A STUDY OF USE OF DERMATOSCOPY IN THE CLASSIFICATION OF MELASMA IN PATIENTS ATTENDING A TERTIARY CARE CENTRE

Dermatology

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ABSTRACT

Background: Melasma is one of the most common causes of acquired facial melanosis in Indian patients. Dermatoscopy is a non invasive office tool which magnifies the surface and sub-surface structures of skin. It helps in early diagnosis and monitoring the treatment of melasma. The present study was carried out to evaluate melasma both clinically and dermoscopically.
Methods: A total of 90 patients with clinical diagnosis of melasma were enrolled in the study. Clinical and dermatoscopic evaluation were done and all findings recorded.
Results: Out of 90 patients enrolled, 83 were females and 7 were males. Centrofacial type was the most common clinical type of melasma (57.7%). On dermatoscopic examination, 56.2% had epidermal melasma, 36.7% had mixed melasma and 11.1% had dermal melasma. The most common dermatoscopic pattern was sparing of follicles seen in 80% of cases.
Conclusion: Melasma has significant psychological impact in the patient. Dermatoscopy Ahelps in diagnosis, prognosis and monitoring of therapeutic efficacy. It also reduces the need of invasive techniques like biopsy on face.

KEYWORDS

Melasma, Dermatoscopy, classification

INTRODUCTION

Melasma is one of the most common causes of acquired facial melanosis in Indian patients. The term melasma was derived from a Greek word *'melas'* meaning black. It is characterised by the presence of asymptomatic brown or grey coloured patches distributed symmetrically on the face. [1] According to a study by Pichardo et al, the prevalence of melasma was found to be ranging between 1.5% - 33.3% depending on the population. [2] Melasma is most commonly seen in women with Fitzpatrick skin type IV-VI. A number of etiological factors have been associated namely UV radiations, hormonal factors, genetic factors, etc. [3] Clinically it is classified into three patterns namely, centrofacial, malar and Mandibular. Centrofacial type involves pigmentation on the forehead, malar, nasal and supralabial areas. Malar type is characterised by pigmentation on the nasal and malar areas and Mandibular type affects the respective region. [4] Dermatoscopy is a simple , non invasive technique used in the classification of melasma depending on the location of melanin pigment. It also exposes certain characteristic patterns associated with melasma. It helps in the diagnosis, prognosis and in monitoring therapeutic efficacy in melasma. [5]

AIMS AND OBJECTIVES

Aim was to study the use of Dermatoscopy in the classification of melasma.

Objectives included :
1. To evaluate lesions of melasma clinically in patients attending D.V.L OPD
2. To evaluate and classify the patterns of the same using a Dermatoscope

MATERIALS AND METHODS

This was a descriptive study conducted after obtaining approval from Institutional Ethical Committee. A total of 90 patients with clinical diagnosis of melasma reporting to the outpatient department of Dermatology in a tertiary care centre were enrolled in the study over a duration of 6months from March to August 2018. Patients of age more than 18years and willing to participate in the study were included after obtaining written informed consent. A detailed clinical evaluation of each patient was done. 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. The cases were sorted according to age, gender and clinical type of melasma. The dermoscopic patterns were also observed and recorded.

RESULTS

90 patients were enrolled in the study with 83 females(92.2%) and 7 males(7.8%). Majority of the patients i.e. 57 (63.3%) belonged to the age group of 31 to 42 years. The most common associated factors were sun exposure in 73patients (81.1%), usage of fairness creams in 51patients (56.7%) and hypothyroidism in7 patients (7.8%). Clinically melasma was classified according to distribution pattern as centrofacial, malar and mandibular. The most common observed clinical type was centrofacial in 52 patients (57.7%) {figure1}, followed by malar in 33patients (36.6%) {figure 2} and mandibular in 5 patients(5.5%) {figure 3}. MASI score grading was done and maximum of 52 patients (57.8%) had the score between 6-10.

Figure1: Centrofacial type involving forehead, nasal, malar and supralabial areas

Figure 2: Malar type involving nasal and malar areas

Figure 3: Mandibular type

In the present study, on dermatoscopic evaluation , we considered presence of brown pigment as epidermal melasma, grey pigment as dermal type and both brown and grey pigment as the mixed type. Epidermal melasma was observed in 47 patients (52.2%), mixed melasma in 33patients (36.7%) and dermal melasma in 10 patients (11.1%). Most common dermatoscopic pattern observed was sparing of follicles seen in 80% of cases {figure 4}. Other patterns observed were brown pigment in 52% cases , accentuation of psuedonetwork in 51% cases {figure 5}, brown –grey pigment in 36.7% cases , grey pigment in 11.1% and perifollicular accentuation in 3.3% cases. Telengiectasia were visible in 24% patients {figure 6}, (Table 1).
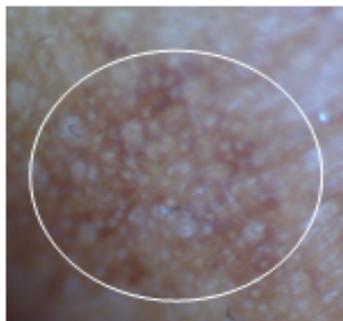

Figure 4: Sparing of follicles (in circle)

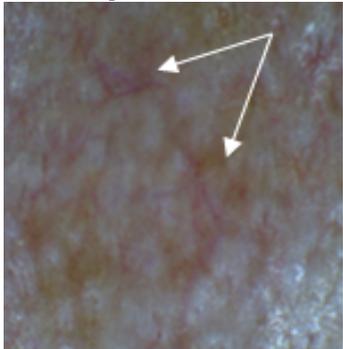**Figure 5: Accentuation of psuedonetwork (in circle)**

Figure 6: Telengiectasias (arrows)

Table 1: Dermatoscopic patterns in melasma (n=90)

Dermatoscopic pattern	Number of patients	Percentage(%)
Sparing of follicles	72	80
Accentuation of psuedonetwork	46	51
Brown pigment	47	52
Grey pigment	10	11.1
Brown-grey pigment	33	36.7
Perifollicular accentuation	3	3.3
Telengiectasia	22	24

DISCUSSION

Melasma is an acquired hyperpigmentary disorder characterised by asymptomatic symmetrically distributed patches of brown or grey pigmentation on face.[3] It is seen in Latin Americans, Middle East or Asians; most commonly affecting the light brown skin types (Fitzpatrick skin type IV-VI). Females are more commonly affected than males.[6] In our study, melasma was present in 83 females (92.2%) and 7males (7.8%).

A number of factors have been assosciated to the development of melasma which include sun exposure, genetic factors, use of fairness creams, pregnancy, hormonal factors,etc. [5]. In the present study, associated factors were sun exposure in 81.1% patients, fairness creams in 56.7% cases and thyroid disorder (hypothyroidism) in 7.8% cases. 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 their cases.[5] Sun exposure as most common association was also observed in other studies of Chemburkar et al and Guinot et al.[7] According to literature, risk of thyroid dysfunction is increased with melasma.[5]

The most common clinical pattern of melasma observed worldwide is centrofacial. This was consistent with the results of our study. Centrofacial pattern accounted to 52 patients (57.7%) in the present study followed by malar in 36.6% and Mandibular in 5.5%. These findings were in accordance with those of Tamler et al and Chemburkar et al; both having maximum of centrofacial pattern.[4,5]

Dermatoscopy helps in the classification of melasma based on the colour of the pigment and various patterns. It magnifies the surface and sub-surface structures of skin. [8] Depending upon the location of the melanin pigment, it can be classified as epidermal, dermal and mixed melasma. In the present study , observation of brown pigment was considered as epidermal melasma which included 47 patients (52.2%). Grey pigment suggested dermal melasma and accounted for 10 patients (11.1%). Both brown and grey pigment together constituted the mixed pattern and was observed in 33patients(36.7%). Our findings matched with those of Tamler et al and Chemburkar et al with maximum of epidermal (40% and 24.4%), followed by mixed (37.5 % and 15.5%) and dermal (22.5% and 13.4%) respectively in the two studies.[4,7] Assessment of pigment level has a prognostic significance as dermal melasma with deeper pigment requires longer duration of treatment.[5]

The most common dermatoscopic pattern observed in our study was sparing of follicles seen in 72 patients (80%). The other patterns observed were accentuation of psuedonetwork, brown pigment, grey pigment , grey-brown pigment and perifollicular accentuation. Other patterns documented in literature include reticuloglobular pattern and dotted pattern. Flattening of rete ridges with increased basal layer melanin is responsible for accentuation of pseudoreticular network. Melasma patients show telengiectasia which is due to angiogenesis secondary to ultraviolet radiation or steroid abuse. [5] In our study 24% patients showed telengiectasia.

Dermatoscopy provides a more accurate classification of melasma. It also helps in deciding the optimal treatment and monitoring the therapeutic efficacy in each case of melasma. Hence, a regular dermatoscopic evaluation is always advisable in every follow up visit of the patient.

CONCLUSION

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 accuarate classification, early identification and therapeutic

monitoring of melasma. As maintainance of digital records helps in easy comparison of findings of the previous visits, patient compliance is also increased. Dermatoscopy also helps in the visualisation of associated vascular features. Most importantly, this technique obviates the need of biopsy in cosmetically significant areas like the face.

Conflicts of interest: None

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