case report

DOUBLE LOCALIZATION OF KERATOACANTHOMA ON THE CUTANEOUS AND MUCOSAL SIDES OF THE LOWER LIP: REPORT OF A CASE

M.P. CRISTALLI[1], R. MARINI[2], G. LA MONACA[2], D. VITOLO[3], G. POMPA[2], S. ANNIBALI[2]

[1]*Department of Medico-Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Rome, Italy*
[2]*Department of Oral and Maxillo Facial Sciences, "Sapienza" University of Rome, Rome, Italy*
[3]*Department of Radiological, Oncological and Pathological Sciences, "Sapienza" University of Rome, Rome, Italy*

SUMMARY
The clinical course and histological features of keratoacanthoma (KA) are well recognized by dermatologists and pathologists, but they are less familiar to dental professionals.
The aims of this report were to describe an unusual case of simultaneous intraoral and labial KA and to identify the most important aspects of the clinical management of this lesion.

Key words: keratoacanthoma, lip cancer, squamous cell carcinoma.

Introduction

The first cutaneous keratoacanthoma (KA) was described in 1889 by Sir Hutchinson as a crateriform ulcer of the face (1-7) but it was Freudenthal of Wroclaw, who coined the term keratoacanthoma to describe this tumor in the late 1940s (1, 3). Helsham and Buchanan were the first to describe an intraoral KA in 1960 (2).
KA is a benign neoplasm of the skin that occurs mainly on sunlight exposed areas, where hair follicles and sebaceous glands are normally present, such as the check, nose, lips and dorsum of the hands. The vermilion border of the lips is also affected, probably because the lesion spreads from the adjacent skin (1, 2, 8, 9).
Most authors have considered that KA of the skin originates from the hair follicle, whereby in response to an unknown stimulus, the follicular cells alter their normal growth and produce an excessive amount of keratine (1, 3, 8, 10-12). The origin of the intraoral lesion remains to be established. Although the sebaceous gland and their ducts and the surface epithelium have been suggested as sources, none of these theories has been confirmed (2, 4, 5, 10, 11).
The incidence of KA is uncertain because these tumours frequently regress spontaneously and are thus not documented. Particularly higher incidences have been documented in Australia (150 per 100,000) (1, 3, 13, 14) and in a Japanese - Hawaiian population (22.1 per 100,000) (1): this can probably be explained by the finding that KA is more common populations with a pale-complexion that are frequently exposed to solar-radiation (1, 3).
Several types of KA are described in the literature, including solitary, multiple and syndromic forms. The solitary KA is the most common variant, and its clinical history involves three clinical stages (1, 3, 5, 8, 9).

- The proliferative phase of rapid growth, lasting from 6 to 10 weeks, in which the lesion achieves its maximal size.
- The maturation phase, usually lasting several weeks or months, in which the central portion of the KA becomes keratinized.

- The regression phase, in which the lesion undergoes spontaneous involution, healing over 4-6 weeks, and leaving an atrophic and hypopigmented scar.

Clinically, mature KAs are characterized by a small mass (1-2 cm) of irregular shape with multiple brown and adherent crusts, with a central ulcerative crater that is filled with keratin or keratotic horn (2, 4, 10, 14). The lesion may contain hair. KAs are smaller on the lower lip than on skin, and frequently affect the vermilion border and the adjacent skin (8, 9, 11). Other intraoral localizations are the buccal and palatal mucosa, the tongue and the gingiva (2, 4, 11). The clinical characteristics of oral KAs vary from well-circumscribed, white nodule with a rolled border, to circular ulcers, frequently with a central depression area filled with keratin.

A rare case of double localization of KA on the cutaneous and mucosal sides of the lower lip is presented here.

Presentation of case

A 65-year-old man was referred to Department of Oral and Maxillofacial Science, "Sapienza" University of Rome, with a 2-month history of a nodular mass localized on the central portion of the skin side of the lower lip, without spontaneous regression. The patient was known to be suffering from hypertension and verrucous lichen planus. He had smoked 25-30 cigarettes a day for more than 35-years and had poor oral hygiene.

An extraoral examination revealed a well-circumscribed mass measuring 1.0x1.8cm that was localized on the skin of the lower lip and the adjacent vermillion border (Fig. 1). Its surface was micronodular, covered with brown-pigmented crusts and contained hair. It was asymptomatic, sessile and fixed, and the consistency was firm and rubbery. There was no other lesion in the face or neck.

An intraoral examination disclosed a second, smaller, oval-shaped lesion (0.5x0.5cm) localized on the oral side of the lower lip that was sessile, asymptomatic and, well-circumscribed, and covered by granulomatous-appearing mucosa (Fig. 2). The mucosal lesion was in contact with the inside edge of the vermilion, but both lesions were apparently distinct from the vermilion. There was no evidence of pain, paresthesia or palpable lymphonodes. The patient reported only a sensation of dryness of the lips.

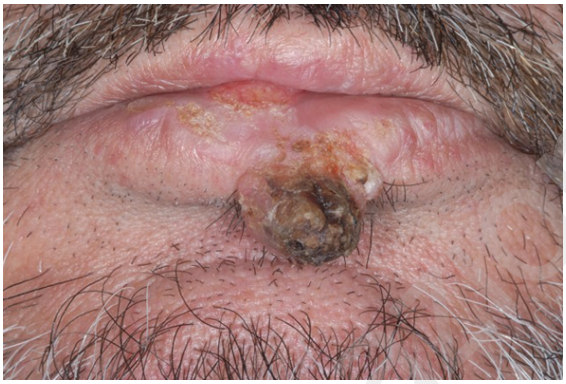

Figure 1
Extraoral lesion.

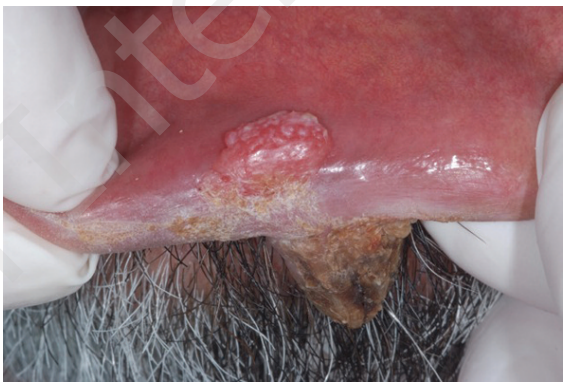

Figure 2
Intraoral lesion.

Both lesions were removed surgically in a single session and under local anesthesia (2% mepivacaine with 1:100,000 adrenalin). The skin lesion was fixed by a forceps and an elliptic incision, extended to the muscular layer and including a 0.5cm of healthy tissue, was made around its margins. Tissue planes were dissected with the aim of releasing the superficial tissues and preventing stress of the suture.

The same technique was applied to the intraoral lesion, which was removed with an apical wedge-shaped incision to the inferior lip.

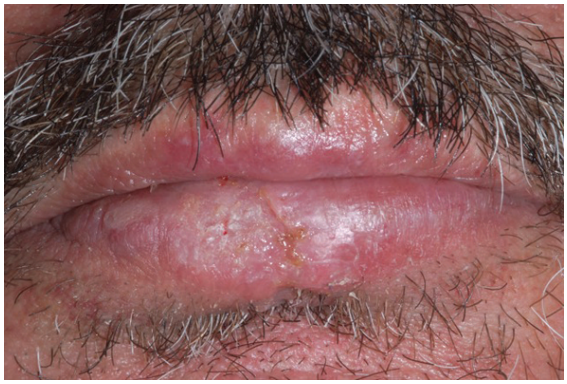

Figure 3
Clinical follow-up a 3-months.

The mucosal and labial wounds were sutured layer by layer, approaching the muscular and skin planes with resorbable polyglactin suture (Vicryl 4/0 - Ethicon).
Healing was uneventful, with both of the surgical wounds healing without scarring.
The obtained specimens were fixed in 10% formalin solution and submitted for histological examination.
A 3-month follow-up disclosed no evidence of a recurrence (Fig. 3).

Microscopic features

Histologically, the skin specimen was characterized by exophytic growth of hyperkeratotic and orthokeratotic epithelium. As reported previously for KA, the lesion was characterized by overhanging edges, and the basal layer consisted of immature and hypertrophic epithelial cells with basophilic cytoplasm and large and vesicular nuclei with eosinophilic nucleoli. These cells were frequently dysplastic; clear features of neoplastic transformation were not observed. The adjacent Malpighian layers were acanthotic and characterized by abundant horny pearls (Fig. 4).
The mucosal lesion was characterized by esophytic growth of hyperkeratotic and parakeratotic epithelium and overhanging edges. The basal

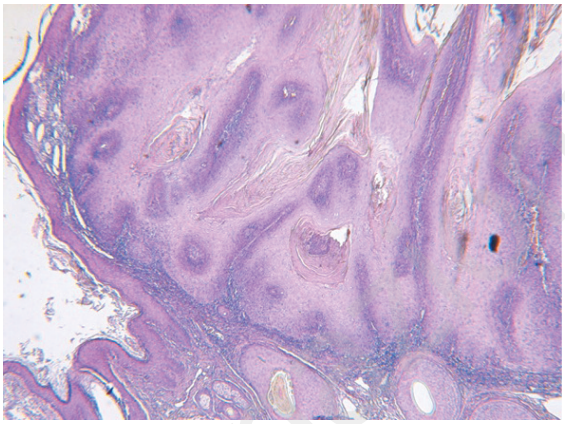

Figure 4
Histological features of the extraoral specimen (mag. X25EE).

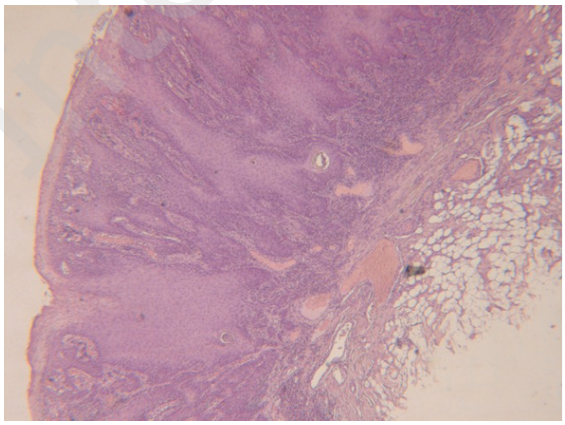

Figure 5
Histological features of the intraoral specimen (mag. X25EE).

layer consisted of immature and adjacent epithelial cells with basophilic cytoplasms and large and vescicular nuclei with eosinophilic nucleoli. These cells showed only mild signs of dysplasia and feature of neoplastic transformation has not been observed. In this oral lesion, the adjacent Malpighian layers were acantotic, characterized by few and scattered horny pearls (Fig. 5).

Discussion

To our knowledge, the case reported herein is the first of simultaneous intraoral and labial KA;

many authors have reported cases of cutaneous and mucosal KAs, but not simultaneously in the same patient.
The described lesion exhibited the epidemiologic and etiologic characteristics of KAs described in the literature. The patient was a 65-year-old man; many studies have found that the incidence of KAs peacks at 40-70 years of age, and are more frequent in men than in women (1-5, 8, 11, 14-16).
From an aetiological point of view, the patient was a heavy smoker, was affected by verrucous cutaneous lichen, lived in a seaside town and spent most of his working time exposed to sunlight: all of these factors are highly significant to the aetiology of KA (1-4, 7, 8, 14-16).
Furthermore, our patient presented a slight mucosal trauma caused by decreased vertical size and inappropriate upper and lower dentures, which could have been involved in the development of the intraoral lesion (1, 7, 8, 16).
The clinical features of the cutaneous lesion were similar to those described in the literature: the presence in sun-exposed areas and where hair follicles and sebaceous glands are usually found, the crusted surface, the volcano aspect and, the rapid growth of the lesion (as indicated by his medical history) (1-4, 10, 14).
The clinical diagnosis of mucosal lesion was more difficult because intraoral examination revealed a berry-shaped mass that seemed to be more similar to a papilloma than a KA, which usually appears as a circular ulcer with a raised rolled margin (11, 15).
Nevertheless, the provisional diagnosis must be confirmed by the histology to differentiate between KA and well-differentiated squamous-cell carcinoma (SCC). The histological criteria used for the differential diagnosis are the sharp demarcation between the lesion and the stroma, normal surface epithelium surrounding the keratin plug, the absence of marked cellular pleomorphism and numerous mitoses (1-5, 11, 14, 15).
Surgical excision of the entire lesion is considered the treatment of choice for solitary KAs not only because there are no reliable criteria for distinguishing them from SCCs, but also to accelerate resolution for cosmetic purposes and to avoid the pathological and aesthetically undesiderable scars that may develop after spontaneous regression (1, 3, 5, 8, 9, 11).
It is very important to employ a full and adequate surgical technique to completely excise lesion, because incomplete excision reportedly results recurrence in 4-8% of cases (1).
Most authors would have decided that surgical excision was the best course of action in the present case. An incisional biopsy was not recommended because the small size of the lesion would render it impossible to obtain an adequate specimen, which would have to involve the center of the lesion and include healthy tissue from both side and the deep tissue.
Other treatments for KAs have been reported in the literature, including radiotherapy, laser surgery, cryosurgery with liquid nitrogen, curettage with galvanocauterization, intralesional and topical treatment with 5-fluorouracil, bleomycin, methotrexate or other compounds (1, 3, 8).

Conclusions

The first reported case of simultaneous cutaneous and mucosal KAs is presented. The authors have focused on the etiology, the clinical appearance and the methods of treating these lesions, which are relatively unfamiliar to dental professionals. Correct management allows for resolution of a KA without complications and recurrences.

Conflict of interest

The Authors disclosure that they have not been any conflict of interest for the work. The article was conducted without any financial assistance.

Consensus

Written informed consent was obtained from the patient for publication of this case report and ac-

companying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

References

1. Karaa A, Khachemoune A. Keratoacanthoma: a tumor in search of a classification. Int J Dermatol. 2007 Jul;46(7):671-8.
2. Svirsky JA, Freedman PD, Lumerman H. Solitary intraoral keratoacanthoma. Oral Surg Oral Med Oral Pathol. 1977 Jan;43(1):116-22.
3. Schwartz RA. Keratoacanthoma: a clinico-pathologic enigma. Dermatol Surg. 2004 Feb;30(2 Pt 2):326-33; discussion 333.
4. Eversole LR, Leider AS, Alexander G. Intraoral and labial keratoacanthoma. Oral Surg Oral Med Oral Pathol. 1982 Dec;54(6):663-7.
5. Janette A, Pecaro B, Lonergan M, Lingen MW. Solitary intraoral keratoacanthoma: report of a case. J Oral Maxillofac Surg. 1996 Aug;54(8):1026-30.
6. LeBoit PE. Can we understand keratoacanthoma? Am J Dermatopathol. 2002 Apr;24(2):166-8.
7. Mandrell JC, Santa Cruz D. Keratoacanthoma: hyperplasia, benign neoplasm, or a type of squamous cell carcinoma? Semin Diagn Pathol. 2009 Aug;26(3):150-63.
8. Azaz B, Lustmann J. Keratoacanthoma of the lower lip. Review of the literature and report of a case. Oral Surg Oral Med Oral Pathol. 1974 Dec;38(6):918-27.
9. Ramos LM, Cardoso SV, Loyola AM, Rocha MA, Durighetto-Júnior AF. Keratoacanthoma of the inferior lip: review and report of case with spontaneous regression. J Appl Oral Sci. 2009 May-Jun;17(3):262-5.
10. Freedman PD, Kerpel SM, Begel H, Lumerman H. Solitary intraoral keratoacanthoma. Report of a case. Oral Surg Oral Med Oral Pathol. 1979 Jan;47(1):74-6.
11. Whyte AM, Hansen LS, Lee C. The intraoral keratoacanthoma: a diagnostic problem. Br J Oral Maxillofac Surg. 1986 Dec;24(6):438-41.
12. Fisher BK, Elliott GB. On the origin of Keratoacanthoma: reflections on an unusual lesion. Can Med Assoc J. 1965 Aug 7;93:272-3.
13. Sullivan JJ. Keratoacanthoma: the Australian experience. Australas J Dermatol. 1997 Jun;38 Suppl 1:S36-9.
14. Ko CJ. Keratoacanthoma: facts and controversies. Clin Dermatol. 2010 May-Jun;28(3):254-61.
15. Ghadially FN, Barton BW, Kerridge DF. The etiology of keratoacanthoma. Cancer. 1963 May;16:603-11.
16. Pattee SF, Silvis NG. Keratoacanthoma developing in sites of previous trauma: a report of two cases and review of the literature. J Am Acad Dermatol. 2003 Feb;48(2 Suppl):S35-8.

Correspondence to:
Susanna Annibali
Associate Professor of Oral Surgery School of Dentistry
Director of Postgraduate Program in Oral Surgery
Department of Oral and Maxillo Facial Sciences
"Sapienza" University of Rome
Via Caserta 6, 00161 Rome - Italy
Phone +39 06 49976651 Fax +39 06 44230811