

Persistent carbuncle on the chin of an older man



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Key words: HPV; oral squamous cell carcinoma; oropharyngeal; persistent carbuncle; smoking; squamous cell carcinoma..

Noncutaneous head and neck squamous cell carcinoma develops from the squamous mucosa of the oral cavity, pharynx, and larynx. The development of these tumors has been associated with tobacco use or alcohol consumption. Increasingly, these tumors, particularly those of the oropharynx, are linked to infection by the oncogenic strains of human papillomavirus (HPV). Although a subset of oral squamous cell carcinomas (OSCCs) present with premalignant lesions such as leukoplakia or erythroplakia, many patients are diagnosed at an advanced stage without an antecedent premalignant lesion. OSCC staging is based on tumor size, depth of invasion, and involvement of adjacent structures. Extension into the skin of the face is a relatively rare occurrence, but when present, it represents moderately advanced, local disease. We report the case of a patient with OSCC who presented with fluctuant nodules on the chin resembling a carbuncle.

CASE REPORT

A 79-year-old man with a 20-pack-year smoking history presented to dermatology with a 2-month history of mildly tender carbuncular nodules on the chin. Before seeing dermatology, he had completed a course of cephalexin and recently switched to doxycycline, with no improvement in the lesions. Examination revealed localized fluctuant nodules and papules on the central and right lateral side of the chin with expressible purulence (Fig 1). The purulent exudate was cultured and showed heavy growth of *Proteus mirabilis*. Thus, the patient's antibiotic was changed to ciprofloxacin.

Abbreviations used:

CT:	computed tomography
HPV:	human papilloma virus
OSCC:	oral squamous cell carcinoma
SCC:	squamous cell carcinoma

When seen in follow-up approximately 2 weeks after the initial visit, the primary nodule had slightly decreased in size, but the other satellite papules were unchanged. A punch biopsy was performed for histology and triple culture with a differential diagnosis that included bacterial furunculosis, sycosis barbae, actinomycosis, atypical *Mycoplasma*, deep fungal infection, and malignancy. The biopsy revealed deep-seated islands of markedly atypical squamous epithelium with associated dense inflammation and granulation tissue (Fig 2). The islands were composed of basaloid squamous cells with a high nuclear/cytoplasmic ratio, numerous mitotic figures, and apoptotic debris (Fig 3). There was no overt connection of the neoplasm to the overlying interfollicular epidermis in the multiple sections examined. The culture was again positive for *Proteus mirabilis*. Considering the morphological features of the tumor, especially a lack of continuity with the epidermis, and the growth of bacteria not considered normal-appearing skin flora, an oral cavity primary squamous cell carcinoma (SCC) was considered.

The oral cavity examination revealed a subtle papillomatous change in the mucosa on the anterior floor of the mouth and no palpable adenopathy.

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Fig 1. Persistent carbuncle. Localized fluctuant nodules and papules of the central and right lateral side of the chin with expressible purulence.

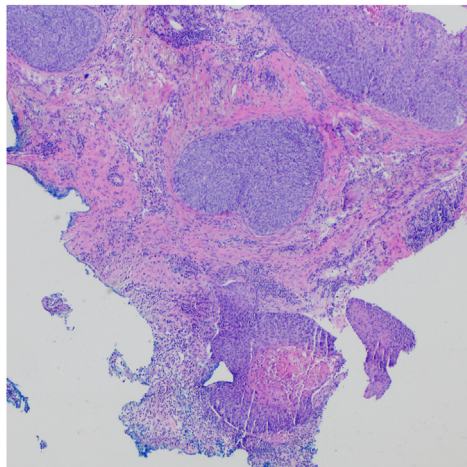


Fig 2. Histology of squamous cell carcinoma. Deep nests of squamous cell carcinoma with associated dense inflammation and granulation tissue.

Computed tomography (CT) with contrast and positron emission tomography/CT showed a 3-cm fluorodeoxyglucose avid mass within the anterior floor of the oral cavity that had eroded through the right anterior mandible and extended into the skin (Fig 4). A cervical lymph node was concerning for metastasis. Immunohistochemistry for p16 was subsequently performed on the biopsy specimen and showed diffuse positivity of the tumor. Given the pathologic and radiologic findings, prompt coordination with the otolaryngology department was made, and a final diagnosis of OSCC stage IV was rendered.

Because of the patient's cardiac comorbidities and advanced age, he was not considered to be an operable candidate. He underwent radiation treatment with 3 rounds of Quad-shot radiation followed by systemic therapy with cetuximab. There was a good response to the therapy, with a decrease in the

size of the tumor but without complete resolution of the mass. The treatment was also complicated by an orocutaneous fistula with exposed intraoral bone. Three years after completing his treatment, the patient died of an unrelated cardiovascular cause.

DISCUSSION

OSCC is a relatively common malignancy of the head and neck region.¹ Its incidence is increasing in many countries, particularly in the younger age groups. Although these tumors are generally associated with tobacco and alcohol use, a subset of tumors are linked with HPV infection. There is evidence that invasive OSCC develops from premalignant lesions with progression through increasing degrees of dysplasia. However, often the premalignant lesions are subtle or absent, and patients present with advanced-stage tumors at the time of diagnosis. As such, the presenting signs and symptoms of OSCC are variable. In a study of the initial symptoms of oropharyngeal SCC, the most commonly reported symptoms were a neck mass, sore throat, dysphagia, and a visualized oral lesion.² Presumed infections, such as peritonsillar or tonsillar abscess, have also been reported as presenting signs of OSCC.

This case illustrates an unusual presentation of OSCC. A similar case documented a persistent, inflammatory facial mass positive for *Streptococcus milleri* that was secondary to an underlying intraoral malignancy.³ Compared with the current case, the patient was found to have OSCC that had invaded through the mandible and presented as an erythematous skin lesion colonized with flora more characteristic of the oral cavity. The patient presented initially with an exquisitely painful skin lesion that progressed to numbness of the lower lip. In the current case, the patient initially reported only mild tenderness but later experienced persistent numbness of the lower lip and chin. The numbness was likely due to an invasion of the inferior alveolar nerve by the tumor and portends a worse prognosis.⁴

As our patient did not present initially with an intraoral mass, the differential diagnosis for the facial lesion was broad and included infection, inflammatory processes, and cutaneous malignancy. Given the clinical appearance, infectious processes such as bacterial or herpetic folliculitis, as well as Majocchi granuloma, were considered. Possible inflammatory lesions included a complex inflamed epidermoid cyst, rosacea, and pseudofolliculitis barbae. Suspicion of a cutaneous malignancy, however, was higher on the differential given the persistence of the lesion over time, resistance to antibiotic therapy, numbness of the skin over the lesion, and

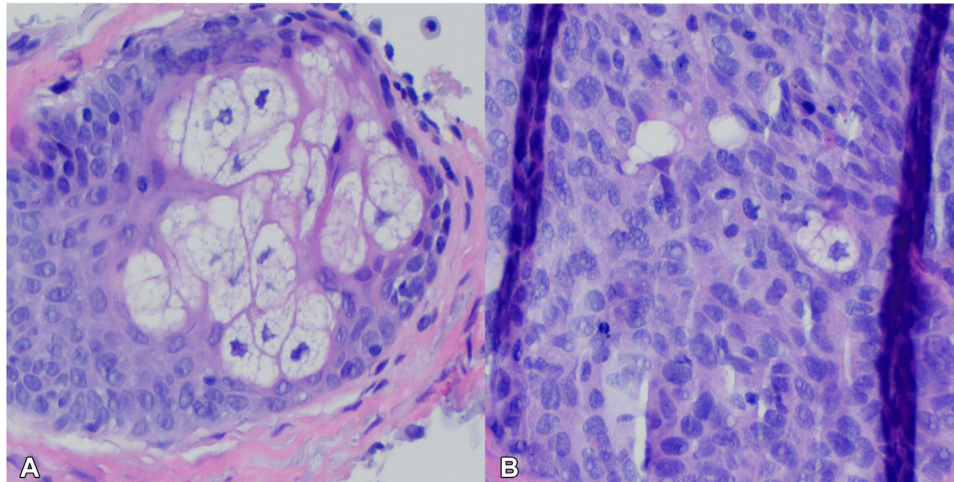


Fig 3. Histology of squamous cell carcinoma. Clusters of sebocytes (A) and a single sebocyte (B) surrounded by squamous cell carcinoma, suggesting that the tumor arose in a follicular unit.

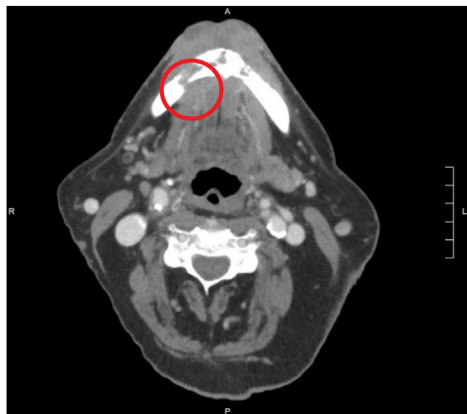


Fig 4. Imaging of squamous cell carcinoma. Computed tomography with contrast (red circle) showing an avid mass within the right anterior floor of the oral cavity eroded through the right anterior mandible and extending into the skin of the chin.

extensive smoking history. Furthermore, a biopsy was prompted by the fact that *Proteus mirabilis* is a normal flora of the gastrointestinal tract. The morphology of the SCC, together with p16 positivity,

led to the discovery of the OSCC. This case illustrates the importance of having a high index of suspicion for OSCC in the setting of a persistent carbuncular lesion of the chin that is associated with unusual bacteria, shows resistance to appropriate antibiotic therapy, and presents with pain or numbness.

Conflicts of interest

None disclosed.

REFERENCES

1. Johnson DE, Burtneß B, Leemans CR, Lui VWY, Bauman JE, Grandis JR. Head and neck squamous cell carcinoma. *Nat Rev Dis Primers*. 2020;6(1):92.
2. McIlwain WR, Sood AJ, Nguyen SA, Day TA. Initial symptoms in patients with HPV-positive and HPV-negative oropharyngeal cancer. *JAMA Otolaryngol Head Neck Surg*. 2014;140(5):441-447.
3. Buckley DA, Murphy A, Dervan P, Hone R, O'Dwyer T, O'Loughlin S. Persistent infection of the chin with an unusual skin pathogen (*Streptococcus milleri*): a sign of intraoral carcinoma. *Clin Exp Dermatol*. 1998;23(1):35-37.
4. Sanchis JM, Bagán JV, Murillo J, Díaz JM, Poveda R, Jiménez Y. Mental neuropathy as a manifestation associated with malignant processes: its significance in relation to patient survival. *J Oral Maxillofac Surg*. 2008;66(5):995-998.