



## Case Letter

## Perioral and gingival hyperpigmentation secondary to cultural tattooing

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Dear Editor,

The following brief report illustrates the importance of familiarity and recognition of cultural tattooing and its distinguishment from dermatopathic and systemic processes. An asymptomatic 47-year-old female of Senegalese origin (Fulani ethnic group) presented to the University Dental School for wisdom teeth removal. The facial examination revealed a conspicuous bluish-black pigmentation on the cutaneous lower lip and chin (Fig. 1). The patient's previous medical history was unremarkable and denied use of oral contraceptives, tobacco products, recreational drugs, or alcohol consumption.

Oral examination was remarkable for a bluish-black 3–5 mm linear pigmentation that extended from the maxillary mid-facial attached gingiva to the mucogingival junction, arising from the right premolar to the left second premolar (Fig. 2). Radiographs of the maxillary anterior teeth were normal and devoid of foreign material within the facial structures.

Upon seeking correlation and etiopathogenesis of the facial and oral hyperpigmentations, the patient admitted to having undergone cultural tattooing at age 15-years-old for aesthetic reasons prior to marriage. A 6-hour painful procedure was performed by a local resident the patient's home. The unanesthetized face, lower lip and gingiva were pierced multiple times with a needle tipped with a mixture of soot, obtained from tree bark and shea oil. Post-procedurally, some lip and gingival bleeding lasted several hours, resulting in cicatrization within days. Other female family members had received comparable ritual facial and gingival tattooing.

Perioral and lip tattooing, referred to as *tchoodi*, is a cultural practice of Fulani women of western Africa, primarily from Mali and Senegal. Tattooing of the lower lip region signifies an unmarried female, whereas the custom of tattooing of the upper lip is an indication of marital status. Ethnic tattooing also may be performed for aesthetics, tribal identification, a sign of fertility, and for superstition in Ethiopia and other African nations, and some Middle Eastern nations (Brooks and Reynolds, 2007). Oral muco-

sal tattooing may have a variable bluish-gray, bluish-black, or grayish-pink discoloration, depending on the number of tattooing sessions and age of the tattoo, as fading will occur. Intraoral tattooing in females is primarily seen bilaterally along the maxillary bucco/labial attached gingival margin to the mucogingival junction; male tattooing is often restricted to the labial maxillary gingiva (Brooks and Reynolds, 2007; Rawal et al., 2007). The majority of individuals will repeat this procedure in later adolescence or adulthood.

The differential diagnosis of blue skin and/or oral mucosa is diverse and includes cyanosis; argyria, secondary to embedment of amalgam particles, wearing silver jewelry, or ingestion of colloidal silver; pharmacologic agents, such as amiodarone, anti-malarials (chloroquine, hydroxychloroquine), psychotropics (chlorpromazine, phenothiazines), imatinib, and minocycline; vascular malformations; melanocytic nevus; lead poisoning; methemoglobinemia, following ingestion of elevated doses of nitrates found in some topical anesthetics, denture adhesives and foodstuffs; and ochronosis/alkaptonuria, a tyrosine metabolic disorder that leads to homogentisic acid deposition in hyaline cartilage, tendon, ligament, and muscle (Keller et al., 2005; Pearce, 2007; Tosios et al., 2018). The absence of any of the aforementioned relevant medical history, symptomatology, or amalgam restorations, and the presence of symmetrical macular pigmentations with well-demarcated borders coupled with the patient's acknowledgment of the cutaneous and intraoral tattooing, were sufficient to render the clinical diagnosis.

To the best of our knowledge, this article has reported the first documented case in the English language literature of the cultural practice of facial, lower lip, and gingival tattooing. Familiarity with various modalities of body modification may increase ethnic sensitivity and expand our general awareness of social rituals. Clinical pigmentations with unknown etiologies or atypical presentations may warrant a biopsy for histopathologic identity, ruling out malignancy and other pathologic processes, and preventing unnecessary invasive procedures.

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**Fig. 1.** Bluish-black cutaneous hyperpigmentation along the lower lip and chin.



**Fig. 2.** Bluish-black 3–5 mm linear pigmentation on the maxillary mid-facial attached gingiva.

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### Study approval

The authors confirm that the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies.

### Declaration of Competing Interest

None.

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