

BLUE GINGIVA: A POSSIBLE DIAGNOSTIC PITFALL IN DARK SKINNED PATIENTS

R. CALCATERRA¹, M. DI GIROLAMO², M. TONI¹, C. MIRISOLA³, L. BAGGI⁴

¹ Department of Social Dentistry, National Institute for Health, Migration and Poverty, Rome, Italy

² School of Dentistry University of Rome "Tor Vergata", Rome, Italy

³ National Institute for Health, Migration and Poverty, Rome, Italy

⁴ Department of Social Dentistry National Institute for Health, Migration and Poverty, School of Dentistry University of Rome "Tor Vergata", Rome, Italy

SUMMARY

Oral pigmentation is a discoloration of the oral mucosa or gingiva associated with several exogenous and endogenous factors. Oral pigmented lesions can have various etiologies, including drugs, heavy metals, genetics, endocrine disturbance, and inflammation.

Gingival tattooing represents a cultural practice prevalent in certain African ethnic groups, resulting in diffuse bluish pigmentation of maxillary alveolar gingiva.

Tattoos in the oral region must be distinguished from other form of diffuse, intrinsic or acquired pigmentation of oral mucosa. Herein we describe two patients from Ethiopia presenting a traditional gingival tattoo.

Key words: gingival pigmentation, gingival tattoo, cultural practice.

Introduction

Gingival color is generated by many factors such as the number and size of the blood vessels, epithelial thickness, presence of keratinization and quality and magnitude of the pigments (like melanin) within the gingival epithelium (1).

Physiologic pigmentation of the oral mucosa is clinically manifested as multifocal or diffuse melanin pigmentation in different ethnic groups worldwide and it occurs in all races (2-4).

A high quantity of melanin granules is found in individuals of African and East Asian descent (5). In fact the frequency of oral pigmentation in Iranian population is 43.47%, indicating that in Iranian population the degree of pigmentation is moderate; this value was higher than Europeans, whereas lower than East Asian populations (6). It appears to be a positive correlation

between the occurrence of gingival and dermal pigmentation (7).

Physiologic gingival pigmentation is the most common type of gingival pigmentation and results from excessive presence of melanin. It is not in connection with increase in melanocyte number, but rather enhanced melanocytic activity (8).

The color of melanin-pigmented gingiva may varies from light to dark brown or black (9).

On the other hand, oral pigmented lesions may have several etiologies, including drugs, heavy metals, genetics, endocrine pathologies, and inflammation conditions (10-12). Also, smoking may stimulate melanin production and cause oral melanin pigmentation (13, 14).

The attached gingiva is the most common location, however, physiological pigmentation can be noted anywhere in the oral cavity, including the tips of the fungiform papillae on the dorsal tongue (8).

The pigmented lesions may be single, multiple or diffuse. The solitary pigmented lesions characterized by dark color are: tattoos, ephelis (freckles) and the oral melanotic macule.

The most common oral solitary pigmented lesion is represented by dental amalgam tattoo and it occurs in almost 0.4-0.9% of the US and 8% of the Swedish adult population (15, 16). It is a resulting of coloring of the tissue by foreign pigment which was administered intra or subepidermally either intentionally or accidentally.

The most common material used for the coloring of the oral mucosa is amalgam from amalgam fillings and metal particles from prosthetic restorations which are absorbed accidentally. The metal fragments – the dust from amalgams or other metals inside the tattoo may be diagnosed by means of a clinical examination or an X-ray.

The metal particles may accidentally reach the area of the oral mucosa during various dentistry interventions. It is thus possible that during the routine preparation of the cavity, the gingival sulcus is damaged and the amalgam particles may penetrate into the epithelium during the placement of the fillings. During the removal process of the old amalgam fillings or the removal of old fixed prosthetic restorations the gingival may be damaged thus creating an entry point for the metal particles.

The mucosa may also be colored by various graffiti writing colors such as skin tattoos. The oral mucosa tattoos are most often found in the area of the marginal gingiva or the buccal mucosa.

Gingival hyper-pigmentation also known as racial gingival pigmentation is accepted to be a genetic trait. It is now well-established that pigmentation normally occurs in the oral mucous membrane of many ethnic groups. This normally occurring hyperpigmentation is benign in most cases and does not pose any medical concern.

Case reports

A 37-year-old female coming from Ethiopia referred to our outpatient Department for a temporo-mandibular disorder.

During the visit, intraoral examination showed an asymptomatic, diffuse pigmentation of the maxillary and mandibular vestibular gingiva extending to the second premolar areas, without any associated radiographic abnormalities. The color ranged from intense blue gray to light gray or grayish pink (Figure 1). There was no associated inflammation and the lesion failed to respond to the blanching test.

The familiar and personal history was unremarkable, particularly the patient did not use any drugs and she never undergone to previous dental treatment.

Questioning revealed that the patient had had one or more sessions of traditional gingival tattooing performed after her puberty for traditional reasons.

A 45-year-old female coming from Ethiopia referred to our Department for a 3 months history of an asymptomatic nodular lesion in the middle of upper maxillary incisors, showing a blue-grey diffuse pigmentation of the maxillary vestibular gingiva (Figure 2). Also in this case



Figure 1
Diffuse bluish pigmentation of the maxillary and mandibular vestibular gingiva in dark skinned patient.



Figure 2
Blue-grey pigmentation of the maxillary vestibular gingival.

the patient revealed that just before marriage she undergone to a session of gingival tattooing.

Discussion

Tattooing of soft tissue is a practice which remains relatively popular in many non tropical and tropical areas of the world.

Tattooing of the skin is most commonly encountered and tattooing of the lip and gingiva is occasionally seem in our country as the consequence of the presence of immigrant patients.

Tattoos in the oral region must be distinguished from other form of diffuse, intrinsic or acquired pigmentation of oral mucosa. Traditional gingival tattooing, practiced in Ethiopia and occasionally in other African and Middle Eastern countries, is performed for esthetic appeal or superstition, and it occasionally may be used as a homeopathic remedy for dental diseases. In these countries, tattooing of maxillary alveolar gingiva is mainly practiced by female especially when reach puberty or when they became married.

This custom may practice by men to relieve the pain association with diseased gums: in fact this particular use of the custom implies a belief that gingival tattooing has therapeutic benefit.

The technique of gingival tattooing involves painting the gingiva with a layer of pigmented material (usually carbon) which is then impregnated into the gingival mucosa by means of harp thorns or needles which pierce the mucosa.

Clinically, the tattoo is regarded as an alteration in the color of the oral mucosa clearly distinguished in its setting without pulping, remaining intact, smooth and of dark grey to blue color.

A bluish black coloration is usually achieves with gingival tattoos.

Outside of Africa, it may be misinterpreted as racial pigmentation or pose a diagnostic challenge. The color and distribution pattern of diffuse gingival pigmentation often are quite suggestive, and the clinical diagnosis should be confirmed by patient history. In selected cases, biopsy may be necessary to exclude other diagnostic options.

Practitioners should as certain whether gingival tattooing had been performed when patients manifest unusual oral pigmentation and be aware of its use in folk medicine for various oral conditions.

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Correspondence to:

Roberta Calcaterra, MD
National Institute for Health, Migration and Poverty (INMP),
Via di San Gallicano 25/a, Roma, Italy
Phone: 0039 06 58558306 - Fax 0039 06 58558405
E-mail: calcaterra@inmp.it