

## CLINICAL STUDIES

### Mandibular Melasma

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Melasma is an acquired symmetrical brown hypermelanosis of the face. Three clinical patterns are recognized, namely centrofacial, malar and mandibular. This study addresses the clinical and histopathological features of ten women with mandibular melasma to determine its relation to other types of melasma. The mean age of the patients was 52 years and the onset of the disease occurred at an average age of 44 years. Sunlight aggravated the

pigmentation in all cases. Only one patient was receiving hormonal therapy. Histopathologically, all patients demonstrated severe sun damage and hyperpigmentation of the epidermis. Nine of them had melanophages or melanin in the papillary dermis. We conclude that mandibular melasma may be a clinicopathologic entity different to other types of melasma.

*Key words: Facial hypermelanosis, Mandibular melasma*

Melasma is an acquired, symmetrical brown hypermelanosis of the face that develops slowly (1). It is more common in women and in persons of Hispanic origin living in tropical areas (2). Mandibular melasma is a clinical variation of melasma that refers to a reticulated brown hyperpigmentation that involves the mandibular ramus, the lateral aspects of the face and occasionally may extend into the neck. The relationship of mandibular melasma with the classical centrofacial melasma is still not clear. It is the objective of this study to reassess the clinical, histopathological and biological nature of this disease.

#### Methodology

Ten Puerto Rican women with melasma situated on the mandibular ramus were evaluated at the Dermatology Clinics of the Puerto Rico Medical Center (Fig. 1). Medical and social history was obtained from each patient and every patient was examined with the Wood's lamp (320-400nm). Other areas of hyperpigmentation of the skin were also recorded. Photography and 4mm punch biopsies from the hyperpigmented patches of the mandibular region of each patient were obtained after

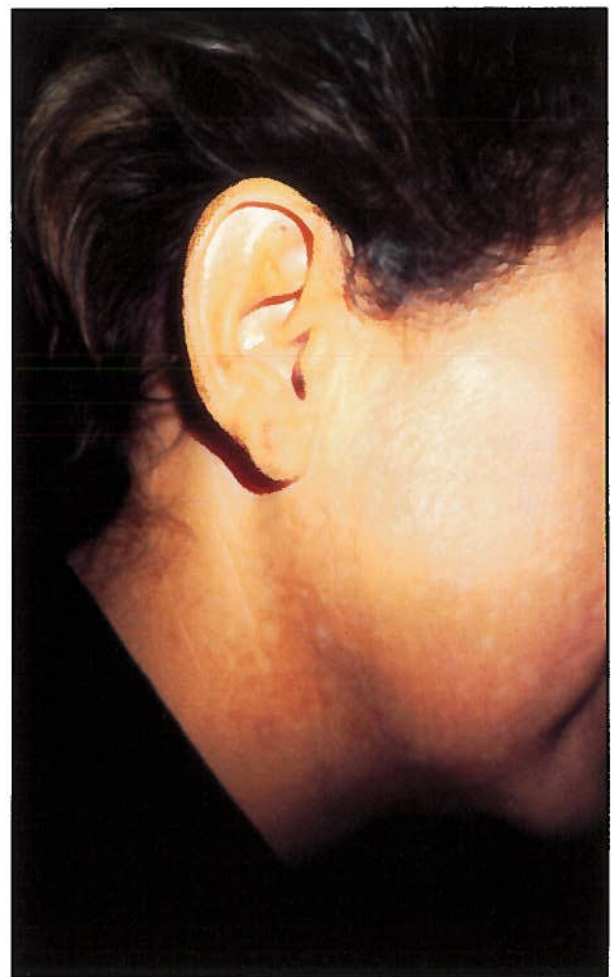


Figure 1. Hyperpigmentation on the mandibular region

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informed consent. Skin biopsies were fixed in 10% buffered formalin and stained with hematoxylin-eosin and Fontana-Masson.

## Results

The mean age of the patients in the study was 52 years and, the onset of the condition occurred at an average age of 44 years. The average duration of the disease was eight years. Six patients (60%) had a family history of melasma and all patients referred exacerbation of their condition upon exposure to sunlight. Nine patients were being evaluated at other specialties clinics for associated medical problems (Table 1).

**Table 1.** Clinical Data (10 patients)

	Patients.	%
Family history of melasma	0	0
Drug allergies	3	30
Exacerbation with sunlight	10	100
Medical problems	9	90
Endocrine	2	20
Cardiovascular	4	40
Dermatologic (other than melasma)	6	60
Pulmonary	1	10
Neurologic	1	10
Nutritional	3	30
Rheumatologic	2	20

The distribution of patients by skin type (3) was as follows: one patient Type II, two patients Type III, three patients Type IV and four patients Type V. (Table 2).

**Table 2.** Skin Type

Skin type	Patients
I	0
II	1
III	2
IV	3
V	4
VI	0

Nine patients routinely used facial cosmetics and all of them were exposed frequently to cleansers and other detergents. (Table 3).

**Table 3.** Chemical Exposure

	Patients	%
Fragrance/Cosmetic use	9	90
Exposure to chemicals		
Gardening fumigating agents	2	20
Cleansers, detergents	10	100

At the time of the study, nine patients were taking some type of systemic medication, non-steroidal anti-inflammatory agents being the most common (5 patients). Only one patient was receiving hormonal replacement with estrogen/progesterone and one patient was receiving intramuscular gold for rheumatoid arthritis.

Gynecologic history was as follows: 50% of patients has a history of melasma during their pregnancy, with a mean duration of four to six years. Only one patient was on estrogen/progesterone combination contraceptive at the time of onset of her mandibular melasma. Three patients (30%) were still menstruating, while six (60%) had onset of their melasma within three years of their menopause. (Table 4)

**Table 4.** Gynecological History

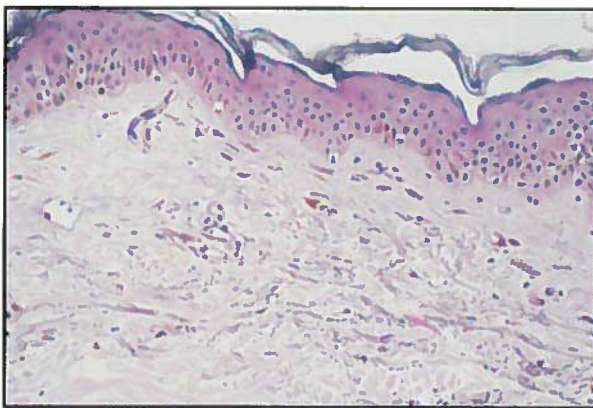
	Patients.	%
Previous use of oral contraceptive hormones	2	20
Use of estrogen/progesterone, oral contraceptives at time of onset	1	10
Melasma during pregnancy	5	50
mandibular	2	20
centrofacial	3	30
Still menstruating	3	30
Onset of melasma within three years of menopause	5	60

On physical examination, all patients had typical confluent hyperpigmented patches on the mandibular region that extended into the cheeks. Wood's lamp examination revealed slight enhancement of the pigmented facial patches in seven patients.

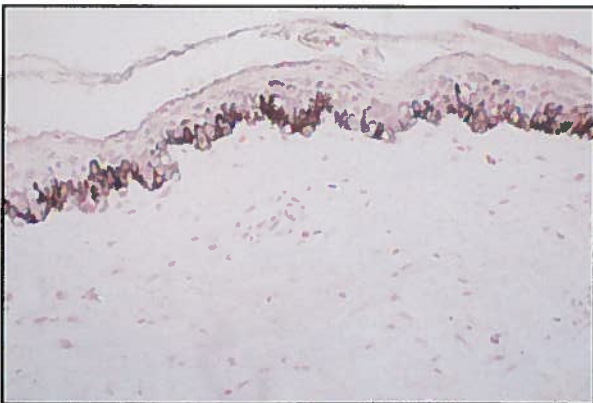
The histopathologic findings are summarized on Table 5. Epidermal basal and suprabasal hyperpigmentation were found in all patients both in hematoxylin-eosin and Fontana Masson stain (Fig. 2, 3). Solar elastosis, thickened papillary dermis and telangiectases were also present in every biopsy. Sparse superficial lymphocytic infiltrates and dermal melanophages were found in the the papillary dermis in 80% of patients. Sixty percent of the biopsies revealed epidermal atrophy with flattening of the rete

**Table 5. Histopathologic Findings**

	Patients	%
Basal/suprabasal layer		
hyperpigmentation	10	100
mild-moderate	7	70
significant	3	30
Epidermal atrophy/flattening of rete ridges	6	60
Dermal melanophages	8	80
Free dermal melanin	3	30
Solar elastosis	10	100
mild-moderate	2	20
moderate-severe	8	80
Thickened papillary dermis	10	100
Telangiectases	10	100
Sparse superficial lymphocytic infiltrate	8	80
Vacuolar changes	0	0



**Figure 2.** Hyperpigmentation of the basal layer, melanophages and marked solar elastosis (HE, 100X)



**Figure 3.** Marked melanization of the basal layer (Fontana-Masson stain, 100X)

ridges. Free dermal melanin was found in three patients. One patient showed only epidermal hyperpigmentation without dermal melanin (free or in melanophages). There were no vacuolar changes of the dermoepidermal interface in any of the biopsies.

## Discussion

In 1981 Sánchez et al (2) classified melasma into three clinical patterns according to their distribution on the face, namely centrofacial, malar and mandibular. Centrofacial melasma occurs most commonly (63%) while mandibular melasma is seen only in 16% of patients. In the same study, melasma was further classified by Wood's lamp examination and by histopathological findings. Melasma of the epidermal type showed hyperpigmentation of the epidermis and enhancement of color with the Wood's lamp. Dermal melasma showed melanophages in the dermis and did not increase in color with the Wood's lamp. Mixed melasma showed hyperpigmentation, both at the epidermal and dermal layers and were only slightly or partially enhanced by the Wood's lamp exam. Finally, there was a group of patients with Type V or VI skin in whom melasma was not seen on examination with the Wood's lamp.

Our study paid special attention to women with the mandibular type of melasma in order to determine their clinicopathologic characteristics and their association with the more common centrofacial melasma. All patients in our series exhibited epidermal hyperpigmentation and 80% showed the presence of melanophages in the papillary dermis. Therefore, from this stand point, most of our patients would be classified histopathologically as the mixed type of melasma. On Wood's lamp examination, 70% of patients showed slight enhancement of color, a finding that is consistent with a mixed type of melasma in the majority of cases.

All the patients showed evidence of chronic sun damage as evidenced by the elastotic changes in the upper dermis.

The lack of alteration in the dermoepidermal interface or spongiosis rules out inflammatory processes such as photocontact and contact dermatitis as the cause of hyperpigmentation in these patients.

The average age of onset for mandibular melasma (44) and the average age of patients at the time of the study (52) were found to be higher than those for typical centrofacial melasma, which usually appears during the childbearing years, average age 29.

In contrast to other patients with melasma, the group with mandibular melasma showed no significant association with the use of estrogen/progesterone supplement, with oral contraceptive use, or with

pregnancy. However, 60% of the patients were at a perimenopausal age, making hormonal influences still possible.

Associations of mandibular melasma with specific medications, cosmetics/fragrances or other chemicals remains unclear as is the case for other types of melasma (4).

Chronic sun exposure is the common factor in all our patients with a mandibular melasma. This was evident as the histopathology revealed chronic sun-damage in all patients. Parenthetically, the histopathologic findings in these patients are similar to those of patients with poikiloderma of Civatte (4). Patients with poikiloderma of Civatte clinically present with reticulated brown-reddish macules in areas of chronic sun exposure such as the V-of the neck, sides of face and arms. Histopathological changes of this condition consist of solar elastosis, epidermal atrophy, telangiectases and dermal melanophages. In our series, a significant amount of patients with mandibular melasma showed similar findings. Solar elastosis and telangiectases were seen in all patients, dermal melanophages in 80% of patients and epidermal atrophy in 60% of cases.

These findings lead us to conclude that mandibular melasma may be a clinicopathologic entity different to other types of melasma, especially those of centrofacial distribution. Mandibular melasma occurs at a later age, is not associated with hormonal excess and histopathologically resembles the lesions of poikiloderma of Civatte. Mandibular melasma may indeed be better classified as a subset of poikiloderma of Civatte rather than as a type of melasma.

## Resumen

El melasma es una hipermelanosis adquirida, simétrica, color marrón en la cara. Se reconocen tres formas clínicas, éstas son: centrofacial, malar y mandibular. En este estudio se examinan las características clínicas e histopatológicas de diez mujeres con melasma en el área mandibular para determinar su relación con otros tipos de melasma. La edad media de las pacientes fue 52 años y el comienzo de las manchas ocurrió a una edad promedio de 44 años. La luz solar agravó la pigmentación en todos los casos y solamente una paciente recibía terapia hormonal. Histopatológicamente todos los pacientes mostraban daño solar severo e hiperpigmentación de la epidermis. Nueve pacientes tenían melanófagos o melanina libre en la dermis papilar. Concluimos que el melasma mandibular puede ser una entidad clinicopatológica distinta a los otros tipos de melasma.

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