

## Gingival Squamous Cell Carcinoma and the Importance of Early Diagnosis in Treatment Outcome: A Clinical Case Report

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### ABSTRACT

**Background:** Gingival SCC is the malignancy of gingival epithelium. Prevalence of gingival and alveolar process SCC is 2% to 12% of diagnosed cases. However, it occurs much more frequently in the mandible than in the maxilla. The purpose of this case report is to introduce a case of gingival SCC in the anterior maxilla with no diagnosed risk factor.

**Case report:** A 49-year-old male with the chief complaint of a growing mass in anterior maxillary gingiva with the differential diagnosis of reactive lesions for three months. Panoramic and periapical examination showed no evidence of generalized alveolar bone resorption. After the excisional biopsy, in the follow-up session, the recurrence of the lesion was seen. Considering rapidly growth of the lesion, suspension to SCC was reinforced and the next excisional biopsy was done. Histopathologic analysis established the diagnosis of squamous cell carcinoma.

**Conclusion:** SCC is a great imitator; for lesions with a benign appearance on the gingiva and it should be considered in the differential diagnosis. This case report revealed the importance of early diagnosis of gingival SCC. Considering the low survival rate of gingival SCC and its high morbidity, early diagnosis help improves the survival of the patient

**Keywords:** squamous cell carcinoma, early detection of cancer, gingival neoplasms

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## Introduction

**S**quamous cell carcinoma (SCC) is the malignancy of epithelial cells. It is the most common malignancy in the oral cavity and the 7<sup>th</sup> most prevalent cancer in the world (1). Globally, the highest incidence was found in South-Central Asia and parts of Oceania, with the highest estimated incidence rates in Papua New Guinea, Pakistan, and India (2). This cancer is more common in males than in females. The most frequent sites of involvement are the tongue and floor of the mouth. Other sites of oral involvement include buccal mucosa, soft palate and gingiva, alveolar mucosa, oropharynx, pharyngeal tonsils, and salivary glands (3).

Squamous cell carcinoma is a multifactorial disease and there are several risk factors for SCC development. Tobacco and alcohol consumption are the main risk factors (4). Other risk factors include HPV and HSV infection, fungal infections, immunosuppression, nutritional deficiencies, syphilis, and radiation (5).

Gingival SCC is the malignancy of gingival epithelium. Since the thickness of gingiva on the alveolar bone does not exceed 2-3 mm, the likelihood of alveolar bone invasion in gingival SCC is very high (3). Prevalence of gingival and alveolar process SCC is 2% to 12% of diagnosed cases (6). Gingival SCC occurs much more frequently in the mandible than in the maxilla, but maxillary gingival cancers are more aggressive than mandibular ones (6). Gingival SCC may present as an ulcerative or exophytic lesion. The surface of the exophytic lesion may be granular, papillary or verrucous. It may also present as a localized periodontal lesion (7). Regarding different clinical manifestations of gingival SCC and the likelihood of misdiagnosis of this lesion as well as high risk of early local

invasion, this case report aimed to introduce a case of gingival SCC in a patient with no diagnosed risk factor.

## Case presentation

The case was a 49-year-old male patient who referred to Oral Medicine Department, Dental Faculty, Tehran University of Medical Sciences, with the chief complaint of a growing mass (35 × 20 mm) in anterior maxillary gingiva for three months. The lesion was a pedunculated exophytic mass with granular surface on the attached gingiva adjacent to teeth number 8 to 11 (Figure 1).



**Figure 1.** Clinical view of the patient; SCC presented in the attached gingiva.

There was evidence of fenestration on the first left maxillary incisor (tooth number 9). No purulent discharge was seen. Gingival bleeding was evident in the adjacent teeth during the probing. Other sites of the attached gingiva were within the normal range. Panoramic and periapical examination showed no evidence of generalized alveolar bone resorption (Figure 2).



**Figure 2.** Panoramic view of the patient.

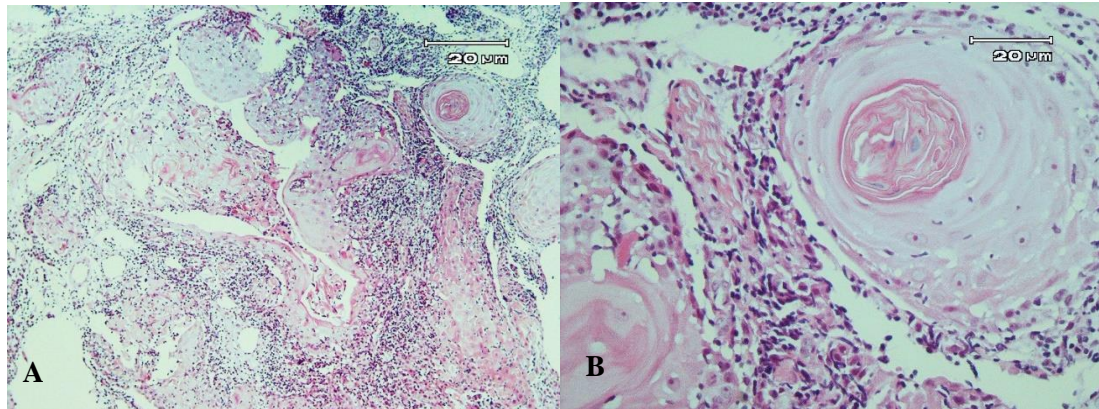
There was no significant family history of malignancy or genetic and immunologic disease with cancer predisposition. According to the clinical features of the lesion, the differential diagnosis was reactive lesions such as peripheral giant-cell granuloma, pyogenic granuloma, peripheral ossifying fibroma, and also, oral SCC. An excisional biopsy was performed for the lesion. Before the biopsy, scaling and root planning were done to reduce the inflammation, and chlorhexidine mouthwash was also prescribed. Despite this, in the histopathologic analysis of biopsy specimen, severe exocytosis and elongated rete ridges of the epithelium were seen. Due to severe inflammation, it was not possible to make a definitive diagnosis.

Two weeks later in the follow-up session, the recurrence of the lesion with the granular surface in the attached gingiva of the left maxillary incisor was seen. Considering rapidly growth of the lesion, suspension to SCC was reinforced and the next excisional biopsy was done (Figure 3).



**Figure 3.** Clinical view of the lesion recurrence after two weeks.

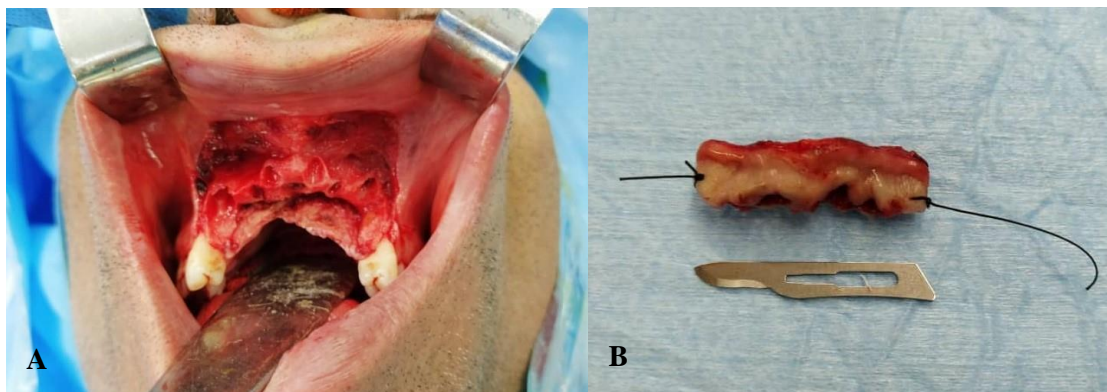
Histopathologic findings revealed malignant epithelial neoplasm composed of epithelial islands invading subjacent connective tissue along with numerous keratin pearls formation. Severe chronic inflammatory cell infiltration was also notable (Figure 4). According to the histopathologic findings, the diagnosis was well-differentiated SCC. Regarding the diagnosis of SCC, the patient was referred to an oral and maxillofacial surgeon.



**Figure 4.** Nests and islands of squamous epithelium invading into underlying connective tissue (A,10x), a nest of squamous epithelium with keratin pearl formation (B, 40x).

The treatment plan for the case was resection of the lesion with 1 cm safe margin and extraction of 6 anterior maxillary teeth (Figure 5, A and B). Frozen section analysis was also

performed to ensure free safety margins of the tumor. The patient was followed up after 4 months. Complete healing was observed in the resected area (Figure 6).



**Figure 5.** Surgical site after excision (A) and gross specimen of the lesion (B).



**Figure 6.** The follow up of the patient after 4 months.

## Discussion

Oral SCC has a low survival rate. Indeed, it is an important public health problem. Gingival SCC is usually asymptomatic and resembles many benign lesions. This may lead to a delay in

the diagnosis of the lesion. Also, gingival SCC invades to the adjacent bone structure in a short period, which can lead to the association with advanced stages of disease at the time of diagnosis (8). Prevalence of SCC in gingiva is less common than other sites of the oral cavity but in comparison with other histologic types on the gingiva (verrucous carcinoma, adenocarcinoma, lymphoma, and Kaposi sarcoma), it is the most prevalent type (9). All of the mentioned topics reflect the importance of early diagnosis of gingival cancer.

Mandibular gingival SCC is more common than the maxillary one and mainly involves women older than 50 years (10). In our patient, the location of the tumor was in maxillary gingiva that is an uncommon location for gingival SCC. Our patient did not have any predisposing factors. This is compatible with other reports about the association of gingival

SCC with its risk factors. These reports state that gingival SCC does not show a strong association with classic risk factors of oral SCC (11, 12). These risk factors include tobacco and alcohol consumption, HPV infection (3, 13). But there is controversy about this association and some authors believe that there is a relationship between gingival SCC and its known risk factors (14). It is important to note that maxillary gingival SCC is more aggressive than mandibular one (15), but in our patient, there was no alveolar bone invasion, which is attributed to early diagnosis.

Metastases to cervical lymph nodes were reported in 25 to 35% of patients with gingival SCC (9). The rate of cervical lymph node metastases in larger tumors is much higher than those in small ones. There was no evidence of cervical lymph node metastases in our case, which is because of early detection. Surgical excision of tumor and neck dissection is treatment of gingival SCC. The overall 5-year survival rate of gingival SCC is estimated at 60.7%, and the mean survival is 98 months.

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