



Letter to the editor

Oral Squamous Cell Carcinoma could be related to coca chewers in Northern Argentina



Dear Editor,

Oral Squamous Cell Carcinoma (OSCC) was previously described as the five “S” disease regarding *smoking, spirits, syphilis, spices, and sharp/septic teeth* [1]. Chewing of plant-derived compounds such as betel and areca nut is a well-known habit associated with oral potentially malignant disorders (OPMD) such as submucosal oral fibrosis and OSCC. Both of these conditions are frequent in Southeast Asia [2,3].

There are several geographical areas of Bolivia, Peru, Chile, Colombia, Ecuador, and the northern region of Argentina where coca leaves (*Erythroxylum coca*) are commonly consumed. People who chew the coca leaves usually places a bunch of coca fibers between the posterior buccal mucosa and the gingivofugal sulcus. It could last from three to six-hour a day. An alkaline substance, called *llipta* or *yista* which is a mix of lime and vegetal ash is also added to promote the release of plants-alkaloids [4,5]. This habit, called *coqueo*, dates back from pre-Columbian indigenous populations. They believed that coca consumption could generate health benefits [6] and especially, a stimulant effect, caused by alkaloids, in particular by cocaine. However, long-term use is harmful to general and oral health [7]. Betel quid, tobacco, and khat consumption were widely studied as risk factors for oral cancer development. However, coca-chewing was previously described as a rare habit without association with oral carcinogenesis [6].

Over the last years, due to the opening of the Oral Medicine Service at the Hospital Señor del Milagro (Salta, Argentina), we evidenced several analogies between patients with OSCC associated with a strong coca consumption diagnosed in our service and the betel-chewing associated-OSCC described in the Indian literature.

We would like to report a case of a 62-years-old male who was referred by his dentist to the Oral Medicine Service, Hospital Señor del Milagro, Salta, Argentina. During the clinical examination, an ulcerated, indurated, and fixed lesion located on the lower left gingivofugal complex was noted. A leukoedematous white mucosa was observed nearby the ulcer. On the contralateral buccal mucosa, it was noted a whitish lesion with a leukoedematous surface. The patient did not smoke nor drink nor exposition to environmental or occupational carcinogens. No inherited history of cancer was recorded. Fig. 1A, B, and C show the clinical scenario found at the first visit. During the anamnesis, the patient reported bilateral habit of chewing coca leaves for more than six hours per day for 40 years. The first incisional biopsy was taken from the most suspicious lesion found on the left side, which revealed a well-differentiated OSSC. The specimen obtained from the contralateral side showed a stratified epithelium with areas of reactive keratosis and underlying chronic inflammatory infiltrate. Fig. 1D, E,

and F reflect the histopathological findings of the case. The patient was referred to a local oncological service for cancer treatment.

A 70s study had previously reported an association between the chew of coca leaves and the presence of leukoedema of the buccal mucosa [6], however, there are scarce studies in current literature that assess the possible role of this habit in oral carcinogenesis. The study of Nersesyan et al showed that chewing of coca leaves does not cause anomalies that reflect genetic damage in exfoliated mucosa cells of healthy individuals. Nevertheless, other cytological changes related to malignancy were found [5].

Regardless of the habit, the subsite of location (the lower gingivofugal complex) and the clinical aspect were similar to those described in betel-associated cancer, the so-called the *Indian Oral Cancer*. The role of chronic inflammation, fibrogenesis, and persistent mechanical irritation of coca leaves and sharp teeth [8,9] could be the main features to be focused on further investigations. Furthermore, chronic irritation generated during the coca-chewing habit could be a part of a co-carcinogenic mechanism that facilitates the penetration of other carcinogens compounds from tobacco, alcohol, HPV, hot infusions, etc.

This report just describes a case of OSCC associated with the chewing of coca leaves in a geographical population where this habit is frequent. Consequently, it ranks low in the hierarchy of scientific evidence. Gingivofugal OSCC associated with betel presents particular etiological, clinical-pathological, prognostic, and staging features [9]. Thus, further studies should be conducted to assess the potential role of coca chewing in oral carcinogenesis and evaluate possible similarities with oral cancer frequently diagnosed in India. From the Oral Medicine Service of the Hospital Señor del Milagro, we started to work with a multidisciplinary epidemiological group to address this problem. Researchers from South American hospital centers and universities should encourage studies and investigations of coqueo habit and oral conditions associated with it. Further updated data is needed to promote preventive campaigns of coca chewing cessation. Furthermore, the systematic understanding of the oral conditions associated with this habit could help to design guidelines and therapeutic protocols for these patients.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

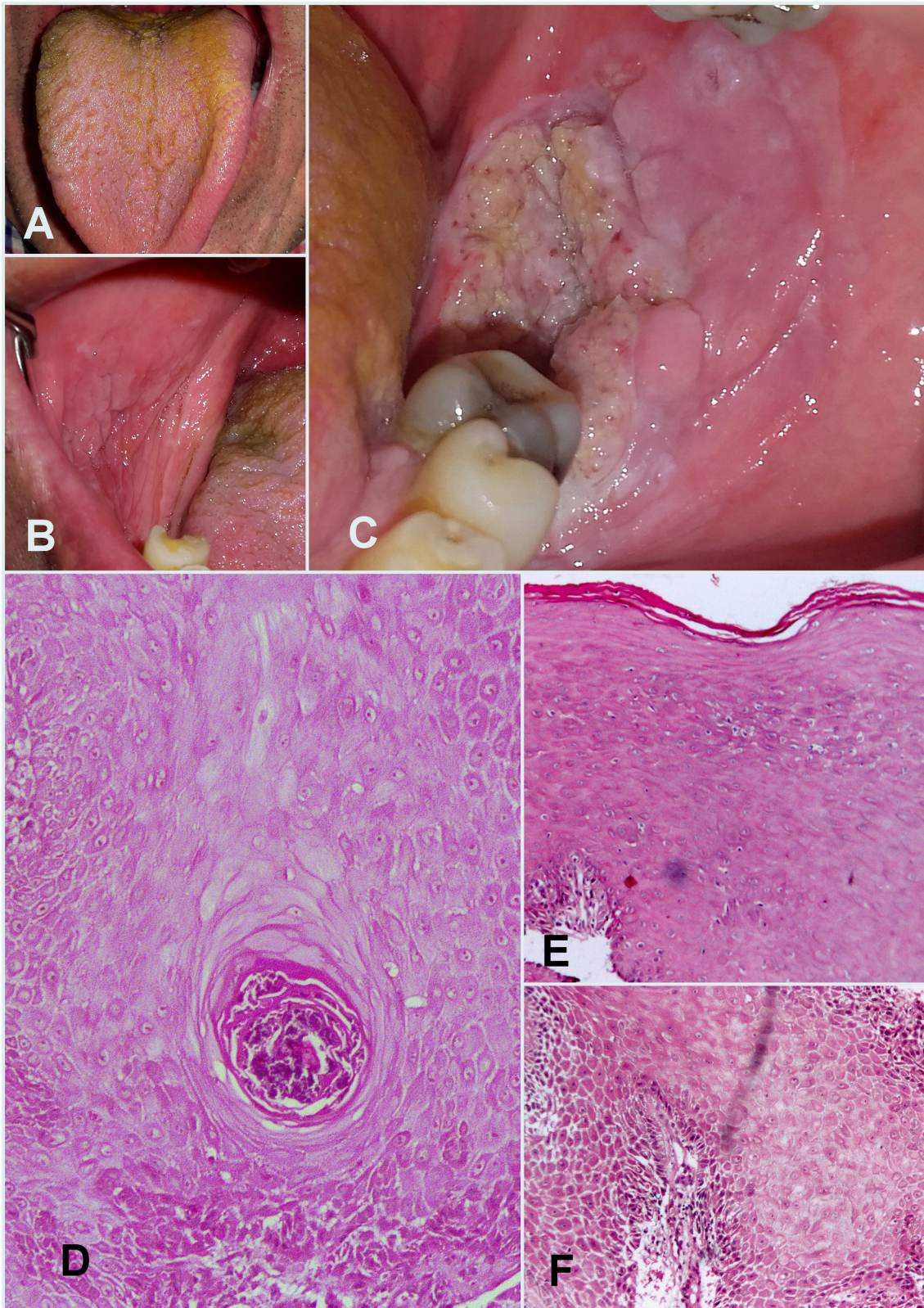


Fig. 1. A: The tongue dorsum showed a greenish appearance due to the staining generated during the consumption of the coca leaves. B: A grayish-white, wrinkled, and leuodematous plaque was evident on the right posterior buccal mucosa. The borders were diffuse. C: On the left gingivojugal complex, an indurated ulcer was present. The patient revealed keeping the coca-leaves on that site at least six hours per day. A whitish mucosa next to the ulcer was observed and many parts of the lesion showed yellowish encrustations which were deposits of coca-leaves compounds. D, F: H/E Well-differentiated OSCC. E: The Hematoxylin/Eosin specimen showed a stratified oral epithelium with areas of spongiosis and superficial reactive keratosis with moderate connective inflammatory changes.

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Ignacio Molina Ávila (DDS, MSc)^a,

Juan Martín Pimentel Solá (DDS, MSc)^a,

Gerardo Vides Almonacid (DMS, MSc)^b, Gerardo Gilligan (DDS, PhD)^{c,*}

^a *Oral Medicine Service, Hospital Señor del Milagro, Sarmiento Avenue 557,*

PC: 4400 Salta, Argentina

^b *Private Service of Oncological Pathology and Cytodiagnosis, Zuviria 740,*

PC: 4400 Salta, Argentina

^c *Oral Medicine Department, Facultad de Odontología, Universidad Nacional de Córdoba, Haya de la Torre SN, Ciudad Universitaria, PC: 5000*

Córdoba, Argentina

E-mail addresses: i_molinaavila@hotmail.com (I. Molina Ávila),

juanpimentelsola@hotmail.com (J.M. Pimentel Solá),

gvivis@hotmail.com (G. Vides Almonacid),

ggilligan@unc.edu.ar (G. Gilligan).

* Corresponding author.