigmentation with woods lamp. *Br J Dermatol* 1997; 96: 245-8.