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A Clinico-Epidemiological Study of Melasma in Pune Patients

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Abstract

Background: Melasma is a commonly encountered pigmentary disorder in dermatology practice. This study is aimed at studying the epidemiology, clinical presentation, and precipitating and/or provocation factors associated with melasma.

Methods: Total 120 patients with melasma were enrolled. The demographic data was recorded and clinical evaluation was done.

Results: Female to male ratio was 3.28:1. Mean age of onset of melasma was 29.4 years. Mean duration of melasma was 4.51 years. All patients reported moderate to chronic photo exposure as an aggravating factor for melasma. Total 52.17% females experienced exacerbation of melasma during pregnancy. MASI score was ranging from lowest being 4.5 whereas highest being 38.6. Mean MASI score was 16.94. Evaluation with Wood's lamp showed 50% patients had epidermal melasma.

Conclusion: This study indicates that melasma has multifactorial etiology such as photoexposure and hormonal influences such as pregnancy, intake of oral contraceptive pills and thyroid disorders. We also found family history of melasma in some of our patients.

Keywords: Melasma; Pregnancy

Introduction

Melasma is an acquired increased pigmentation of the skin characterized by symmetrical and confluent grey-brown patches mostly on the areas of the face exposed to the sun, such as the cheek bones, forehead, and chin. It may occasionally affect other areas such as the neck and forearms [1].

The word melasma originates from the Greek root "melas", which means black, and refers to its brownish clinical presentation. The designations: "mask of pregnancy", liver spots, uterine chloasma, chloasma gravidarum, and chloasma virginumdo not fully characterize the disease, nor are semantically appropriate, although the term "chloasma" (derived from the Latin chlóos and the Greek cloazein: greenish) is still used in the medical literature [2].

The exact prevalence of melasma is unknown in most of the countries. Melasma is a very common cutaneous disorder, accounting for 0.25 to 4% of the patients seen in Dermatology Clinics in South East Asia, and is the most common pigment disorder among Indians [2,3]. The disease affects all races, but there is a particular prominence among Hispanics and Asians. Although women are predominantly affected, men are not excluded from melasma, representing approximately 10% of the cases. It is rarely reported before puberty [2,3].

The exact underlying etiology for melasma remains unknown while several well known risk factors exist. Melasma is more common in darker skin types, particularly Fitzpatrick skin types III and IV [4,5]. Other reported risk factors include genetic predisposition, exposure to ultraviolet light, pregnancy, and exogenous hormones (i.e. oral contraceptives and hormone replacement therapy), consumption of certain food items, ovarian tumors, intestinal parasitoses, hepatopathies, use of cosmetics and photosensitizing drugs, procedures and inflammatory processes of the skin, and stressful events [6-9].

According to their clinical distribution, facial melasma lesions can be categorized into two types:

1. Centrofacial Melasma

2. Peripheral Melasma

In the centrofacial type, lesions found in the center of the face, i.e., in the glabellar, frontal, nasal, zygomatic, upper lip and chin areas.

In the peripheral type, the fronto-temporal, preauricular and mandibular branch areas are affected [4].

Using the Wood's light examination, melasma can be classified into four major histological types depending upon the depth of pigment deposition. The epidermal type, dermal type, mixed type and intermediate type [10]. This study is aimed at studying the epidemiology, clinical presentation, and precipitating and/or provocation factors associated with melasma.

Materials and Methods

Total 120 consecutive patients with a clinical diagnosis of melasma were enrolled for the study.

The demographic data regarding age at present, age of onset of melasma, sex, duration of the disease, and family history were noted. The data of different predisposing factors like sun-exposure, pregnancy, use of cosmetics and other endocrinal diseases were included.

Clinical evaluation was done and Fitzpatrick skin types were recorded. Depending on the distributions of lesions, they were divided into forehead, right malar, left malar and chin area. Melasma Area Severity Index score (MASI) was calculated [5] and Wood's lamp examination was done to determine the histological pattern.

Results

Total 120 patients suffering from melasma, attending outpatient department of dermatology were included in our study, out of which 92 patients (76.66%) were females and 28 (23.33%) were males [F:M = 3.28:1]. Mean age of onset of melasma was 29.4 years. In males mean age of onset was slightly earlier, that is, 24.78 years as compared to 30.80 years in females. More than 50% of female patients developed melasma during third decade of their lives. Mean duration of melasma was 4.51 years (2.64 in males and 5.07 in females). Out of 120 patients only 20 (16.67%) (2 males and 18 females) patients had positive family history of melasma. All 120 patients reported moderate to chronic photo exposure as an aggravating factor for melasma. Fourty eight (52.17%) females experienced exacerbation of melasma during pregnancy. Only 15 (16.3%) female patients took oral contraceptive pills in our study. There was no other endocrine abnormality noted, except hypothyroidism in 4 (3.33%) patients out of 120 cases of melasma.

Out of 120 patients, 100 (83.33%) patients had type IV, 12 (10%) had type V and remaining 8 (6.67%) patients had type III Fitzpatrick skin types. Clinically all 120 (100%) patients had malar involvement, 76 (63.33%) had forehead involvement and 16 (13.33%) had chin involvement. MASI score was ranging from lowest being 4.5 whereas highest being 38.6. Mean MASI score was 16.94 (F: 17.52, M: 15.04). On further evaluation with Wood's lamp, 60 (50%) patients had epidermal melasma, 14 (11.67%) had dermal and 46 (38.33%) had mixed epidermal and dermal type of melasma.

Discussion

Melasma is a common dyschromia that often motivates the search for dermatological care. Its prevalence varies according to ethnic composition, skin phototype, and intensity of sun exposure. Melasma is the fourth most frequent diagnosis and the first most commonly reported pigmentary dermatosis as per study conducted in Nepal in 2008 with 546 dermatological patients [11].

We found female to male ratio of 3.28:1, finding similar to study conducted by Achar Arun et al. [2] in 2011 which was 4:1 whereas in a study conducted in Brazil and Singapore it was 39:1 and 21:1 respectively [12,13].

The mean age of onset of melasma was 29.4 in our study, compared to 29.99 in study conducted by Achar Arun et al. [2]. In our study we found more than 50% of female patients developed melasma during third decade of their lives. While in Brazil, it was found that most of the female cases (>50%) develop between the second and fourth decades of life (20 to 35 years of age). This corroborates findings of the literature and suggests a hormonal relationship in the pathophysiology of melasma. In Tunisia, 87% of women were aged between 20 and 40 years. In India, Singapore and in a global study, the average ages of disease development were higher: 30, 34 and 38 years, respectively [4,12,13].

Thus patients with lower phototypes tend to develop the disease earlier in life. This suggests that melanin plays a photoprotective role and delays the appearance of melisma [4,12]. In our study mean age of onset was slightly earlier in males, that is, 24.78 years as compared to 30.80 years in females. While in Sarkar et al. study [14], mean age of onset was similar in males and females.

A positive family history was observed in 16.67% of patients. Achar et al. reported positive family history in 33.33% of patients [2]. Study conducted by Vazquez [15] observed positive family history varying from 20 % to 70%. In Tunisia only 3 patients amongst 197 reported a family history of melisma [5]. Exposure to sunlight was most common (100%) aggravating factor in our study finding similar to Pathak's study [16]. These findings are in great contrast with Sarkar et al. study showing, sun exposure in 58.1% of and Achar study [2] showing sun exposure in 55.12% of patients. In our study, 48 (52.17%) females experienced exacerbation of melasma during pregnancy and only 15 (16.3%) patients took oral contraceptive pills during the disease process. Findings resembling with Sarkar et al. study [14], showing association with pregnancy and OC pills in 45.3% and 19.4% respectively and Achar study [2] 22.4% and 18.4% respectively. In Tunisian study [5], pregnancy was reported as an aggravating factor by 51% of women and OC pills in 38% of women. The prevalence of melasma during pregnancy varies greatly among the studies conducted by different countries. A cross-sectional study in Southern Brazil identified melasma in 10.7% of 224 pregnant women [17] In Iran, melasma was identified in 16% of women; in Morocco, in 37%; and in Pakistan, in 46% [5,18,19]. This strengthens the evidence of hormonal involvement in the genesis of the disease, since high levels of estrogen, progesterone and melanocortin are possible triggering factors of melasma during pregnancy [20]. In France prevalence of melasma in group of 60 pregnant women was found to be 5% in 1994. A possible reason for this discrepancy between the studies could be the difference in skin types, which are higher in the Brazilian and Iranian populations, confirming the hypothesis that melasma is more common in more melanized skin types [21]. Pregnancy-induced melasma is associated with an earlier development of the disease and the involvement of a greater number of facial areas. However, it does not correlate with the hyperpigmentation of other areas [4,22,8].

We observed hypothyroidism in 3.33% patients, while Achar et al. [2] observed hypothyroidism in 6.4% of patients. According to distribution of the lesions malar involvement was most common finding consistent with studies from Singapore and South India, where malar distribution was most common [13,23].

83.33% of our patients had type IV, 10% had type V and 6.67% patients had type III Fitzpatrick skin types, and in Tunisian study 14% presented with phototype III, 45% phototype IV and 41% phototype V [5]. Under Woods lamp examination we observed epidermal pattern is commonest, in contrast to Achar study [2], and similar to Nicolaidou study which suggested that epidermal variety is most common [24].

Conclusion

This study indicates that melasma has multifactorial etiology such as photoexposure and hormonal influences such as pregnancy, intake of oral contraceptive pills and thyroid disorders. We also found family history of melasma in some of our patients.

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