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A hospital based dermatoscopic study for the classification of melasma

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Abstract---Objectives: This study was to evaluate the clinical profile and dermatoscopic classifications of melasma. Methods: A detail assessment, clinical examinations were performed to all patients. Clinical photographs were taken with full precautions to minimize the expression of the identity of the patient. Dermatoscopic evaluation of each subject was done. A USB Digital Magna-scope with 8LED light source, 20x to 200x magnification and 2Mega Pixel image sensor was used for dermatoscopic evaluation. Results: Most common dermatoscopic pattern was sparing of follicles 78(78%) followed by brown pigment 54(54%), accentuation of psuedonetwork 42(42%), brown –grey pigment 8(8%), grey pigment 11(11%) and perifollicular accentuation 4(4%). Telangiectasia was seen in 25(25%) patients. Conclusions: Melasma is more preponderance in middle age female. Most common factors for melasma are sun exposure and usage of fairness cream. Centrofacial is the most common type of melasma followed by malar. Sparing of follicles is one of the most common patterns of melasma on dermatoscopy. Hence, Melasma is a common acquired facial hyperpigmentary disorder which can cause a significant psychosocial impact in the patient. Dermatoscopy is a simple, non-invasive, office tool which helps in an accurate classification, early identification and therapeutic monitoring of melasma.

Keywords---melasma, dermatoscopy, classifications.

Introduction

Melasma is an acquired pigmentary condition. It is formerly known as chloasma [1]. It is a hypermelanosis of uncertain etiology that occurs exclusively in sun-exposed area mostly on face and rarely on the neck and forearms [2]. This disorder, which is more prevalent in females and darker skin types, is predominantly attributed to ultraviolet (UV) exposure and hormonal influences. Melasma is generally a clinical diagnosis consisting of symmetric reticulated hypermelanosis in three predominant facial patterns: centrofacial, malar and mandibular [2]. Facial melanoses are characterized by abnormal pigmentation of the face. These disorders include, but are not limited to, ashly dermatosis, discoid lupus erythematosus, ephelides, melasma, melasma with steroid-induced rosacea-like dermatitis, peribuccal pigmentation of Brocq, periorbital hyperpigmentation, post inflammatory hyperpigmentation, and solar lentigo. Also included are various types of nevi, such as Becker nevus, blue nevus, compound nevus, Hori nevus, intradermal nevus, junctional nevus, nevus of Ota, nevus spilus, and verrucous epidermal nevus [3]. Facial melanoses may also present as a result of ingestion of certain drugs like amiodarone, antimalarials, antipsychotics, chloramphenicol, clofazimine, pirfenidone and tetracycline [4].

Dermatoscope assist in diagnosing melasma and helps in to classifying melasma. A dermatoscope is a non-invasive, diagnostic tool which magnifies subtle clinical surface features of skin lesions as well as unveils some subsurface skin structures not normally visible even with a magnifying lens. It has facility of inbuilt specialized illuminating system (visible light, polarized light, and ultraviolet sources), adjustable magnification and ability to assess the structures as deep as the reticular dermis. Dermatoscopy is of great value in not just early diagnosis and differential diagnosis of melasma but ability to record digital images for future analysis, help in determining the outcome of melasma treatment. It assists in diagnosing melasma and helps in classifying melasma as epidermal, dermal and mixed. It classifies as [5]. Epidermal: Dark brown color sparing follicles and sweat gland openings [6]. Dermal: blue or bluish gray colour [7]. Mixed: Presence of both epidermal and dermal features. Objectives of our study was to evaluate the clinical profile and dermatoscopic classification of melasma.

Materials and Methods

This study was conducted in Department of Dermatology of Career Institute of Medical Science and Hospital, Lucknow, Uttar Pradesh, India during a period from September 2020 to March 2021. Attendants of entire subjects signed an informed consent approved by institutional ethical committee of Career Institute of Medical Science and Hospital, Lucknow was sought. A total of 100 melasma patients with age group 15-60 years were enrolled in this study. A detail assessment, clinical examination was performed to all patients. Clinical photographs were taken with full precautions to minimize the expression of the identity of the patient. Dermatoscopic evaluation of each subject was done and digital records were maintained. A USB Digital Magna-scope with 8LED light source, 20x to 200x magnification and 2Mega Pixel image sensor was used for dermatoscopic evaluation.

Observations

In this present study, out of 100 patients. 70(70%) patients were females and 30(30%) patients were males. Most of the patients 70(70%) were belonged in age group of 31-45 years.

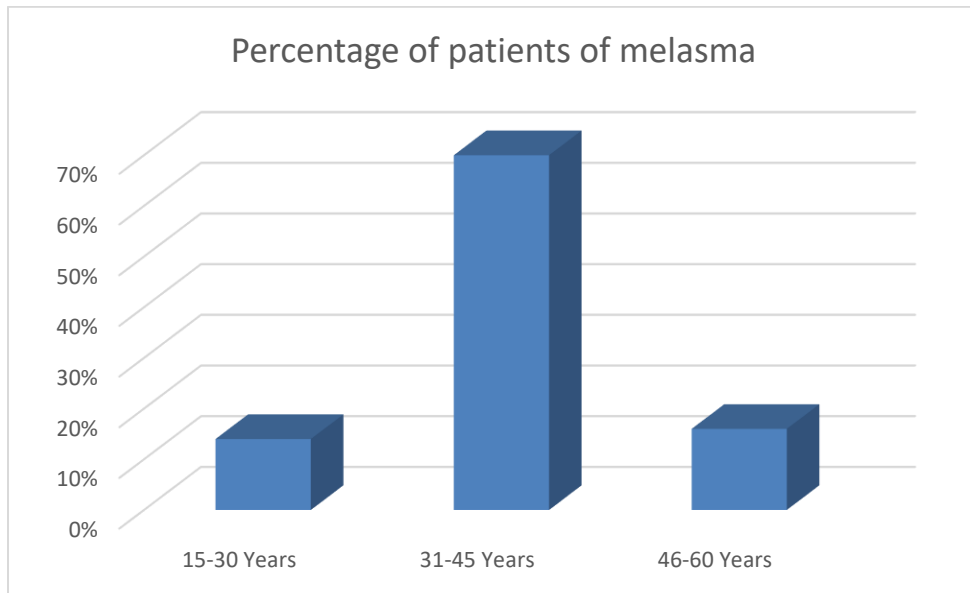


Figure 1. Age wise distribution of patients of melasma

The most common associated factors were sun exposure in 77(77%) patients followed by usage of fairness creams in 54(54%) patients and hypothyroidism in 8(8%) patients. Clinically, melasma was classified according to distribution pattern as centrofacial, malar and mandibular. The most common clinical type of melasma was centrofacial 54(54%) followed by malar in 37(37%) patients and mandibular in 8(8%) patients. MASI score grading was done to all patients. And maximum of 58(58%) patients had the score between 6-10.

Table 1
Showing the Dermatoscopic pattern of melasma

Dermatoscopic pattern	No. of patients	% Of patients
Accentuation of pseudo-network	42	42%
Sparing of follicles	78	78%
Brown pigment	54	54%
Brown grey pigment	8	8%
Telangiectasia	25	25%
Perifollicular accentuation	4	4%
Grey pigment	11	11%

On dermatoscopic evaluation, Presence of brown pigment as epidermal melasma, grey pigment as dermal type and both brown and grey pigment as the mixed type

were considered. Epidermal melasma was seen in 55(55%) patients, mixed melasma was seen in 35 (35%) patients and dermal melasma was seen in 10(10%) patients. Most common dermatoscopic pattern was sparing of follicles 78(78%) followed by brown pigment 54(54%), accentuation of psuedonetwork 42(42%), brown –grey pigment 8(8%), grey pigment 11(11%) and perifollicular accentuation 4(4%). Telangiectasia was seen in 25(25%) patients.

Discussions

Melasma is a relatively common, acquired symmetric hypermelanosis characterized by irregular, light to gray brown macules and patches involving the sun exposed areas of the skin. It typically affects women of reproductive age with Fitzpatrick skin type IV-VI, though the condition can occur in men also. The cause of melasma is multifactorial and includes pregnancy, sun exposure, hormone therapy, use of cosmetics, and racial or genetic effects. Though melasma does not cause any major health related problems it has a deleterious impact on the health-related quality of life. It severely affects social life, emotional well-being and physical health of the patients [8]. Females are more commonly affected [9] than males. In our study, melasma was present in 70(70%) females and 30(30%) males.

Exact pathogenesis remains elusive, however, genetic predisposition and ultraviolet light exposure seem to play an important role [10]. Diagnosis of melasma remains clinical and aided by Wood's lamp examination; the latter has also been questioned in the recent past [11]. Melasma needs to be differentiated from other causes of facial hypermelanoses, such as pigmented contact dermatitis, lichen planus pigmentosus, and erythema dyschromicum perstans. Histopathology is not performed routinely for diagnosis of facial hypermelanoses because of reluctance on part of the patient and physician alike as there is a risk of development of unsightly scar/postinflammatory dyschromia. Dermoscopy is increasingly being used for diagnosis of pigmentary disorders other than malignancy [12].

In our present study, the most common associated factors were sun exposure in 77(77%) patients followed by usage of fairness creams in 54(54%) patients and hypothyroidism in 8(8%) patients. These findings were almost consistent with those reported by Kaur et al where sun exposure was observed in 84% of their patients, cosmetic use in 58% of their patients and hypothyroidism in 10% of [13] their cases. Sun exposure as most common association was also [14] observed in other studies of Chemburkar et al and Guinot et al. According to literature, risk of thyroid dysfunction is increased with [13] melasma. In our present study, the most common clinical type of melasma was centrofacial 54(54%) followed by malar in 37(37%) patients and mandibular in 8(8%) patients. These findings were in accordance with those of Tamler et al [15] and Chemburkar [14] et al; both having maximum of centrofacial pattern.

Dermoscopy helps in the classification of melasma based on the colour of the pigment and various patterns. It magnifies the surface and [16] sub-surface structures of skin. Depending upon the location of the melanin pigment, it can be classified as epidermal, dermal and mixed melasma. In this present study, on

dermatoscopic evaluation, Epidermal melasma was seen in 55(55%) patients, mixed melasma was seen in 35 (35%) patients and dermal melasma was seen in 10(10%) patients. Most common dermatoscopic pattern was sparing of follicles 78(78%) followed by brown pigment 54(54%), accentuation of psuedonetwork 42(42%), brown –grey pigment 8(8%), grey pigment 11(11%) and perifollicular accentuation 4(4%). Telangiectasia was seen in 25(25%) patients.

In another study conducted by Neema et al [17] it was found out that reticuloglobular pattern was seen in 83(83%) of patients followed by perifollicular brown black globules in 60(60%) of the patients. Granules/dots formed 28(28%) of patients and unpatterned pigmentation in 17(17%) of the patients. In a similar study conducted by Neema et al [17] telangiectasia was observed in 33(33%) of patients. This is in accordance with our study as our study showed similar results. In another study by Chan et al [18] on 5 Chinese patients it was seen that there was no significant improvement in melasma and all five patients developed laser-induced depigmentation.

Conclusions

This present study concluded that the melasma is more preponderance in middle age female. Most common factors for melasma are sun exposure and usage of fairness cream. Centrofacial is the most common type of melasma followed by malar. Sparing of follicles is one of the most common pattern of melasma on dermatoscopy. Hence, Melasma is a common acquired facial hyperpigmentary disorder which can cause a significant psychosocial impact in the patient. Dermatoscopy is a simple, non-invasive, office tool which helps in an accurate classification, early identification and therapeutic monitoring of melasma.

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