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ORIGINAL

Clinical and epidemiological characterization of patients with Melasma in outpatient consultation

Caracterización clínica y epidemiológica de pacientes con Melasma en consulta externa

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ABSTRACT

Melasma is a hyperpigmentation of multifactorial origin triggered by a combination of environmental, genetic, and hormonal factors, which are important components of quality of life. Objective: To clinically and epidemiologically characterize melasma in patients seen in an outpatient clinic. Methodological design: An observational, descriptive, retrospective, and cross-sectional study was conducted in the outpatient clinic of the "General Calixto García" University Hospital between January 2018 and December 2019. Results: In total, 43.6% of the participants were between 40 and 49 years old. A total of 89.7% were female. A total of 43.6% were classified as skin type III. Sun exposure was the triggering factor for 56.4% of the events. The duration of the condition was between 1 and 4 years in 38.5% of the patients. In 61.5% of the patients, the melasma was centrally distributed on the face. A total of 56.4% had epidermal melasma. A total of 61.5% had moderate-intensity melasma. A total of 33.3% had received prior topical treatment. Conclusions: Female patients aged 40–49 years with skin phototype III predominated. The main risk factor was sun exposure, and the duration of the condition was between 1 and 4 years in most patients. More than half of the patients presented with epidermal melasma of moderate severity distributed in the central facial region. The most frequently used previous treatment was topical therapy.

Keywords: melasma; chloasma; hydroquinone; chemical peel.

RESUMEN

Introducción: El melasma es una hiperpigmentación de origen multifactorial provocada por una combinación de factores ambientales, genéticos y hormonales, que constituyen componentes importantes de la calidad de vida. Objetivo: Caracterizar clínica y epidemiológicamente el melasma en pacientes atendidos en una consulta externa. Diseño metodológico: Se llevó a cabo un estudio observacional, descriptivo, retrospectivo y transversal en una consulta externa del Hospital Universitario «Calixto García General» entre enero de 2018 y diciembre de 2019. Resultados: En total, el 43,6 % de los participantes tenía entre 40 y 49 años. El 89,7 % eran mujeres. Un 43,6 % presentaba un tipo de piel III. La exposición solar fue el factor desencadenante en el 56,4 % de los casos. La duración de los síntomas osciló entre 1 y 4 años en el 38,5 % de los pacientes. En el 61,5 % de los casos, el melasma se distribuyó en la zona central del rostro. Un 56,4 % presentaba melasma epidérmico. Un 61,5 % presentaba melasma moderado. Un 33,3 % había recibido tratamiento tópico previo. Conclusiones: Predominaron las pacientes de entre 40 y 49 años con fototipo cutáneo III. El principal factor de riesgo fue la exposición solar, y la evolución de la enfermedad se prolongó entre 1 y 4 años en la mayoría de las pacientes. Más de la mitad de las pacientes presentaban melasma epidérmico de gravedad moderada con distribución central en la cara. El tratamiento previo más utilizado fue el tópico.

Palabras clave: melasma; cloasma; hidroquinona; peeling químico.

INTRODUCTION

Human skin is inherently colorful. Even within the H. sapiens species, skin color spans an exquisite range, from the lightest ivory to the darkest brown. This diversity is due to the amount of pigments contained in the skin. The primary pigment is melanin, which occurs naturally and provides a dark color. In the human body, melanin is capable of absorbing, scattering, and reflecting light of different wavelengths, acting as a natural sunscreen.

Melasma is a chronic acquired hyperpigmentation of the skin. The word melasma derives from the Greek root melas, meaning black, and refers to the dark brown discoloration observed in this condition. The term "chloasma," derived from the Latin chlóos and the Greek cloazein, meaning green, is also used in the medical literature, but it is semantically incorrect. It has also been referred to as the "pregnancy mask" and "patch," among other terms. There are references to the condition dating back to the time of Hippocrates (470–360 BC), who described processes of hypermelanization following exposure to the sun, heat, cold, and postflammation.1 It is the third most frequently diagnosed pigmentary disorder, followed by postinflammatory hyperpigmentation and vitiligo.1

The exact prevalence is unknown in most countries. It accounts for between 0.25% and 4% of patients seen in Southeast Asia and is the most common pigmentary disorder among the populations of India and Pakistan.1 It affects all ethnic groups, but it is particularly prevalent among Hispanics and Asians, especially those living in areas with high-intensity ultraviolet radiation (UVR). It occurs in up to 10% of the population in Latin America, where communities comprise a heterogeneous mix of Caucasian, Asian, African, and indigenous populations, with a wide range of phototypes and skin colors. 2,3

It occurs predominantly in females, although it can also occur in men, although it is less common, accounting for 10 to 20% of cases. It occurs in all skin phototypes but most frequently affects Fitzpatrick phototypes III through VI and is most common between the third and fourth decades of life, with an average age of onset of 30 years and an average duration of eight years. 1During pregnancy, its prevalence increases by as much as 50–70%. 4

The exact etiology of melasma is unknown; in one-third of individuals, it is considered an acquired melanosis of idiopathic origin, confined to the face, with a chronic course. The incidence of certain factors is thought to be related to the onset of melasma, with the most important causes being genetic factors—it is estimated that 30% of affected individuals have a family history—as well as racial factors and ultraviolet radiation. Pigmentation typically occurs during pregnancy and is related to increased expression of melanocyte-stimulating hormone, the use of oral contraceptives, hormone therapy with estrogen and progesterone, and chronic sun exposure. During pregnancy, the clinical presentation develops during the second and third trimesters. The use of certain cosmetics, such as perfumed soaps, also appears to play a role.3

The lesions consist of asymptomatic macules of varying sizes, light brown or dark brown in color, with varying degrees of pigmentation, irregular borders, and sometimes well-defined edges.3 The objective of the study was to clinically and epidemiologically characterize melasma in patients seen in outpatient clinics.

METHODS

An observational, descriptive, retrospective, and cross-sectional study was conducted in patients diagnosed with melasma who were seen at the outpatient clinic of the "General Calixto García" University Hospital between January 2018 and December 2019.

The study population consisted of all patients seen in the outpatient clinic. The sample comprised 39 patients diagnosed with melasma using Wood's light, who were seen at the aforementioned location and during the aforementioned period and who met the inclusion criteria.

Inclusion criteria:

- Patients over 18 years of age
- Patients of any sex

Exclusion criteria:

- Patients with incomplete medical history data
- Patients who do not agree to participate in the study

The source of information was the medical records of each patient included in the study. The data collection forms were included in a data collection spreadsheet in which all general information related to the study was recorded:

Data collection form for included patients:

All the information was reviewed and classified such that it could be subsequently subjected to the various stages of statistical analysis.

Data processing and analysis techniques:

Using the collected data, a database was created in Microsoft Office Excel (Windows 10 version), which was subsequently exported to SPSS version 25.0 for analysis.

Ethical considerations

The study was conducted in accordance with the provisions of the Declaration of Helsinki regarding research involving human subjects. To conduct this study, authorization was requested from the Archives and Statistics Department to access the medical records of the patients studied, with the responsibility and obligation not to disclose the collected information and to maintain it in strict confidence. This study was reviewed and approved by the Scientific Council and the Ethics Committee of the "General Calixto García" University Hospital. Given that this is a retrospective study that relies solely on medical records, the dissemination of the information generated in this study will occur only after all the parties involved in the study have given their consent. All of the parties may use such information for scientific dissemination, provided that all the parties have been consulted beforehand. Approval was obtained from the ethics committee and the scientific council of the primary implementing unit; all the data will remain confidential and will be handled solely by the authors.

RESULTS

The most common skin phototype was phototype III in 17 (43.6%) patients, followed by phototype IV in 12 (30.7%) patients and phototype V in 7 (17.9%) patients (Table 1).

Table 1. Distribution of patients by skin phototype

N	Frequency	%	
Skin phototype	**39**	**100**	
	Skin type I	-	-
	Skin type II	3	7.7
	Skin type III	17	43.6
	Skin type IV	12	30.7
	Skin type V	7	17.9
	Skin type VI	-	-

Source: Data collection form.

The main triggers of the disease were sun exposure in 22 (56.4%) patients, followed by hormone therapy in 17 (43.6%), family history in 15 (38.5%), and previous pregnancy in 12 (30.8%) patients (Table 2).

The most common distribution pattern of melasma was the midface in 24 (61.5%) patients (Table 3).

Table 2. Disease triggers

	Frequency	%	
Trigger *	Family history	15	38.5
	Hormone therapy	17	43.6
	Stress	5	12.8
	Previous pregnancy	12	30.8
	Menopause	5	12.8
	Photo exhibition	22	56.4

Source: Data collection form. *Some patients had more than one risk factor.

Table 3. Distribution pattern of melasma

N	Frequency	%	
Distribution pattern	39	100.0	
	Mid-facial	24	61.5
	Malar	5	12.8
	Mandibular	2	5.1
	Mixed	8	20.5

Source: Data collection form.

Melasma was classified as epidermal in 56.4% (n=22) of the patients, mixed in 28.2% (n=11), and dermal or indeterminate in 7.7% (n=3) of the patients (Table 4).

As shown in Table 5, 13 (33.3%) patients received topical treatments, 9 (23.1%) received laser treatment, and 5 (12.8%) received systemic treatment, whereas 12 (30.8%) did not receive any treatment.

Table 4. Clinical form of melasma

N	Frequency	%	
	39	100.0	
Clinical form	Epidermal	22	56.4
	Dermal	3	7.7
	Mixed	11	28.2
	Undetermined	3	7.7

Source: Data collection form.

Table 5. Previous treatments

N	Frequency	%	
	39	100	
Treatment used	Topical	13	33.3
	Systemic	5	12.8
	Laser	9	23.1
	None	12	30.8

Source: Data collection form.

DISCUSSION

Melasma can develop in individuals of any skin phototype; however, as observed in this thesis, skin phototypes III and IV tend to be the most affected. 2 . This corresponds to the results reported by Rivera et al. 6, where the predominant skin phototype in cases with melasma was phototype III in 32 (40.0%), followed by phototype IV in 25 (32.5%), phototype V in 13 (16.3%), and phototype II in 9 (11.3%).

Similarly, Piteri Alcantara et al. (6) reported that among cases with melasma, phototype III was most common in 10 (45.4%), followed by phototype IV in 6 (27.3%) and phototype V in 6 (27.3%). Additionally, in a thesis by Palacios Rosales and Parra Nieto 6, among cases of melasma, phototype III was most common, with 164 (62.6%), followed by phototype IV with 78 (29.8%) and phototypes V-VI and II with 10 (3.8%) each. Similarly, among the patients with melasma studied by Cassiano et al. (7), skin phototype III was most prevalent at 12 (60.0%), followed by skin phototype IV at 6 (30.0%) and skin phototype II at 2 (10.0%). Similarly, Nguyen et al. (8) reported that the majority of patients with melasma had skin phototype III (10, or 43.5%), followed by phototype II (7, or 30.4%), phototype IV (5, or 21.7%), and phototype V (1, or 4.3%).

Like other Latin American countries, Cuba is a multiethnic nation in which people of Caucasian descent, people of African descent, and largely mixed-race populations coexist. As a result of this mixture, distinct skin tones are observed, ranging from skin type II to skin type VI. 2

The etiology of melasma is multifactorial, and its pathogenesis is complex; therefore, various factors, such as skin type, family history, ancestry, sun exposure, pregnancy, hormone therapy, and stress, can trigger this condition. 2

The most prevalent triggering factor in this series was sun exposure, which is consistent with the results of the study by Sharma et al. (2), in which sun exposure was the main factor exacerbating melasma in 16 (53.3%) men with this condition. Similarly, in a study conducted by Gallardo and Sernaqué (2), sun exposure was the main trigger of melasma in 44.0% (n=42) of cases. UVA and UVB rays are the primary factors involved in the development of hyperpigmentation. UV rays stimulate melanogenesis through direct effects on melanocytes—1,2-diacylglycerols, nitric oxide, and cyclic guanylate monophosphate—and through indirect effects on keratinocytes—fibroblast growth factor, nerve growth factor, nd endothelin-1, and propiomelanocortin-derived peptides such as melanocyte-stimulating hormone and nitric oxide. Melanocytes, fibroblasts, and keratinocytes interact, and the expression of certain paracrine factors derived from keratinocytes is elevated in affected skin compared with that in normally pigmented skin. 2,3

Treatment with hormone therapy was the second most common triggering factor in this study, which is consistent with the findings of other authors, such as Mahdalena et al., 2 Alenizi and Alenizi 2 and Rivera et al. (2), and is because estrogens affect melanogenesis by inducing the synthesis of melanogenic enzymes such as tyrosine, tyrosinase Trp-1, and Trp-2, which activate tyrosinase, thereby stimulating melanocytes. If the body's levels of estrogen or progesterone increase, the acceleration of melanogenesis will be affected. 2,3

The genetic basis of melasma suggests that the occurrence of the condition in first-degree relatives ranges from 41–61%, including identical twin sisters, while the prevalence in adults in the general population is between 16–28%. Familial melasma is associated with a longer duration and a reduced likelihood of induction by contraceptive hormones. 2

As observed in this and other studies, melasma lesions are primarily located on the face and typically follow three distribution patterns, with the midface pattern being the most common 2, appearing in more than half of patients.

With respect to the distribution pattern of melasma, Sánchez Secías 2 reported that the midface pattern was the most common at 57.4% (n=35), followed by the malar pattern at 29.5% (n=18), the midface plus forearms at 6.6% (n=4), and the mandibular and midface plus neck at 3.3% (n=2) each. Similarly, in a thesis conducted by López Valdés 2, mid-face melasma predominated in 84.2% (n=112), followed by mandibular melasma in 8.3% (n=11) and malar melasma in 7.5% (n=10).

In a study by Farahat et al. (2), the type of melasma identified on the basis of depth was epidermal in 21 (70.0%) patients, followed by mixed in 6 (20%) and dermal in 3 (10%). Similarly, in the study conducted by Santana Chiriboga and Zamora Vargas 2, the types of melasma classified by depth were epidermal in 73 (68.8%) cases, followed by mixed in 28 (26.4%) and dermal in 5 (4.7%). 3

Currently, there are numerous medical-aesthetic procedures that can be used to treat various forms of pigmentation in dermatology, such as the use of various peels or lasers. 2 Equally important are topical depigmenting agents, which should be used prior to any procedure and should be continued as part of maintenance therapy.

This approach yields good results when treating any type of dyschromia.

Most participants with melasma in this study reported having sought some form of treatment to address this condition, while only a small percentage stated that they had not used any topical treatment. These findings are consistent with those of other studies 2,3, which estimate that approximately 30% of respondents used topical combinations as treatments for melasma.

CONCLUSIONS

Female patients aged 40–49 years with a skin phototype III predominated. The main risk factor was sun exposure, and the duration of the condition ranged from 1 to 4 years in most patients. More than half of the patients () presented with midface melasma of the epidermal type and moderate severity. The most frequently used prior treatment was topical therapy.

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