



**SPSSCS  
Skin Care 2009**

**Treating Skin Conditions Affected by  
Hormones: Melasma**

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## What is Melasma?

- **Melasma is an acquired hypermelanosis of sun-exposed areas. It presents as symmetric hyperpigmented macules, which can be confluent or punctate. The cheeks, the upper lip, the chin, and the forehead are the most common locations, but it can occasionally occur in other sun-exposed locations. Chloasma is a synonymous term sometimes used to describe the occurrence of melasma during pregnancy. Chloasma is derived from the Greek word *chloazein*, meaning "to be green." *Melas*, also Greek, means "black." Since the pigmentation is never green in appearance, melasma is the preferred term.**

# What is Melasma?

**Exhibit A**



**Exhibit B**



**Exhibit C**



# What is Melasma?

**Exhibit D**



**Exhibit E**



**Exhibit F**



## Pathophysiology

- **The pathophysiology of melasma is uncertain. In many cases, a direct relationship with female hormonal activity appears to be present because it occurs with pregnancy and with the use of oral contraceptive pills. Other factors implicated in the etiopathogenesis of melasma are photosensitizing medications, mild ovarian or thyroid dysfunction, and certain cosmetics.**
- **The most important factor in the development of melasma is exposure to sunlight. Without the strict avoidance of sunlight, potentially successful treatments for melasma are doomed to fail.**

# Race

- **Persons of any race can be affected. However, it is much more common in constitutionally darker skin types than in lighter skin types, and it may be more common in light brown skin types, especially Hispanics and Asians, from areas of the world with intense sun exposure.**



- **Melasma is much more common in women than in men. Women are affected in 90% of cases. When men are affected, the clinical and histologic picture is identical.**



- **Melasma is rare before puberty and most commonly occurs in women during their reproductive years.**



- **History**

- **Patients may inquire about progressive hyperpigmentation of the face, which may be temporally related to pregnancy or to the use of oral contraceptive pills.**
- **Intense or chronic exposure to sunlight worsens the condition and may precipitate melasma, but because the development of pigmentation is often insidious, patients may not recognize the association.**

- **Physical**

- The macular hyperpigmentation of melasma is commonly tan to brown. Blue or black may be evident in patients with dermal melasma. The distribution is 1 of 3 patterns: centrofacial, malar, or mandibular. A rare pattern confined to the forearms is seen in women receiving exogenous progesterone and in Native American Indians.
- The excess melanin can be visually localized to the epidermis or the dermis by use of a Wood lamp (wavelength, 340-400 nm).
  - Epidermal pigment is enhanced during examination with a Wood light, whereas, dermal pigment is not.
  - Clinically, a large amount of dermal melanin is suspected if the hyperpigmentation is bluish black.
  - In individuals with dark-brown skin, examination with a Wood light does not localize pigment, and these patients are thus classified as indeterminate.

- **Causes**

- A genetic predisposition is a major factor in the development of melasma. It is much more common in women than in men. Persons with light brown skin types from regions of the world with intense sun exposure are much more prone to the development of melasma. More than 30% of patients have a family history of melasma. Identical twins have been reported to develop melasma,<sup>1</sup> while other siblings under similar conditions did not.
- Another major factor is exposure to sunlight. Ultraviolet radiation can cause peroxidation of lipids in cellular membranes, leading to generation of free radicals, which could stimulate melanocytes to produce excess melanin. Sunscreens that primarily block UV-B radiation (290-320 nm) are unsatisfactory because longer wavelengths (UV-A and visible radiation, 320-700 nm) also stimulate melanocytes to produce melanin.

## *Causes (Continued)*

- Hormonal influences play a role in some individuals. The mask of pregnancy is well known to obstetric patients. The exact mechanism by which pregnancy affects melasma is unknown. Estrogen, progesterone, and melanocyte-stimulating hormone (MSH) levels are normally increased during the third trimester of pregnancy. However, nulliparous patients with melasma have no increased levels of estrogen or MSH. In addition, the occurrence of melasma with estrogen- and progesterone-containing oral contraceptive pills and diethylstilbestrol treatment for prostate cancer has been reported. The observation that postmenopausal women who are given progesterone develop melasma, while those who are given only estrogen do not, implicates progesterone as playing a critical role in the development of melasma.

## *Causes (Continued)*

- One study found a 4-fold increase in thyroid disease in patients with melasma when compared with matched controls. A case report of 2 women who developed melasma after sudden and profound emotional stress implicated the release of MSH by the hypothalamus as a cause. Exactly which hormones and what mechanisms are involved in the development of melasma are yet to be determined. Genetic and hormonal influences in combination with ultraviolet radiation are the 2 most important causes of melasma, yet phototoxic and photoallergic medications and certain cosmetics have been reported to cause melasma in rare instances.

- **Chemical Peels**

- The most commonly used acid compounds to remove melasma include trichloroacetic acid, azelaic acid, glycolic acid, lactic acid and various fruit extracts. Stronger peeling agents tend to have a higher effectiveness rate than lighter strength peeling agents. Stronger peeling agents may also carry the risk of side effects such as burning, skin peeling, scarring and even worsening the skin discoloration.

- **Skin Lightening Agents**
  - There are many skin lightening agents on the market and the most commonly used is hydroquinone. Numerous other agents sold in herbal and nutrition stores may work as skin lightening agents as well, however each patient has a unique skin type and reactions to skin lightening agents vary.
- **Sunscreens**
  - Those which are mineral based, such as zinc and titanium.
- **Laser Skin Rejuvenation**



- **Hormonal Restoration Therapy**
  - Youth is associated with high levels hormones produced throughout the body.
  - Bio identical hormone replacement therapy may have wide ranging benefits that are still being studied. DHEA is the most prevalent steroid hormone in the body. Low DHEA levels are clearly associated with a range of diseases:
    - Low DHEA levels are clearly associated with a range of diseases, including heart disease, diabetes, inflammation, Alzheimer's, and others.
    - DHEA levels drop dramatically as people age. There are pronounced differences in the average DHEA levels of men and women, with women on average having lower DHEA levels.
    - DHEA replacement therapy can restore youthful DHEA levels.

## Summary

- **These treatments do not necessarily cure the cause of melasma and the effectiveness of each will vary from patient to patient. Even after treatment, skin discoloration may not always disappear completely and each patient may have to try various different treatment options to see a satisfactory result. Some treatments may have to be continually performed to sustain results, such as applying a skin lightening agent on a regular basis, combined with effective sunscreen usage and sun exposure avoidance.**



***Thank You!***