International Journal of Research in Dermatology
Kaur S et al. Int J Res Dermatol. 2018 Mar;4(1):41-45
http://www.ijord.com

DOI: http://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20180137

Original Research Article

A clinico-dermatoscopic study of 100 cases of melasma in a tertiary care hospital

Simplepreet Kaur[1]*, Jasleen Kaur[1], Saurabh Sharma[1], Manisha Sharma[2], Ameesha Mahajan[1], Anmolpreet Singh[3]

[1]Department of Dermatology, Venereology and Leprosy, [2]Department of Pathology, Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar, Punjab, India
[3]Adesh Institute of Medical Sciences and Research, Bathinda, Punjab, India

Received: 22 November 2017
Revised: 28 December 2017
Accepted: 29 December 2017

***Correspondence:**
Dr. Simplepreet Kaur,
E-mail simple.warraich@gmail.com

ABSTRACT

Background: Melasma is one of the most common hyperpigmentary disorders seen among Indian patients. Dermatoscope is a non-invasive tool that helps in visualization of surface and sub-surface changes. Recognition of characteristic dermatoscopic patterns of melasma helps in differentiating it from other hyperpigmentary disorders. The present study was carried out to study clinical and dermatoscopic patterns of melasma.
Methods: A total of 100 patients with clinical diagnosis of melasma were enrolled in this study. These patients were first examined clinically and then under dermatoscope. All the findings were recorded.
Results: Out of total 100 patients, 91 were females and 9 were males. Mean age of presentation was 34.86 years. Malar distribution pattern was the most common pattern observed in 54% patients. On dermatoscopic examination, 58% cases had epidermal melasma, 23% had dermal melasma and 19% had mixed melasma. Accentuated pseudoreticular network was the most common pattern seen in 88% cases.
Conclusions: Melasma is a distressing hyperpigmentary disorder. Dermatoscope helps in diagnosis and prognosis of melasma. Therapeutic efficacy of various modalities can be monitored using dermatoscope. It has reduced the need of invasive interventions like biopsy from face for histopathology.

Keywords: Melasma, Dermatoscope, Hyperpigmentation

INTRODUCTION

Melasma is one of the most common hyperpigmentary disorders seen among Indian patients. The word melasma has been originated from a greek word 'melas' which means black. It is known as 'chloasma' when it occurs during pregnancy.[1] It is characterized by presence of single or multiple hyperpigmented patches, symmetrically distributed over face and extending upto neck. It involves mainly sun exposed areas. Clinically, there are three types of melasma: centrofacial, malar and mandibular. Out of these three clinical types, centrofacial is the commonest seen in 63% of the patients. Centrofacial type involves the forehead, cheeks, upper lip, nose, and chin. The malar pattern involves the cheeks and nose and the mandibular pattern involves the ramus of the mandible.[2] Dermatoscopes have been largely used in white skinned individuals for study of melanocytic lesions.[3] Its potential has been tapped recently in various hyperpigmentary conditions like melasma. It's a non-invasive technique that helps in establishing diagnosis and differentiating melasma from other hyperpigmentary

disorders. This tool visualizes subtle clinical patterns of skin structures that are not visible to the unaided eyes. With the unfolding of dermatoscopic features of melasma and various other mimicking disorders, it has remarkably reduced the need of biospy for histopathology. The aim of the study is to characterize clinical and dermatoscopic patterns of melasma.

METHODS

Sample and procedure

A total of 100 patients with clinical diagnosis of melasma reporting to the outpatient department of Dermatology at Sri Guru Ram Das Institute of Medical Sciences & Research, Amritsar were enrolled in this study over a period of 6 months from January 2017 to June 2017. Patients in the age group of 18-50 years with melasma over face were selected for the study. Written informed consent was taken. Patients who had any active infection like herpes over the selected area or those who were taking treatment for the same condition were excluded. Detailed history with demographic details like age, sex, duration of illness was recorded. Clinical examination was performed to note color, morphology and site of melasma.

Dermatoscopic examination

For present study, Dermlite DL3N dermatoscope with pigment boost, polarized mode and magnification of 10 X was used. The site was selected, cleaned and observed through the dermatoscope. Various features of the lesion such as color, symmetry of pigment, pattern and vascular structures were noted. The photographs of the lesion were taken and recorded.

Statistical analysis

The results were tabulated and analysed statistically using SPSS Software 17.0 version. Percentages and mean values were calculated.

RESULTS

There were total 100 patients included in this study. Out of these, 91 were females and 9 were males with female to male ratio of 10.1:1. Majority of the patients i.e. 58 (58%) belonged to the age group of 31-40 years. Mean age of presentation among patients was 34.86 years with standard deviation of 7.8 years. Duration of melasma ranged from 5 months to 12 years with mean duration of 42.5 months. The most common confounding factor was found out to be sun exposure seen in 84 patients (84%). Use of various cosmetics, over the counter available topical steroid preparations, fairness creams were observed in 58 patients (58%). Anaemia was associated with melasma in 34 patients (34%) and associated hypothyroidism was present in 10 patients (10%). Oral drug intake was present in 41 patients (41%), out of which 8 females (19.5%) gave the history of oral contraceptive pills intake. Various indications for oral drug intake were diabetes mellitus, hypertension, hematinics and hypothyroidism. Positive family history was observed in 17 patients (17%). Most common distribution pattern of melasma observed was malar in 54 patients (54%) followed by centrofacial in 46 patients (46%) (Figure 1 and Table 1).

Table 1: Demographic distribution and clinical observations of patients (n=100).

Parameters	Number of patients (n)	Percentage (n %)
Gender distribution		
Females	91	91.0
Males	9	9.0
Mean age (in years)	34.86	-
Mean duration of illness (in months)	42.5	-
Confounding factors		
Sun exposure	84	84.0
Cosmetic use	58	58.0
Drug intake	41	41.0
Positive family history	17	17.0
Associated conditions		
Anaemia	34	34.0
Hypothyroidism	10	10.0
Distribution pattern		
Malar	54	54.0
Centrofacial	46	46.0
Mandibular	0	0

Table 2: Dermatoscopic findings in patients of melasma (n=100).

Dermatoscopic findings	Number of patients (n)	Percentage (n %)
Accentuated pseudoreticular network	88	88.0
Reticuloglobular pattern	81	81.0
Dotted pattern	19	19.0
Arcuate pattern	17	17.0
Visible telangiectasia	52	52.0
Perifollicular involvement	8	8.0

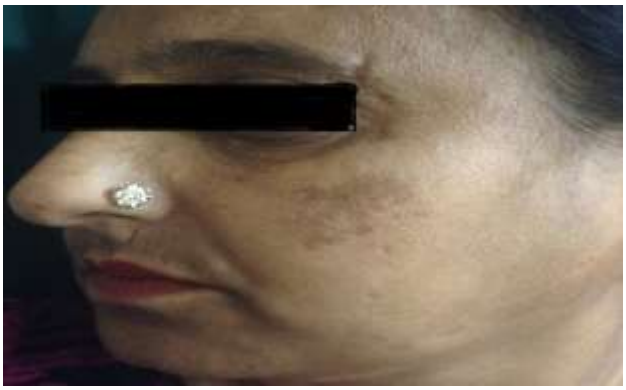

Figure 1: Showing malar distribution of melasma.

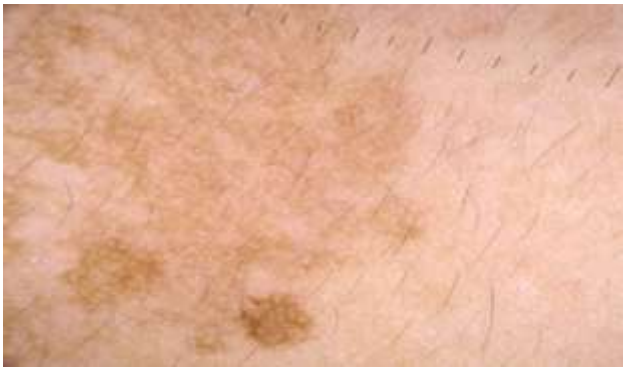

Figure 2: Dermatoscopy showing accentuated pseudoreticular network with reticuloglobular pattern.

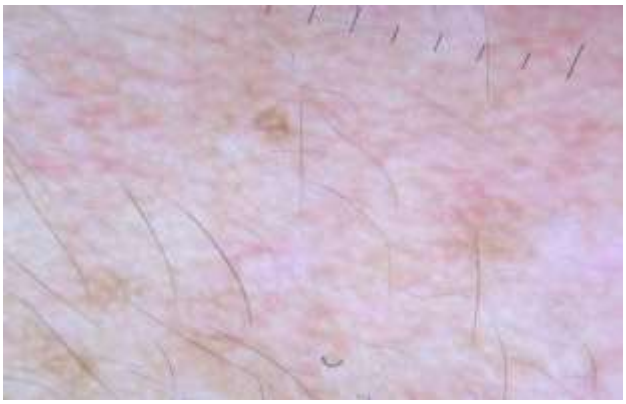

Figure 3: Showing telangiectasia under dermatoscope.

In present study, on dermatoscopic examination, epidermal melasma was observed in 58 cases (58%), dermal melasma in 23 cases (23%) and mixed in 19 cases (19%). Most common pattern observed was accentuated pseudoreticular network seen in 88 cases (88%) followed by reticuloglobular pattern in 81 cases (81%) (Figure 2). Other patterns observed were dotted pattern in 19% patients and arcuate pattern in 17% patients. Telangiectasia were visible in 52% patients (Figure 3) and perifollicular involvement was present in 8 cases (8%) (Table 2).

DISCUSSION

Melasma is a highly distressing, acquired hyperpigmentary disorder. It affects females of reproductive age group with Fitzpatrick skin types IV-VI. Males are less commonly affected than females.[3] In present study, melasma was present in 91 females (91%) and 9 males (9%). Mean age of presentation among patients was 34.86 years with mean duration of 42.5 months. Study by Achar et al reported mean age of presentation of 33.45 years with female to male ratio of 4:1.[1] Hassan et al reported mean age of 34.22 years.[4] Our findings were consistent with both these studies. Study by Sarkar et al documented melasma in 20% males which was higher than present study.[5]

Various etiological agents that attributes to melasma include sun exposure, genetic factors, use of cosmetics, pregnancy, hormone replacement therapy, use of oral contraceptives etc.[6] In present study, sun exposure was observed in 84% patients, cosmetic use in 58% patients and 41% patients gave the history of oral drug intake, out of which 8 females gave the history of oral contraceptive pills intake. Various indications for drug intake were hypertension, diabetes mellitus, hypothyroidism and anaemia. 18% females reported onset and exacerbation of melasma during pregnancy. Family history of melasma was present in 17% patients. These findings were almost consistent with those reported by Hassan et al where sun exposure was observed in 65.75% of their patients, exacerbation during pregnancy in 16% females, oral contraceptive pills intake in 6%, cosmetic use in 61.6% and positive family history in 20.5% patients.[4] Another study reported sun exposure in 55.1% cases, oral contraceptives intake in 18.4%, cosmetics use in 23.3% and positive family history in 3.3% cases.[1]

As per literature, risk of thyroid dysfunction is four times greater with melasma. In present study, 10% patients had hypothyroidism associated with melasma. Another study reported thyroid dysfunction in 10.9% patients of melasma.[4]

Centrofacial pattern of melasma is the most common pattern observed worldwide.[7] But in present study, most common pattern observed was malar (54%) followed by centrofacial (46%). None of the patients presented with mandibular distribution pattern. These findings were in accordance with findings of Manjunath et al where malar pattern was seen in 56% cases and centrofacial pattern in 44%.[8]

Dermatoscopic examination of a pigmented lesion can help in assessing level of pigment and disease can be classified according to the level of pigment. In present study, under dermatoscope, 58% patients had epidermal pigment, 23% had dermal pigment and 19% had mixed pigment. Shah et al, in their study observed 58.3% cases of epidermal melasma and 41.7% cases of dermal melasma.[9] On contrary, another study reported epidermal pigment in 36% cases, dermal pigment in 46% cases and mixed pigment in 18% cases.[8] Assessing pigment level also helps in deciding the prognosis of melasma for example in case of dermal melasma, prognosis is not so good and treatment will be required for longer duration.

Polarized mode of dermatoscope decreases the scattering of light from surface and helps in visualizing the subsurface changes.[10] In present study, dermatoscope revealed presence of accentuated pseudoreticular network in majority of the patients i.e. 88%, closely followed by reticuloglobular pattern in 81% cases. Other patterns observed were dotted pattern in 19% cases and arcuate pattern in 17% cases. These findings were comparable to those documented by Neema et al where reticuloglobular pattern was seen in 83%, dotted pattern in 28%.[11] Presence of reticuloglobular pattern can be attributed to the increased basal layer melanin pigment. Accentuated pseudoreticular network appears due to flattening of rete ridges with increased basal layer melanin.[12]

In melasma patients, there is increase in both number and size of dermal blood vessels. These vessels can be appreciated through dermatoscope in the form of telangiectasia. Presence of telangiectasia in melasma patients can be attributed to the steroid abuse, coexisting rosacea or ultravoilet radiation (UVR) induced angiogenesis.[13] In present study, telangiectasia were visible in 52% cases. Out of this, 44% patients had applied some steroid preparations in the past and remaining patients were considered to have UVR induced telangiectasia. Perifollicular involvement was present in 8% cases. These findings were in contrast to those documented by above mentioned study where only 33% patients had visible telangiectasia under dermatoscope.[11]

Dermatoscope helps not only in making diagnosis but also in selecting optimal treatment for melasma. In those patients where increased number of telangiectasia are seen, such patients should not be given steroid containing triple combination. While the patient is taking treatment, during every follow up dermatoscopic examination should be done and compared with previous findings. This helps in monitoring the therapeutic efficacy of treatment given to the patient. Also, it will help in detecting the worsening of disease or any side effect to the given treatment. By delineating the characteristic features of melasma, dermatoscope has reduced the need for biopsy for histopathology.

CONCLUSION

Dermatoscope is a simple, easy to use, non-invasive office tool that helps in various ways from making diagnosis to monitoring the treatment. Melasma is a complex hyperpigmentary disorder which requires early diagnosis and intervention. All the patients of melasma should be evaluated under dermatoscope for their classification, pattern identification and to visualize underlying vascular structures. This will help in reducing the unnecessary invasive intervention such as biopsy from face. The limitation of our study was small sample size, hence there is need of more dermatoscopic studies in melasma with larger cohort size.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Achar A, Rathi SK. Melasma: a clinico-epidemiological study of 312 cases. Indian J Dermatol. 2011;56(4):380–2.
2. Khanna N, Rasool S. Facial melanoses: Indian perspective. Indian J Dermatol Venereol Leprol. 2011;77(5):552-64.
3. Sarkar R, Arora P, Garg VK, Sonthalia S, Gokhale N. Melasma update. Indian Dermatol Online J. 2014;5:426-35.
4. Hassan I, Aleem S, Bhat YJ, Anwar P. A clinicoepidemiological study of facial melanosis. Pigment Int. 2015;2:34-40.
5. Sarkar R, Puri P, Jain RK, Singh A, Desai A. Melasma in men: a clinical, aetiological and histological study. J Eur Acad Dermatol Venereol. 2010;24(7):768-72.
6. Handel AC, Miot LDB, Miot HA. Melasma: a clinical and epidemiological review. An Bras Dermatol. 2014;89(5):771–82.
7. Chatterjee M, Vasudevan B. Recent advances in melasma. Pigment Int. 2014;1:70-80.
8. Manjunath KG, Kiran C, Sonakshi S, Ritu Agrawal. Melasma: Through the eye of a dermoscope. Int J Res Dermatol. 2016;2(4):113-7.

9. Shah AN, Patel D, Kasundara V, Shah K. A Clinical, Etiological and Histopathological Study of Acquired Facial Melanosis. Sch J App Med Sci. 2016;4(12):4439-45.
10. Nischal K C, Khopkar U. Dermoscope. Indian J Dermatol Venereol Leprol. 2005;71(4):300-3.
11. Neema S, Chatterjee M. Dermoscopic characteristics of melasma in Indians. A cross sectional study. Int J Dermoscop. 2017;1(1):6-10.
12. Khopkar US. Dermoscopy and Trichoscopy in Diseases of the Brown Skin. Atlas and short text. 1st ed. New Delhi: Jaypee; 2012.
13. Sonthalia S, Sarkar R. Etiopathogenesis of melasma. Pigment Int. 2015;2:21-7.

Cite this article as: Kaur S, Kaur J, Sharma S, Sharma M, Mahajan A, Singh A. A clinico-dermatoscopic study of 100 cases of melasma in a tertiary care hospital. Int J Res Dermatol 2018;4:41-5.