Case Report

Squamous cell carcinoma presenting as a hyperplastic granulation tissue

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Gingival squamous cell carcinoma is an uncommon malignancy of the oral cavity, which can simulate benign inflammatory conditions such as periodontal diseases. Gingival squamous cell carcinoma is usually diagnosed late and has a relatively poor prognosis because the involvement of underlying bone is present at early stage and misdiagnosis or delayed diagnosis after invasive procedures is common. In this case, we report a 57-year-old male patient who presented with a non-healing wound for 8 months after extraction, which was subsequently diagnosed as squamous cell carcinoma.

Key words: Early diagnosis, gingival neoplasms, periodontitis, squamous cell carcinoma.

INTRODUCTION

Oral squamous cell carcinoma (SCC) is the most common type of oral cancer affecting oral cavity and oropharynx, which accounts for approximately 94% of all oral malignancies (Neville et al., 2009). Risk factors for oral cancer can be summarized as: chemical carcinogens, oncogenic viruses, ultraviolet radiation, poor oral hygiene, nutritional deficiencies, genetic predisposition and immunodeficiency (El-Mofty and Lewis, 2009). About 75% of oral cancers are related to prolonged and heavy smoking and alcohol abuse (Llewellyn et al., 2003). However SCC of the gingiva has reported to be weakly associated with these risk factors (Barasch et al., 1994). The most common intraoral sites for SCC development are the tongue and floor of mouth, followed by the soft palate. Gingiva and buccal mucosa are less frequently involved (Sapp et al., 2004). Gingival lesions account for approximately 10% of all intra-oral carcinomas (Regezi et al., 2003). SCC of the gingiva more frequently involves the mandible than the maxilla and lesions are more common in the posterior regions of the mandible (Fitzpatrick et al., 2012). Gingival carcinoma is reported to affect mostly the individuals of 50 years or older and has a male dominant tendency (Cady and Catlin, 1969). However, Barasch et al. (1995) noted a female predilection in their case series.

The most frequent symptoms associated with gingival SCC are soreness or pain followed by ulceration, loose or self-exfoliating teeth, ill-fitting dentures, unhealed extraction wound and mass or swelling (Cady and Catlin, 1969; Gomez et al., 2000). Gingival SCC may clinically simulate periodontal diseases such as periodontitis, periodontal abscess and chronic gingivitis. Consequently, misdiagnosis and delayed diagnosis of the condition is not uncommon (Seoane et al., 2006). Diagnosis at advanced stage is often seen due to the ability of these lesions to mimic common benign conditions (Fitzpatrick et al., 2012). Since the clinical stage of the tumor is a prognostic indicator for survival, early detection of this condition is essential to improve prognosis and life quality.
A 57-year-old male patient applied to the Department of Dentomaxillofacial Radiology, Hacettepe University with the complaints of pain and non-healing wound in the right molar region of the mandible. Dental history revealed that his right mandibular second molar was extracted 8 months earlier at a local clinic. A few days before the extraction, the patient had suffered from a dull pain during the chewing on his right lower posterior area, related to second molar which was slightly mobile and noticed a red patch in the gingiva adjacent to the tooth. 2 weeks after the extraction, the patient noted a painless swelling in the extraction area. The swelling was initially small and gradually increased in size. His medical and family histories were non-contributory and social history was negative for habitual usage of alcohol or tobacco products. Extraoral examination showed no abnormality and the overlying skin was normal. There was no evidence of cervical or submandibular lymphadenopathy.

Intraoral examination revealed a granulation tissue-like mass with raised edges extending buccal and lingual sides of the alveolar mucosa on the extraction site (Figure 1). The exophytic mass had a yellowish base and peripherally, ulcerative lesions were present on both lingual and buccal gingiva. A proliferative, red and white colored swelling was extending alveolar ridge of the extracted tooth. The inside of the socket, underlying necrotic bone tissue was distinguishable. Upon slightest provocation, pain was induced with bleeding.

Radiographic examination showed a smooth, well-defined radiolucent area without peripheral bone response in the right mandibular second molar region (Figure 2). The destructive lesion had proximity to mandibular canal; however the patient did not complain of paresthesia or numbness of the lower lip. Clinical impression included a reactive proliferation of the extraction socket and gingival SCC. Since the clinical and radiological findings of the existing lesion did not correlate with the features of inflammatory benign lesions and the fact of the patient.

**CASE REPORT**

**Figure 1.** Intraoral photograph, showing the granulation tissue-like mass on the extraction site. The exophytic mass has a yellowish base and peripherally, ulcerative lesions present on both lingual and buccal gingiva.
that it has been present at least for 8 months was enough to suspect for malignancy. At this stage, a provisional diagnosis of gingival SCC was made and after obtaining the patient’s consent, the patient referred to the Department of Oral and Maxillofacial Surgery for biopsy. After histopathologic examination, the surgical specimen was confirmed as squamous cell carcinoma. The patient was immediately referred to an otolaryngologist.

**DISCUSSION**

It is not an unusual finding that gingival carcinoma appear to arise after tooth extraction. Because of the proximity to alveolar bone, gingival carcinoma commonly shows bone invasion even at early stage (Cardesa and Slootweg, 2006). Gingival cancer extends along the periodontal membrane with destruction of the supporting bone, resulting in loosening of the teeth (Choi et al., 2011). When the cases with the history of previous extraction are carefully investigated, it can be defined that the tooth was extracted because of gingival lesion or mobility as an evidence of advanced periodontitis.

The presence or absence of cervical lymph node metastasis is one of the major prognostic factors for survival in patients with oral cancer (Ogura et al., 2002). Previously, Suzuki et al. (1998) suggested that the risk of lymph node metastasis is increased in patients with history of tooth extraction. It was reported that, the patients who underwent invasive procedures such as tooth extraction or curettage showed high rate of primary tumor bone invasion (Choi et al., 2011). Bone invasion is known as predictive factor of survival, thus it was assumed that prognosis would be poorer in patients who underwent invasive procedures.

Cady and Catlin (1969) reported that over 60% of gingival SCC patients were initially seen by dentists. Of these, half were immediately referred for appropriate therapy either before or after biopsy. One-third had teeth extracted prior to referral and one-sixth had various therapies applied for periods ranging from over 1 month to over 1 year before the patient was referred for treatment of carcinoma. In other words one-half of the patients seen by dentists in this series were not initially suspected of having malignancy, delaying effective treatment. In our case absence of suspicion of malignancy resulted in 8 months delay in cancer therapy.

Gingival SCC might appear as localized periodontal disease with erythematous or granular appearing hyperplastic tissue (Lee et al., 2007; Kim et al., 2012). However there are cases without visible lesions. In such cases, suspicion of malignancy should arise when the lesion is unresponsive to the therapy (Heller et al., 1991).

Although periodontal diseases cause the vast majority of bone loss around teeth, SCC should always be considered in the differential diagnosis. A bone destruction area with well-defined border and the presence of the peripheral bone response indicate inflammatory processes of the inflammatory periodontal diseases. Presence of one or a few adjacent loose teeth when the rest of the mouth shows no sign of periodontal disease should raise suspicion of malignancy. The typical radiographic appearance of a malignant lesion is an ill-defined border with lack of cortication (Perschbacher, 2009). In our
case there was severe periodontal bone loss in an isolated area without peripheral bone response.

**Conclusion**

Gingival SCC may clinically simulate periodontal diseases. Therefore, it can be misdiagnosed as a localized periodontal lesion and is generally discovered after tooth extraction. In such cases, clinicians should examine these lesions carefully and follow the patients after invasive procedures.

**Conflict of interest**

The authors declare that there is no conflict of interests regarding the publishing of this article.

**REFERENCES**


