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IP Indian Journal of Clinical and Experimental Dermatology

Journal homepage: www.ijced.org/

Original Research Article

Dermoscopic features of Melasma

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ARTICLE INFO

Article history:
Received 08-12-2023
Accepted 22-12-2023
Available online 12-03-2024

Keywords:
Melasma
Dermatoscope
Non invasive

ABSTRACT

Background: Melasma, is a chronic acquired disorder of hypermelanosis of skin which is exposed to ultraviolet radiation. The clinical presentation is most often in the form of hyperpigmented patches over the face in three common patterns: Centrofacial, malar and mandibular. It is commonly seen in pigmented skin phenotypes (Fitzpatrick skin types III-V). The disease has an impact on the quality of life of patients. Dermoscopy is an in vivo noninvasive technique used to examine pigmented and amelanotic skin lesions. The technique is performed using a hand-held self-illuminating device called dermatoscope that visualizes features present under the skin surface.
Aim: To study dermoscopic (dermatoscopic) features of melasma and to distinguish between epidermal and dermal melasma based on dermoscopic features.
Materials and Methods: This study was conducted in an OPD in a clinic on 40 patients of melasma. Dermoscopy was done and their dermatoscopic features were recorded, melasma was classified as epidermal or dermal depending on dermatoscopic features.
Results: Dermatoscopic features of melasma seen were – Accentuation of pseudoreticular pigment network, light to dark brown in colour sparing of the periappendageal region (follicular and sweat gland openings), brown granules, blue- gray perifollicular accentuation honeycomb like reticular pattern and arcuate pigmented lines. 18 patients (45%) showed epidermal type 9 patients (22.5%) revealed dermal type of melasma, 13 patients showed mixed features (epidermal and dermal). Melasma with steroid abuse showed marked erythema and telangiectasia.
Conclusion: Dermatoscope is a valuable aid to diagnose, classify and to monitor treatment of melasma.

1. Introduction

Melasma is a chronic skin condition seen very commonly in Indian skin type (Fitzpatrick IV,V,VI). Treatment of melasma is long-term and complicated with recurrence and resistance to treatment.[1] The pathogenesis of melasma is highly complex with multiple pathologies occurring outside of the skin pigment cells.[2,3] It includes photoaging, an increased number of mast cells, increased vascularization, and basement membrane damage. Hormonal factors such as oral contraceptives, pregnancy, genetic factors, chronic inflammation of the skin and prolonged exposure to solar radiation remarkably affect the etiopathogenesis and development of melisma.[4] It can also be caused by photosensitizing substances, thyroid diseases, hepatopathies, ovarian tumors and increased stress.[5] Several studies showed a very varied prevalence of melasma, ranging from 1% in the general population to up to 9–50% in populations at risk.[6] Psychiatric conditions such as depressive and stress disorders are diagnosed in 76% of patients with melisma.[7] Since melasma requires prolonged treatment, it is important to diagnose it correctly

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https://doi.org/10.18231/j.ijced.2024.004

and monitor response to treatment . Dermatoscope which is a hand held self illuminating device with 10 x magnification, provides a valuable non-invasive tool for the same. As a diagnostic tool, it is free of any complications except in contact dermoscopy, there is small risk of transmission of infection. It has been used extensively for early diagnosis of malignant melanoma,basal and squamous cell carcinoma. It has been incorporated in artificial intelligence to generate an automated diagnostic unit. This study was conducted to highlight the use of dermatoscope in melasma. Despite being clinically distinct, melasma may be confused with other facial melanoses, including lichen planus pigmentosus, Riehl melanosis, nevus of Ota, nevus spilus, exogenous ochronosis, and pigmentary demarcation lines. Dermoscopy is very useful in differentiating melasma from its clinical differentials. Despite increased usage of dermoscope, there are not many studies which highlight the identifying features of melasma on dermoscope. There is a need to have an image bank of such site-specific, and skin type-specific dermoscopic nomograms to minimize errors in the interpretation of dermoscopic structures.

2. Aim

To identify dermatoscopic features of melasma and to differentiate between epidermal, dermal and mixed melasma.

3. Materials and Methods

A prospective, cross sectional study was done at OPD in a Dermatology clinic, from April 2022 to September 2022 (6 months). Forty patients of melasma were included after taking informed consent. Patients who had taken treatment for melasma in the last 1 month, pregnant and lactating women and patients with active cutaneous infection on face were excluded from the study. A detailed history including use of prescription drugs, significant medical history was elucidated. Clinical examination of each patient was done, diagnosis of melasma was made clinically. Dermoscopic examination of the lesion was done using Dermlite DL4. Photographs were taken using iphone 13.

4. Observations

The patients were between 18-55 years with a female preponderance, 36 females and 4 males. Mean age was 30.55 years. Duration of melasma ranged from 12-96 months. Exacerbating factors in our study were chronic sun exposure, indiscriminate usage of over the counter steroid cream and after pregnancy.

Dermoscopic features of melasma seen in our patients {Table 1}– Accentuation of pseudoreticular pigment network, light to dark brown in colour [Figures 1 and 2], sparing of the periappendageal region (follicular and sweat gland openings),brown granules and globules [Figures 2 and 3] honeycomb like reticular pattern [fig 3,4] and arcuate pigmented lines [Figure 4].

On dermoscopic evaluation 18 patients (45%) showed scattered islands of brown reticular network with fine granules scattered on surface (epidermal type),[Figure 4] perifollicular sparing, margins being well defined, 9 patients (22.5%) revealed diffuse brown pseudoreticular pattern with blue -grey pigment granules, blue- grey perifollicular accentuation (Figure 2) with indistinct borders (dermal type), 13 patients showed dark brown to grey hyperpigmentation forming certain patterns, honeycomb like reticular pattern, arcuate pigmented lines , pigment granules, grey brown concentric circles around follicular and ductal openings, features of both epidermal and dermal features (mixed type) (Figure 3). {Table 2} Melasma with steroid abuse showed marked erythema and telangiectasia (Figure 6). Clinically melasma due to steroid abuse showed erythema, telangiectasia along with dyspigmentation. (Figure 5)

Table 1: Dermoscopic features of melasma

Brown pigment network (reticular network)	18
Arcuate and annular structures	21
Telangiectasia	29
Brown globules	27
Honeycomb figures	17

Table 2: Types of Melasma

Epidermal melasma	18
Dermal	09
Mixed	13
Total	40

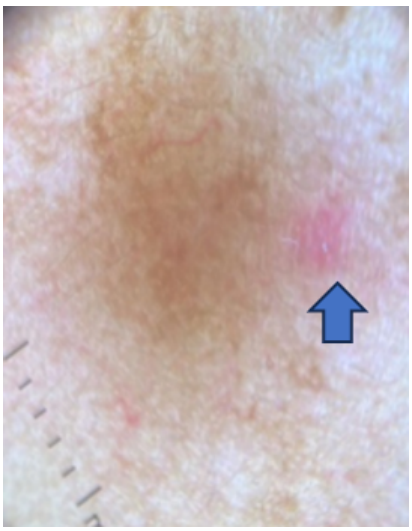

Figure 1: Accentuation of brown reticular network Telangiectasia due to steroid use(Blue arrow)

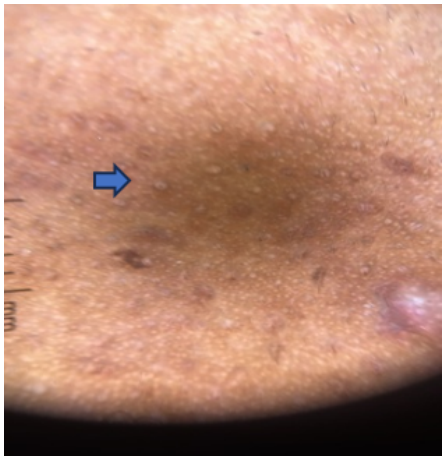

Figure 2: Accentuation of brown reticular network, Blue grey perifollicular accentuation (blue arrow)

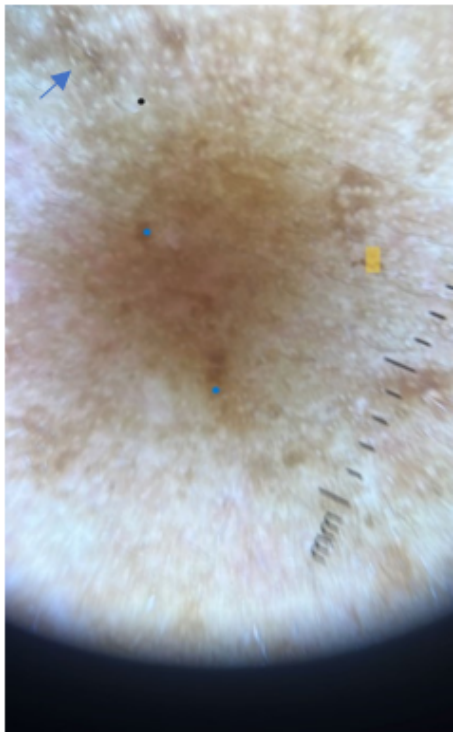

Figure 3: Brown granules and globules (Blue circles)Perifollicular accentuation (arrow)

5. Discussion

Melasma is an acquired, relapsing pigmentary disorder that affects photo-exposed areas, especially in women of child bearing age.[2,8] No curative treatment is available . Cause proposed is genetic, ultraviolet and blue violet visible light exposure, steroid hormones photosensitising drugs(phenothiazines, sulfonylureas, thiazide diuretics, tetracyclines).[2,8] Melasma has immense impact on patients' quality of life.[3] Therefore, the importance of timely

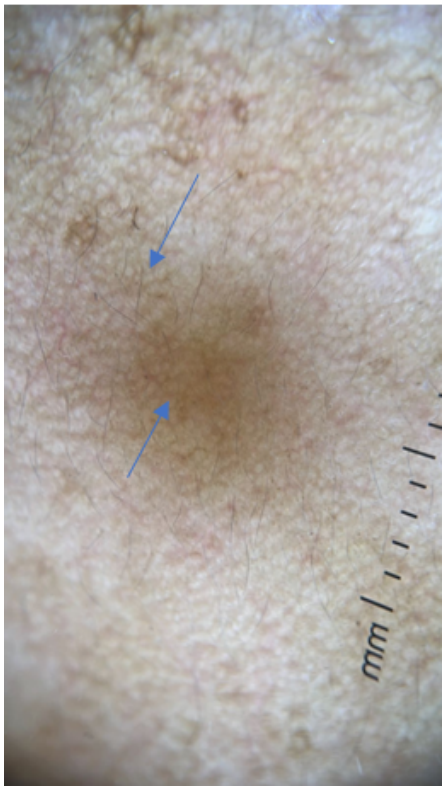

Figure 4: Arcuate pigmented lines (Blue arrows)

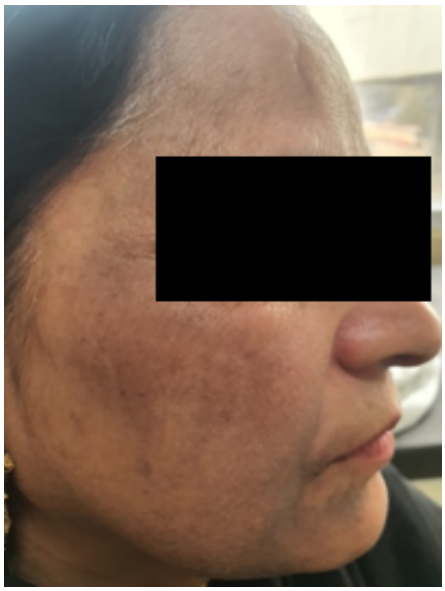

Figure 5: Melasma due to steroid abuse

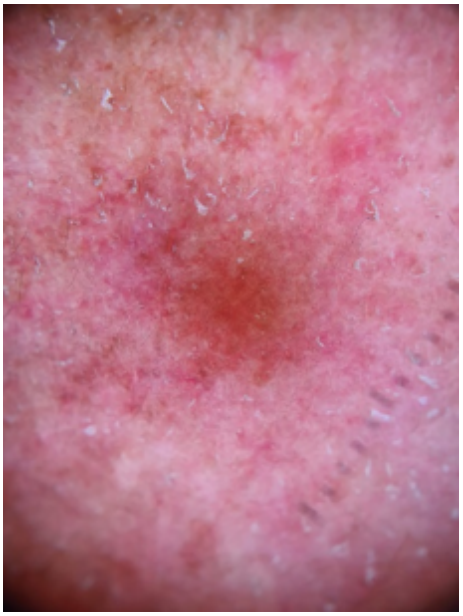

Figure 6: Marked erythema and telangiectasia,dyspigmentation Steroid abuse

assessment and interventions to improve patients' quality of life is gradually becoming highlighted in the process of diagnosis and treatment. The mean age in study by Ikino et al was 38.43±6.75 years. The most common Fitzpatrick skin phototypes were III (49.02%) and IV (33.33%). Melasma had a mean age of onset of 29.18±7.05 years and a mean duration of 9.25±6.18 years[4] Mean age of patients in our study is 30 .55 years. Dermoscopy is a noninvasive diagnostic tool that can identify colours, morphology, and patterns of pigmented lesions. According to a literature review, dermoscopic features commonly found in melasma are brown or grey pigmentation, regular and/or irregular pigment network, arcuate or curved structure, circles, and follicular sparing.[5] Though Wood's lamp is used to classify melasma, it is not useful in individuals with skin type V and VI due to optical factors.[6,9,10] Also images cannot be recorded and its observer dependent. Newer studies propose that the woods lamp examination is less specific and dermal melanin is unrecognized by this method.[10–12] Dermoscope helps in classification of melasma and can aid in diagnosing the dermal component of melasma. Lesions can be photographed and record can be kept, this helps in evaluating follow up and treatment. Dermoscopy allows for a more objective classification of melasma as it eliminates the interference by confounding factors such as vascular /collagen changes, topical agents etc.[8] Dermoscopy additionally allows the visualisation of the vascular component of melisma..[8,9] It also helps to distinguish melasma from other facial melanoses. There are very few studies on dermoscopic features of melasma, considering that it is a very common condition seen in Indian skin type and is a cause of considerable psychological distress. Dermoscopy may be an important tool to differentiate exogenous ochronosis from melasma. Greyish brown black amorphous structures in the perifollicular region are suggestive of exogenous ochronosis. These are seen obliterating the follicular openings.[7]

6. Conclusion

Melasma is a common acquired pigmentary disorder. In our study, dermoscopic features corroborative with epidermal and mixed melasma were more common. This was in concordance with previous studies.[13] There was increased vascularization in 29 (72.5%) of patients and this is in line with the study done by Abdal hay, et al[14] and Kim et al (2007).[15] The patterns seen in melasma in our study were thin pigment network, brown granules, arcuate structures, honeycomb figures, telangiectasia . In conclusion, Dermoscope is a simple, convenient, without side effects and easy to use to diagnose and follow up patients of melasma.

7. Source of Funding

None.

8. Conflict of Interest

None.

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Cite this article: Panesar G, Panesar N. Dermoscopic features of Melasma. *IP Indian J Clin Exp Dermatol* 2024;10(1):23-27.