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Characteristic dermoscopic signs of Melasma among patients attending dermatology-teaching centre in Sulaymaniyah city

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Abstract

Background and objectives: Melasma is a common acquired pigmentary disorder which mainly involves sun exposed areas and characterized by the presence of single or multiple hyperpigmented patches distributed symmetrically over face and extending up to neck. Dermoscopy is a noninvasive technique has been tapped recently in various hyperpigmentary conditions like melasma. This research aims to determine the characteristic dermoscopic signs of melasma.

Methods: A descriptive study of 100 patients with melasma were conducted over a period of 4 months, these patients were diagnosed clinically and digital images obtained first then dermoscopy examination done for different sites of face by: dermoscope device of 20X power of magnification, and Many digital images of dermoscopy findings obtained thorough attachment of the dermoscopic device to a smart phone.

Results: Females constitute 79% of our patients while 21% were males. On dermoscopic examination: 69% of cases had pseudoreticular network sign, 41% had arcuate and annular sign, 21% had globules sign, 32% had sparing of perifollicular region sign and 51% had telangieactasia sign. The presence of telengiectasia in male patients was statistically significant 80.95%, Malar distribution was the most common pattern observed in 68%, more than one pattern was present in a number of patients.

Conclusions: This study showed that the pseudoreticular network sign is the most common deromatoscopic signs among our patients. Telangiectasia is very common finding in our patients precisely in males.

Key words: Melasma; Dermoscope; Pseudoreticular; Telangiectasia; Male.

Introduction

Melasma is a common acquired pigment dis order across all racial and ethnic groups[1].Itis characterized by presence of a single or multiple hyperpigmented patches, symmetrically distributed over face and may extending up to neck involving regularly sun exposed areas. Clinically, there are three types of melasma: centrofacial, malar and mandibular. Centrofacial type infects the forehead, cheeks, upper lip, nose, and chin. The malar pattern involves the cheeks and nose and the mandibular pattern involves the

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ramus of the mandible[2].The etiology of melasma are unknown, however, multiple factors are implicated in its etiopathogenesis, encompassing mainly: ultraviolet light radiation, genetic factors, and role of female hormonal activity. Melasma exacerbation is mostly happens after uncontrolled ultraviolet exposure and contrarily melasma regularly lightened after a period of sun avoidance. Genetic factors are also involved, as suggested by familial occurrence and the higher prevalence of the disease among Hispanics and Asians. Other factors could play a role in the pathogenesis of melasma including pregnancy, oral contraceptives, estrogen progesterone hormones, thyroid diseases, certain cosmetics, phototoxic and anti-seizure medications[3].Recent studies have suggested that a connection between vessels and cutaneous pigmentation could exist and the patient's melanocytes may respond to angiogenic factors because normal human melanocytes express functional vascular endothelial growth factor (VEGF)receptors[4]. Presence of telangiectasia in melasma patients can be attributed to the steroid abuse, coexisting rosacea or ultraviolet radiation (UV) induced angiogenesis[5].Through Wood's lamp examination, three types of melasma are described: epidermal, there is a color accentuation as the light is absorbed by the excess of melanin in the basal or suprabasal regions; dermal, such accentuation is not noticeable; mixed, as the deposit of melanin occurs in both dermis and epidermis, and increased staining is seen only in a few sites. Some studies describe a fourth type that is unnoticed in examination by Wood's light, because it affects patients of phototype V and VI. It is named so because the melanin in these individuals is abundant and most of the light is absorbed by this pigment where, only a small amount of light seen by bare eyes, and the skin appears dark as a whole[6].Dermoscopy is increasingly used for the diagnosis of pigmentary disorders, its potential has been tapped recently in various hypermelanosis conditions as a noninvasive 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 biopsy for histopathology[7].The aim of this study is to determine the characteristic dermoscopic signs of melasma among our patients that might help in the diagnosis of melasma and correct management of melasma.

Patients and methods

After obtaining the approval of our research protocol by ethical and scientific committees of Kurdistan Board for medical Specialties, a total of 100 patients with melasma attended the Dermatology teaching Centre in Sulaymaniyah city from October 2019 to January 2020 over a period of 4 months were observed by this descriptive study. Their ages ranged between 21-48 years. A verbal and written informed consent obtained from each patient after explanating of the aim of the study and the details of investigations and questions that will be conducted on them A detailed history including: age, gender, melasma history (onset, duration), medical history was asked, and medication has been used either topically or systemically (contains steroid or not). General skin examination was conducted for them, to exclude any other hyperpigmented condition could be confused with melasma. The diagnosis of melasma is achieved clinically based on the expertise of two dermatologists. Wood's

light examination done only for suspected patients. Digital images were obtained first thorough Nicon's camera D2500 and dermoscopy examination done for different sites of face depending on the type of melasma by dermosscope (Standardized dermoscopic images with up to 20X magnification, Twin light mode for optimum polarization and immersion) and many digital images obtained thorough attachment of the dermoscopic device to a smart phone. Dermoscopic Images were analyzed independently by two different dermatologists and the characteristic dermoscopic signs of melasma were determined based on patterns described in the literature (pseudoreticular network sign, globules sign, arcuate and annular sign, sparing the perifollicular region sign and telangiectasia sign).The data was entered into a Microsoft Excel Spreadsheet and transported into SPSS (Statistical Package for the Social Sciences-version 21.0) The data presented in tabular forms showing the frequency and relative frequency distribution of different variables. Chi-square test and Fisher exact tests were used to compare the categorical data between different groups of patients.p-values of 0.05 were used as a cut off point for significance of statistical tests.

Results

In this study our Patients consisted of 79% females and 21% males and age ranging from 21 to 48 years. Mean age was 33.6 ± 6.7 years. Upon clinical examination, 31% patients had centrofacial distribution and 63% had malar distribution. The duration of melasma ranged between 4 months to 10 years with mean duration of 3.34 ± 2.46 years as shown in Table (1).

Table (1): Demographic distribution and clinical observations among different age groups and gender analysis of patients.

Characteristics	Mean ±SD	Frequency and %
Age		33.6 ± 6.7
	20 - 29 years	29
	30 - 39 Years	50
	40 - 49 Years	21
Duration	Mean ±SD	3.34 ± 2.46
	0 - 3 years	63
	4 – 6 years	23
	7 – 10 years	13
Gender	Male	21
	Female	79
Site	Centro-facial	31
	Maler	63
	Mandibular	1
	Mandibular and malar	5

On dermoscopic examination the following signs have been observed among our patients: pseudoreticular network sign, globules sign, arcuate and annular sign, sparing the perifollicular region sign, and telangiectasia sign as shown in Table (2).

Table (2): characteristic dermoscopic signs of melasma among our patients (n=100).

Signs	Gender		Total	p-value
	Male	Female		
Pseudoreticular network				
Yes	11	58	59	0.06
No	10	21	31	
Arcuate and annular structures				
Yes	12	29	41	0.09
No	9	50	59	
Globules				
Yes	8	17	25	0.12
No	13	62	75	
Sparing of perifollicular region				
Yes	3	29	32	> 0.05
No	18	50	68	
Telangiectasia				
Yes	17	34	51	0.002
No	4	45	49	

The most common characteristic dermoscopic sign observed was pseudoreticular network sign presented in (59 %) of our patients that was statistically significant (p-value 0.06) Figure (1: A, B). Followed by telangiectasia (51%), (Figure 2: A, B) then arcuate and annular structures sign Figure(3: A, B), and sparing of perifollicular region sign Figure(4: A, B), finally globules sign presented in (25%) Figure (5: A, B). The presence of telangiectasia sign among our patients was statistically very significant (p-value 0.002) which presented in 80,95% of male patients and 64.55% of female patients. More than one pattern was present in a number of patients

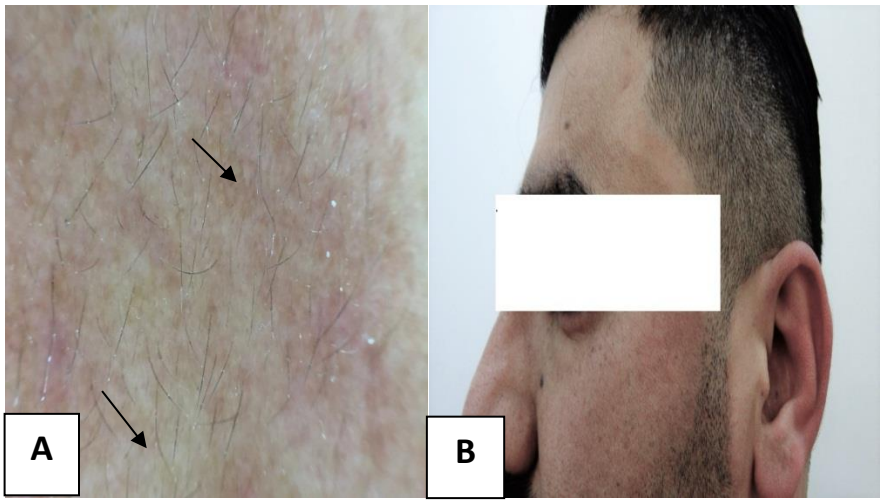

Figure (1: A,B): Pseudoreticular network sign

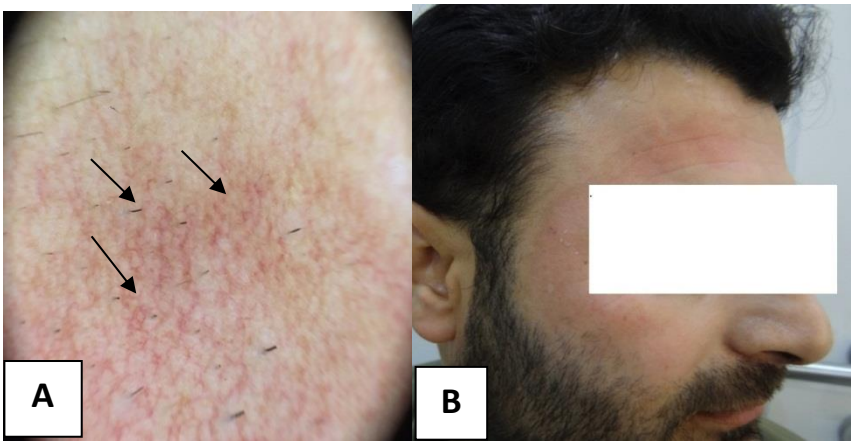

Figure (2: A, B): Telangietasia sign

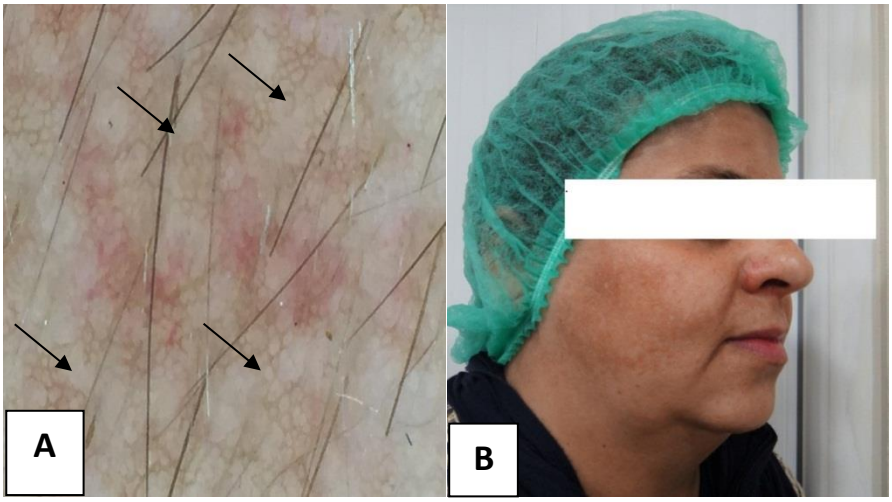

Figure (3: A, B): Arcuate and annular sign

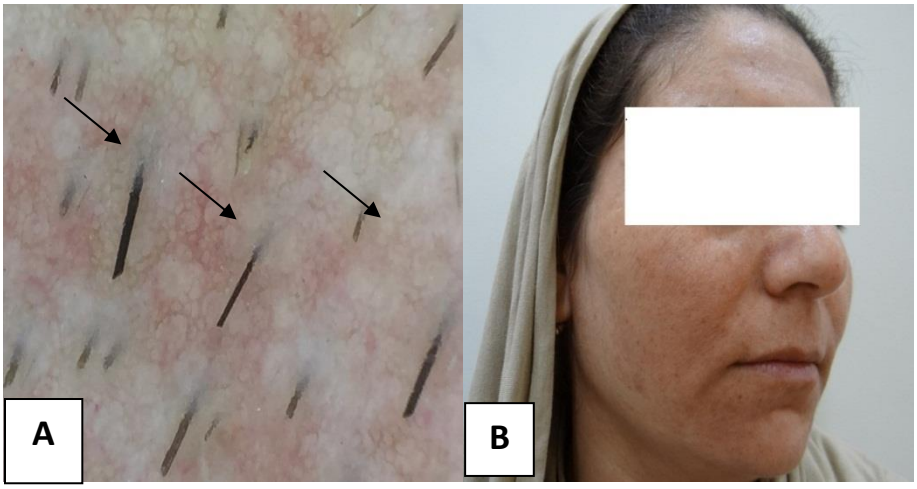

Figure (4: A, B): Sparing of perifollicular region sign.

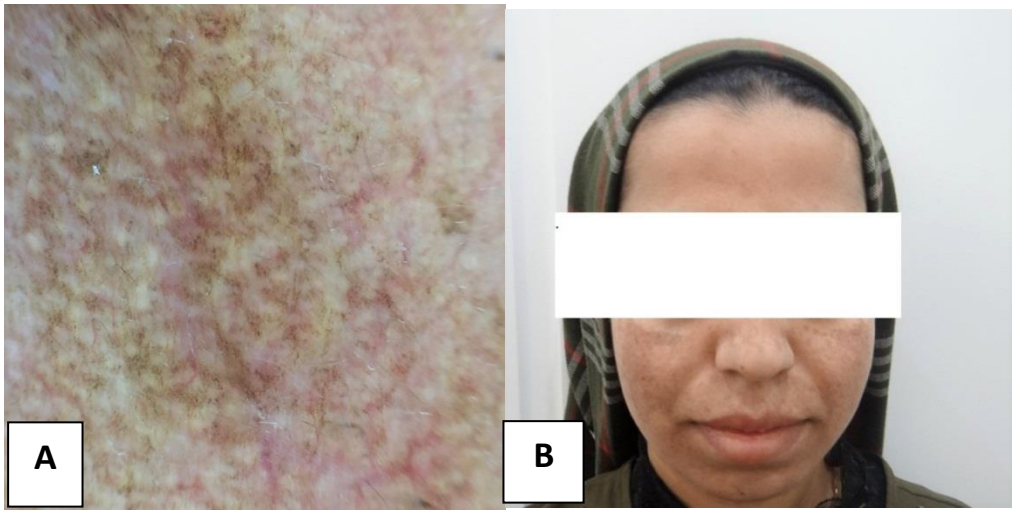

Figure (5: A, B): Globules sign.

Discussion:

Melasma is a common acquired pigmentary disorder that occurs in all racial groups and dermoscopy as a noninvasive technique can help in establishing the diagnosis and differentiating melasma from other hyperpigmentary disorders. Recently, dermoscopy is considered the dermatologist's stethoscope and its use has become popular in both melanoctic and non-melanocytic skin diseases.Our study included 79% female and 21% male, with ratio of (3.76:1) going with study done by Sarkar et al documented melasma in 80% females and 20% males[8].The mean age of our patients was 33.6 ± 6.7 years with mean duration of (3.34 ± 2.46) years. Achar et al reported the mean age of his patients to be 33.45 years[9] and Hassan et al reported a mean age of 34.22 years[10] which is compatible with our finding. Malar – a clinical type of melasma was more common in our patients 68%, but centro-facial clinical type was also observed in 31% of our patients. Yalamanchili et al. reported malar type as the most commonly observed clinical type[11].upon dermoscopic examination, we found that Pseudoreticular network sign was present in 59 % of melasma cases followed by Telangiectasia in 51% of the cases, then arcuate and annular structures sign in 41%, globular sign presented in 25%, and finally Sparing of perifollicular region sign presented in 32% of the cases. Similar characteristic dermoscopic sign have been mentioned in other studies and books (pseudoreticular network, globules, arcuate and annular, sparing the perifollicular region and telangiectasia)[12-13].The pseudoreticular network sign was the most common characteristic sign according to a study conducted by Neema and Chatterjee 83% which is compatible with our finding; but in contrast of their study, we find that telangictasia sign is more common among our patients when it was presented in only 33% of their patients[14], it was present in (51%) of our patients and similar findings were described by LI Yun et al[15].Accentuated pseudoreticular network appears due to flattening of rete ridges with increased basal layer melanin, globules sign represents melanophages in dermis when arcuate and annular sign appears due to the increase of basal keratinocyte pigmentation[16]. 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. It could be a part of the pathogenesis of melasama or a result of chronic UV light exposure, and some doctors and papers attribute it to the side effects of some therapeutic formula which contain topical steroids[6].We noticed that telangiectasia was more common in males 80.95% compared to 64.55% in females with melasma. This male predominance might be due to more UV light exposure which their outdoors jobs

require.What we have reached in our study is that: Pseudo-reticular network is the commonest characteristic dermoscopic sign and telangiectasia is the second most common finding among our patients especially in males.

Conclusions:

This descriptive study showed that the pseudoreticular network sign is the most common deromoscopic signs among our patients, while telangiectasia is very common finding in our patients particularly in males, dermoscope helps in diagnosis of melasma and gives an additional advantage to visualize the vasculature and help in the correct management of melasma.

Recommendations:

we recommend that further research into this subject area should be performed and each physicians have melisma's patients should examine them by dermoscopy before starting the treatment.

Conflict of interests

There were no conflicts of interest.

References:

1. Rendon M, Berneburg M. Treatment of melasma. J Am Acad Dermatol. 2006;154(5):272–81.

2. Khanna N, Rasool S. Facial melanoses: Indian perspective. Indian J Dermatol Venereol Leprol. 2011;77(5):552-64.

3. Grimes PE. Melasma: etiologic and therapeutic considerations. Arch Dermatol 1995; 131:1453-7.

4. Kim EJ, Park HY, Yaar M, et al. Modulation of vascular endothelial growth factor receptors in melanocytes. Exp Dermatol. 2005; 14:625—33.

5. Sonthalia S, Sarkar R. Etiopathogenesis of melasma. Pigment Int. 2015; 2:21-7.

6. Asawonda P, Taylor CR. Wood´s light in dermatology. Int J Dermatol. 1999; 38:801-7.

7. Russo T, Piccolo V, Lallas A, Argenziano G. Recent advances in dermoscopy. F1000Res. 2016; 5: F1000 Faculty Rev-184.

8. Sarkar R, Arora P, Garg VK, Sonthalia S, Gokhale N. Melasma update. Indian Dermatol Online J. 2014;(5):426-35.

9. Achar A, Rathi SK. Melasma: a clinico-epidemiological study of 312 cases. Indian J Dermatol 2011; 56(4):380-2.

10. Hassan I, Aleem S, Bhat YJ, Anwar P. A clinic epidemiological study of facial melanosis. Pigment Int. 2015;2:34-40.

11. Yalamanchili R, Shastry V, Betkerur J. Clinico-epidemiological study and quality of life assessment in melasma. Indian J Dermatol 2015; 60:519.

12. Khunger N, Kandhari R. Dermoscopic criteria for differentiating exogenous ochronosis from melasma. Indian J Dermatol Venereol Leprol. 2013;79(6); 819-21.

13. Sunanda AM. "Melasma". In: Khopkar U, editor. Dermoscopy and trichoscopy in diseases of brown skin: atlas and short text.1st ed. New Delhi: Jaypee; 2012: 50-9.

14. Neema S, Chatterjee M. Dermoscopic Characteristics of Melasma in Indians: A

Cross Sectional Study. Int J Dermoscope. 2017;1(1):6-10.

15. Li Y, Liu J, Sun Q. Characteristic dermoscopic features of melasma. Zhongguo Yi Xue Ke Xue Yuan Xue Bao. 2015;37(2): 226-9.

16. Khopkar US. Dermoscopy and Trichoscopy in Diseases of the Brown Skin. Atlas and short text. 1st ed. Jaypee Brothers Medical Pub; New Delhi: Jaypee; 2012.