Use of dermoscopy for diagnosis of exogenous ochronosis

Aplicação da dermatoscopia no auxílio diagnóstico da ocronose exógena

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Abstract: Exogenous ochronosis consists of chronic hyperpigmentation of areas previously treated with topical agents such as hydroquinone, resorcinol, antimalarials and phenol. Early diagnosis allows to promptly suspend the causative agent and it is imperative since the available therapeutic options are scarce and have presented so far unsatisfactory results. Three cases of exogenous ochronosis on the face which were diagnosed with the use of dermoscopy are presented. Dermatoscopy showed blackish-gray amorphous structures, some obliterating the follicular openings. Histopathological examination confirmed the diagnosis.
Keywords: Dermoscopy; Ochronosis; Pigmentation disorders

Resumo: A ocronose exógena consiste em hiperpigmentação crônica de áreas previamente tratadas com agentes tópicos como: a hidroquinona, a resorcina, os antimaláricos e o fenol. O diagnóstico precoce permite suspender prontamente o agente causador, uma vez que as opções terapêuticas disponíveis são escassas e com resultados insatisfatórios. Reportam-se três casos de ocronose exógena na face, diagnosticados pela dermatoscopia. O estudo dermatoscópico evidenciou estruturas amorfas de coloração cinza-enegrecido, algumas obliterando as aberturas foliculares. O exame histopatológico corroborou o diagnóstico.
Palavras-chave: Dermoscopia; Ocronose; Transtornos da Pigmentação

INTRODUCTION

Exogenous ochronosis (EO), first described in 1906 by Pick[1], is a pigmentary disorder characterized by the deposit of a substance derived from polymerized homogentisic acid in the dermis. Inhibition of the enzime homogentisic-oxidase by certain substances such as hydroquinone, would result in accumulation of acid homogentisic that when polymerized generates accumulation of ocher pigment in the papillary dermis.[2] The disease manifests itself through hyperpigmentation in sun-exposed areas which had been previously treated with topical agents, showing a brownish or black-bluish color and presenting themselves in shapes that vary from macules to papular-nodular lesions. [3] Dogliotti classified EO lesions according to the elementary lesion: stage I when there is erythema and mild hyperpigmentation; stage II when there is progression of hyperpigmentation, appearance of *caviar-like* papules and skin atrophy, and stage III with appearance of papulonodular lesions with or without inflammatory process. [4] The main risk factors for the development of EO are: previous and prolonged use of topical agents like hydroquinone, antimalarials, resorcinol, phenol and patients with a high phototype in Fitzpatrick scale.

Received on 25.07.2010.
Approved by the Advisory Board and accepted for publication on 21.10.2010
* Work carried out at the Getúlio Vargas University Hospital – The Federal University of Amazonas (HUGV – UFAM) – Manaus (AM), Brazil.
Conflict of interest: None / *Conflito de interesse: Nenhum*
Financial funding: None / *Suporte financeiro: Nenhum*

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CASE REPORTS

Three cases are described with clinical, dermoscopic and histopathological diagnoses of exogenous ochronosis due to chronic use of hydroquinone. It was considered dermatoscopic findings of EO: presence of amorphous structures of gray-blaskish color some of them obliterating the follicular openings.[5] The histopathological findings that confirmed the diagnosis of EO were: ocher fibers "banana"shaped, incontinentia pigmenti and solar elastosis [6] (Figure 1).

Case 1: Thirty-eight year-old female patient, phototype V in Fitzpatrick scale who had been continously using for five years formulation containing hydroquinone 4%, tretinoin 0,05% and dexamethasone 0,05%, for treatment of melasma on the zygomatic and malar regions. It evolved with the presence of bilateral grayish hyperchromic papules on the malar region, and it received clinical, histopathological and dermoscopic diagnosis of EO, classified as Dogliotti stage 2 (Figure 2).

Case 2: Fifty-seven year-old female patient, phototype IV in Fitzpatrick scale who had been using for four years cream containing hydroquinone 2%, for treatment of melasma on the malar, temporal and zygomatic regions that evolved with the presence of grayish-blue hyperchromic papules with a mottle aspect located mainly bilaterally on the malar region. Roundish hyperchromic macules and some erythematous papules were also present in the same area. It was clinically diagnosed as leukoderma in confetti and EO.This was confirmed by dermoscopy and histopathology. EO was classified as Dogliotti stage 3 (Figure 3).

Case 3: Forty-five year-old female patient, phototype III in Fitzpatrick scale who had been using for three years, irregularly, creams containing hydro-

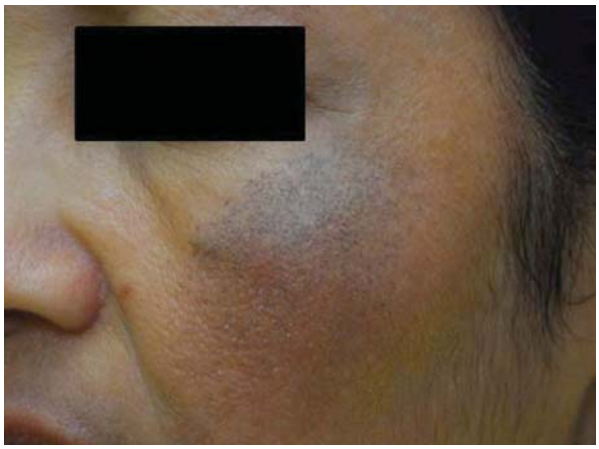

Figure 2: Case 1 – Patient with hyperchromic macule on the malar region and presence of numerous blackened papules

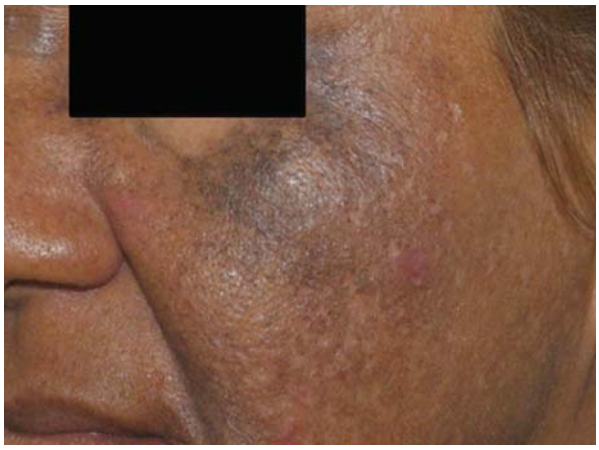

Figure 3: Case 2 – Patient with hyperchromic macule on the malar and zygomatic region with blackened intermingled papules in areas of leukoderma and erythematous papules

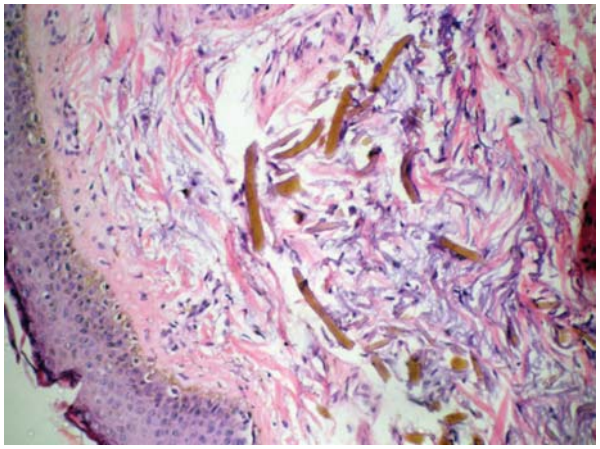

Figure 1: Histopathology showing banana shaped ocher fibers in the dermis and solar elastosis

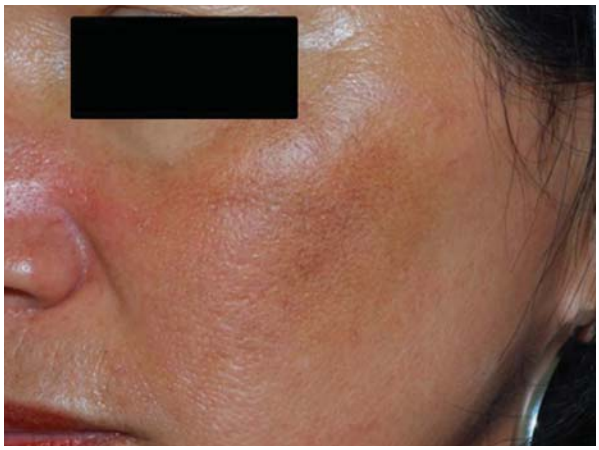

Figure 4: Case 3 – Hyperchromic macule on malar region with areas of greatest central pigmentation

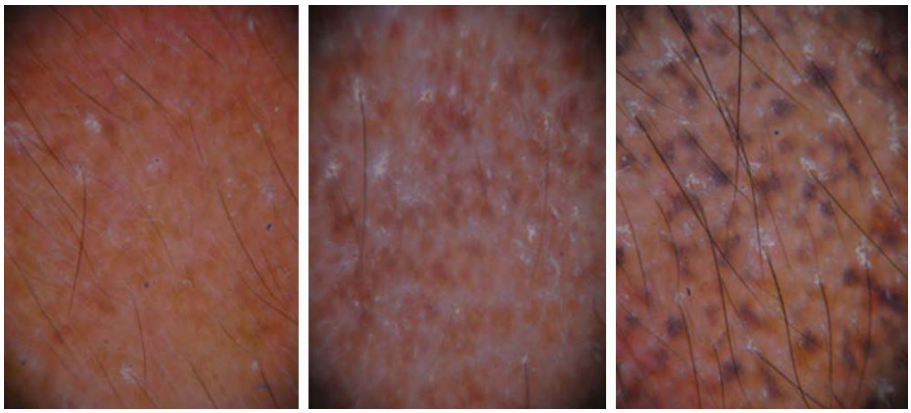

Figure 5: On the right and center, dermascopy of the ochronosis area showing, in case 1, blackish-gray amorphous structures,and in the center presence of the brownish amorphous structures of case 2. On the left, dermascopy in the melasma area showing absence of structures and brownish reticular pattern

quinone varying from 4% to 6% for treatment of melasma on the malar region. It evolves with hyperchromic macule of grayish-brown color and formation of hyperchromic macules of dark-brown color bilaterally on the malar. The patient received the clinical, dermoscopic and histological diagnosis of EO, classified as Dogliotti stage 1(Ficture 4)

None of the patients had symptoms or clinical signs of EO such as: dark urine, sclera and axillae pigmentation or articular changes. [7]

DISCUSSION

Exogenous ochronosis affects mainly patients with high phototype (IV, V and VI) in Fitzpatrick scale, after chronic use (period exceeding six months) of certain topical agents such as antimalarias, mercury, quinine, resorcinol, phenol and hydroquinone, specially if used in high concentrations and without supervision of a doctor. [8] Other complications resulting from the chronic use of hydroquinone include depigmentation in cofeti, change in skin elasticity and delayed healing. [9]

In the reported cases all used hydroquinone, with average treatment time of four years (3 to 5 years) and average concentration of 4% (6% to 2%). Some reports describe cases of EO with use of concentrations of hydroquinone 2%, suggesting that in some patients the concentration of the substance is not the most important risk factor.[10,11] The high prevalence of pigmentary disorders in patients with high phtotype in Fitzpatrick scale would be one of the factors for a greater number of described cases in this population. However, there are reports in patients who are Asian and Caucasian descendants.[12]

The clinical diagnosis of EO can be challenging mainly when it occurs concomitantly with other pigmentary disorder implying the need for diagnostic confirmation. Histopathology when demonstrated the presence of ocher color "banana" shaped fibers still is the gold standard for the diagnosis of such dermatosis.[6] Melasma was present in all reported cases and the appearance of EO occured during the clinical evolution of the disease. The change in the clinical pattern perceived by the patients made them sought for a new dermatological consultation.

Dermatoscopy has proved to be an useful tool for a noninvasive diagnosis of many pathologies, among them EO.[5] Our demoscopic analysis made it possible to distinguish the melasma area from the EO area. We observed in EO blackish-gray amorphous structures, some obliterating the follicular openings. On the other hand, in the melasma area it is possible to observe a reticular pattern of brownish color (Figure 5). These findings were similar to the ones found by Berman et al. [13]

Many therapeutic options are described for the treatment of EO such as retinoic acid, glycolic acid, azelaic acid, Q-switched (755nm) laser, but all them with unsatisfactory results.[10,14] As most EO cases are iatrogenic resulting from inadequate use of hydroquinone for the treatment of melasma, dermatologists should pay attention not only to prevention but also to early diagnosis of EO. As there are few reports about the use of dermoscopy to help to diagnose EO the authors present three cases where dermoscopy was efficient in the differentiation between pre-existing melasma and exogenous ochronosis. ❑

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How to cite this article/*Como citar este artigo*: Romero SAR, Pereira PMR, Mariano AVO, Francesconi F, Francesconi VA. Use of dermoscopy for diagnosis of exogenous ochronosis. An Bras Dermatol. 2011;86(4 Supl 1):S31-4.