

Facial exogenous ochronosis treated with the Picosecond laser

Lenore Sikorski M.D.¹, Anjalee Chopra¹, Paul Shitabata M.D.²

¹Natural Image OC, Laguna Niguel, CA; ²Dermatopathology Institute, Torrance, CA

Introduction

- ❖ Ochronosis is derived from the Greek word “ochre,” referring to a yellow discoloration
- ❖ Ochronosis is a disorder of the skin that presents as a blue-black or gray-blue pigmentation in the malar region, cheeks, and neck.¹
- ❖ Histologically, ochronosis manifests as brown yellow deposits in the dermis
- ❖ This is a localized condition most commonly secondary to the application of topical hydroquinone found in skin-lightening formulations. Can also be caused by the use of phenols, quinines, resorcinol, mercury derivatives, and oral antimalarial drugs.^{1,2,3}
- ❖ Here we describe the clinical and histopathological findings of exogenous ochronosis in a female patient using topical hydroquinone

Case Report

- ❖ 71-year-old female, Fitzpatrick skin type II, presented with blueish-gray discoloration of the malar region, temples, and nasolabial region (Figures 1 and 2)
- ❖ Application of hydroquinone 5% and 8% on and off for 18 years
- ❖ Punch biopsy taken from the right cheek and histopathology revealed a diagnosis of ochronosis showing brown yellow deposits in between dermal collagen bundles (Figure 3)
- ❖ The patient was treated with use of fractional nonablative Picosecond laser using 670 nm wavelength, 1064 nm wavelength with Micro Lens Array (MLA), and 532 nm wavelength with MLA at intervals of one month
- ❖ After 10 sessions, there is clear evidence of improvement of the pigment and quality of the skin texture (Figures 4 and 5)



FIGURE 1 Blue-gray discoloration in the malar region, temples, and nasolabial region



FIGURE 2 Blue-gray discoloration in the malar region, temples, and nasolabial region

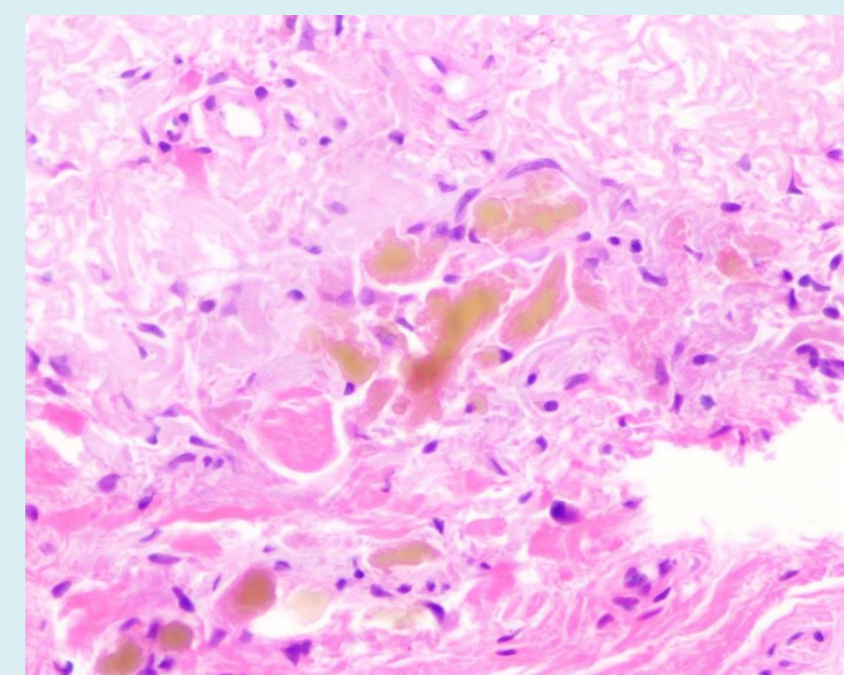


FIGURE 3 Biopsy showing ochre-colored, banana-shaped bodies in the dermis (H&E, 20x).



FIGURE 4 Clinical improvement following 10 sessions with the Picosecond laser.



FIGURE 5 Clinical improvement following 10 sessions with the Picosecond laser.

Discussion / Conclusion

Discussion

- ❖ Exogenous ochronosis is a rare disorder of the skin resulting in blue, gray, or black pigmentation primarily in the malar region, forehead, and neck. It typically presents following application of hydroquinone at concentrations greater than 3% for over 6 months duration of time.^{2,4}
- ❖ Treatment of ochronosis is challenging with no reported clinical therapies
- ❖ The picosecond laser was used as it treats a variety of skin pigmentation conditions due to its high energy fluences in short pulses within the picosecond domain. This technology is able to generate a photocoagulative effect with minimal thermal damage
- ❖ The picosecond laser can be used safely in patients with high Fitzpatrick skin types with less risk for hyperpigmentation and minimal recovery time.⁵
- ❖ We treated our patient with the Cutera device using the 1064 nm wavelength with MLA, the 532 nm wavelength with MLA, and the 670 nm wavelength.
- ❖ A biopsy confirmed the diagnosis of exogenous ochronosis (Figure 3) with no symptoms to suggest alkaptonuria.
- ❖ The patient had been using hydroquinone at concentrations of 5% and 8% on and off for 18 years. A blueish-black discoloration presented on the malar region, temples, and forehead and was worse on the right side of the face.
- ❖ We were able to achieve a clinical improvement to the pigmentation of the skin as well as the quality and texture of the skin with ten sessions of the picosecond laser at intervals of one month.

Conclusion

The picosecond laser is implicated for use in both the traditional mode and with MLA for treating pigmented skin conditions, removal of tattoos, and remodeling collagen in the dermis. We used picosecond laser technology to treat a patient with exogenous ochronosis presenting with blueish-black pigment of the malar region, temples, and nasolabial region following prolonged use of topical hydroquinone.

Acknowledgements

Informed consent: Written informed consent was obtained from the patient who participated in this study.

Conflict of interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Bhattar PA, Zavar VP, Godse KV, Patil SP, Nadkarni NJ, Gautam MM. Exogenous Ochronosis. Indian J Dermatol. 2015 Nov-Dec;60(6):537-43. doi: 10.4103/0019-5154.169122. PMID: 26677264; PMCID: PMC4681189.
2. Méndez Baca I, Al-Niaimi F, Colina C, Anuzita A. A case of exogenous ochronosis successfully treated with the picosecond laser. J Cosmet Dermatol. 2018; 18: 1322-1325.
3. Tekgöz E, Akıncıoğlu E, Çınar M, Yılmaz S. A case of exogenous ochronosis associated with hydroxychloroquine. Eur J Rheumatol. 2018 Sep;5(3):206-208. doi: 10.5152/eurjrheum.2018.17190. Epub 2018 Jun 22. PMID: 30071940; PMCID: PMC6116847.
4. Gandhi V, Verma P, Naik G. Exogenous ochronosis After Prolonged Use of Topical Hydroquinone (2%) in a 50-Year-Old Indian Female. Indian J Dermatol. 2012 Sep;57(5):394-5. doi: 10.4103/0019-5154.100498. PMID: 23112363; PMCID: PMC3482806.
5. Haimovic A, Brauer JA, Cindy Bae YS, Geronemus RG. Safety of a picosecond laser with diffractive lens array (DLA) in the treatment of Fitzpatrick skin types IV to VI: A retrospective review. J Am Acad Dermatol. 2016 May;74(5):931-6. doi: 10.1016/j.jaad.2015.12.010. Epub 2016 Mar 3. PMID: 26947448.