

Case Report

Gingival Squamous Cell Carcinoma

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ABSTRACT

Oral squamous cell carcinoma (OSCC) is the most common epithelial malignancy affecting the oral cavity. The most common sites for the development are lateral surface of tongue and floor of mouth; the least common sites are soft palate, gingiva, and buccal mucosa. Gingival squamous cell carcinoma can mimic a multitude of oral lesions and enlargements, especially those of inflammatory origin. In addition, predisposing and presenting factors are different from those of other OSCCs. Careful examination as well as routine biopsy are crucial for accurate diagnosis.

KEYWORDS: Carcinoma, gingivitis, periodontal disease, well-differentiated squamous cell carcinoma

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INTRODUCTION

Squamous cell carcinoma (SCC) is the most frequent malignant neoplasm affecting the oral structures.^[1] SCC represents 94% of all oral malignancies.^[2] The most common sites for development of SCC are lateral surface of tongue and the floor of mouth; least common in soft palate, gingiva, and buccal mucosa.^[3] Smoker in 1996 reported that SCC of gingiva comprises <10% of all oral malignancies.^[4]

SCC can resemble a number of other gingival enlargements and also can progress from other preexisting oral lesions. Therefore, it can be misleading in the diagnosis as benign tumor/other gingival enlargement. Sheikh and D'souza reported a case where an unhealed extraction socket which presented as osteomyelitis was later confirmed as well-differentiated SCC of alveolus.^[5] Fatahzadeh *et al.* reported the development of gingival SCC from a preexisting generalized white plaque lesion.^[6] Hence, any oral lesion/overgrowth should be diagnosed at the earliest to achieve a good prognosis.

CASE REPORT

A 61-year-old female patient reported to the Department of Periodontics and Implantology, Coorg Institute of Dental Science, with a chief complaint of swelling in

the lower left back tooth region for 2 months which gradually increased in size.

History of swelling

There was trauma to the lower left back tooth gum on mastication after which a mild swelling occurred, the enlargement grew rapidly over a period of 2 months and there was bleeding on slight stimulation and there was no other relevant history.

The patient is a known hypertensive since 10 years and is on medication for the same (amlodipine – 2.5 mg and Vitamin D₃ supplements). The patient gave no history of tobacco use.

On extraoral examination, gross asymmetry was seen in the lower left one-third of the face. A palpable, single, tender, and mobile submandibular lymph node which was cheesy in consistency was noted.

Intraoral examination: On inspection, an oval red pebbly cauliflower-like exophytic lesion with raised everted edges was seen in the left lower back tooth region involving marginal and attached gingiva, which

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measured up to 2.5 cm × 2 cm. A smaller enlargement/overgrowth was seen in 45, 46 which was 4 mm × 4 mm in size [Figure 1].

Examination of enlargement

On inspection, a pedunculated oval red pebbly cauliflower-like exophytic irregular growth, with raised everted edges was seen in the left lower back tooth region involving marginal and attached gingiva, which measured up to 2.5 cm × 2 cm.

On palpation, an irregular rubbery nonfluctuant, nontender, moderately defined growth with rough surface was noted and which also bleeds on palpation.

Hard tissue examination around the enlargement revealed an attrited 36, amalgam restoration 37.

An orthopantomogram and intraoral periapical radiograph was advised in relation to 36 and 37, which revealed no radiographic abnormalities [Figures 2 and 3].

Differential diagnosis

- Pyogenic granuloma
- Peripheral giant cell granuloma
- SCC of gingiva
- Verrucous carcinoma.

Treatment plan

As per the positive drug history, the patient was advised to stop the intake of amlodipine after consulting her physician. To reduce the inflammatory condition, the patient was prescribed antibiotics (amoxicillin 500 mg and metronidazole 400 mg) and analgesic for a week. The patient was recalled after a week for re-evaluation.

On re-evaluation, the gingival enlargement did not decrease in size. Therefore, to confirm the diagnosis, an excisional biopsy was planned.

Excisional biopsy was done keeping in mind to include 2 mm of healthy tissue surrounding the enlargement. The excised specimen was sent to the Department of Oral Pathology for examination [Figures 4 and 5].

Microscopic features

The lesion extended up to the submucosa, with the deep margins clear with connective tissue rim around the invasive edge of the lesion.

Pathologic finding

Severely dysplastic stratified squamous parakeratinized surface epithelium with an irregular surface [Figure 6] and elongated rete ridges was seen invading into connective tissue in the form of islands and cords in varying size. Cells show pleomorphism, nuclear hyperchromatism, prominent



Figure 1: clinical presentation of squamous cell carcinoma

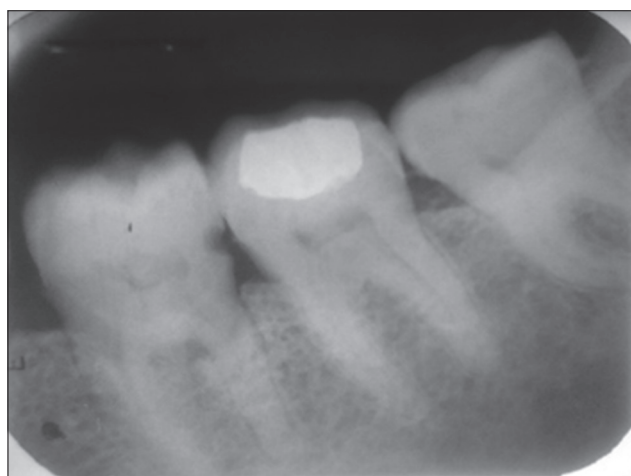


Figure 2: intraoral periapical radiograph showing no abnormalities

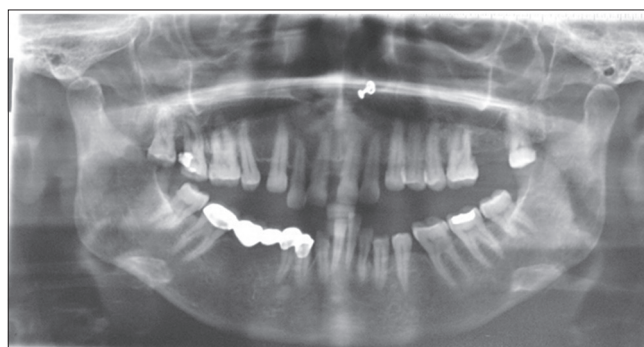


Figure 3: orthopantomography showing no abnormalities

nucleoli, keratin pearl formation, and substantial number of cells with clear cytoplasm [Figure 7]. Mitosis was seen and connective tissue showed a dense lymphoplasmacytic infiltrate, giant cell, and engorged blood vessel.

The biopsy report confirmed that the enlargement was well-differentiated SCC. Thus, all the above correlated clinical features and microscopic features affirm well-differentiated SCC of gingiva.



Figure 4: dimension of excised lesion 2 cm in diameter

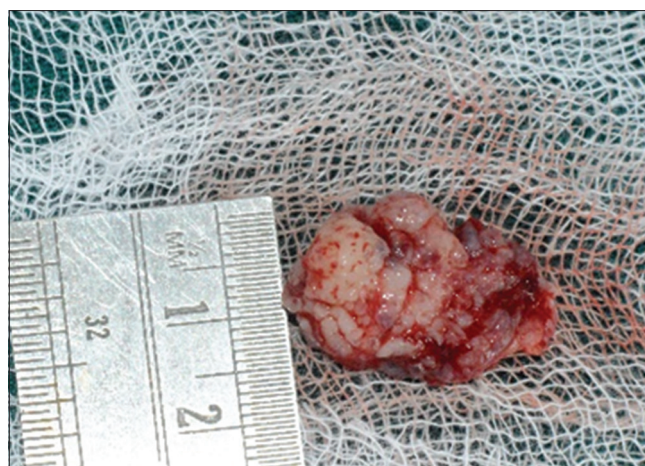


Figure 5: vertical dimension of excised lesion 1.5 cm

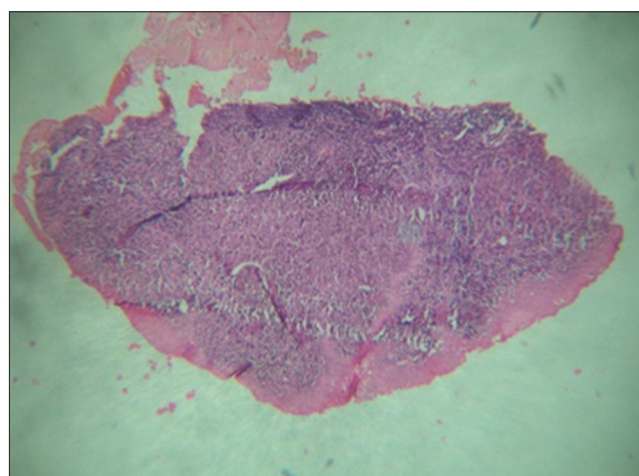


Figure 6: severely dysplastic stratified squamous parakeratinized surface epithelium with an irregular surface

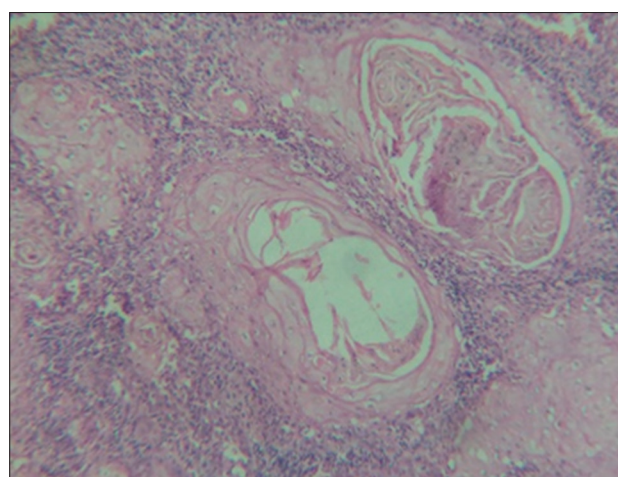


Figure 7: cells show pleomorphism, nuclear hyperchromatism, prominent nucleoli, keratin pearl formation, and substantial number of cells with clear cytoplasm

Final diagnosis

Well-differentiated SCC of gingiva.

DISCUSSION

SCC affects different sites in the oral cavity; the most affected sites are lower lip, lateral border of tongue, retromolar region, floor of mouth, and gingiva. Gingival SCC (GSCC) arise from keratinized mucosa, most often in posterior mandible which destroys bone structure and causes tooth mobility.^[7]

SCC has age predilection. Prussi *et al.* in their study described that out of 1440 patients with GSCC, 11.5% of patients were younger than 60 years old and 14.5% patients were older than 60 years. In this present case, the patient age was 61 years which also gives a positive correlation between age and SCC.

SCC affecting different areas have different invasion and exophytic characteristics. SCC can mimic different oral lesion and gingival enlargements, which does not

have clinical appearance of malignant neoplasms. Due to this reason, these lesions can be misdiagnosed as inflammatory lesion of periodontium.^[7] Pathak *et al.* reported GSCC has high risk for metastasis.^[8]

Risk factors for GSCC are tobacco use, alcohol consumption, candida infection, iron deficiency, virus, and immunosuppression.^[9] According to Yoon *et al.*^[10] and Meleti *et al.*,^[11] GSCC does not show a strong association with classical risk factors such as actinic radiation, tobacco use, either smoked or chewed in its various forms, especially when associated with excessive consumption of alcohol. In this case, the patient did not give any history of having any of the above habits. Only the drug history is positive for causing gingival enlargements. Therefore, the provisional diagnosis was given as drug-induced gingival enlargement.

The microorganisms in the gingiva also play a role in invasion of cancer in the oral cavity. Simiantonaki

et al.'s effect of proinflammatory stimuli from bacteria (lipopolysaccharide) on tumor cell-mediated induction of endothelial cell adhesion plays crucial role in tumor metastasis.^[12] Therefore, poor oral hygiene also can play a role in development and invasion of cancer.

As the GSCC can resemble other oral enlargements, it is often misdiagnosed. Due to the misdiagnosis, the operator might worsen the prognosis by doing invasive procedures; it can be a simple oral prophylaxis/curettage/extraction. It has been hypothesized by Peterson (1993) that invasive procedures can embed the cancer cells into the circulation and further increase chance of metastasis.

Li *et al.* had reported a patient with SCC of the gingiva, which was initially diagnosed as hyperplastic inflammatory tissue.^[13]

Yoon *et al.* reported a case of 81-year-old woman who presented for evaluation of multiple oral lesions primarily limited to the maxillary gingiva; differential diagnosis (D/D) included epithelial dysplasia, benign mucous membrane pemphigoid, and inflammatory lesion of endodontic/periodontic origin, lichen planus, and SCC. Clinical examination revealed extensive erythematous and ulcerative lesions of maxillary buccal and palatal gingiva extending into the maxillary buccal vestibule; the lesions did not respond to antibiotic therapy. Radiographic evaluation revealed advanced alveolar bone loss as well as displacement of the maxillary right first molar; after which, histology confirmed the diagnosis of moderately differentiated SCC.^[10]

Cabral *et al.* reported a 61-year-old Caucasian female seen with a 3-month history of a rapidly growing, painful nodule in the gingiva adjacent to the right central incisor. Clinical examination revealed a proliferative lesion in the vestibular marginal gingiva with purulent exudate of teeth #11 and #12. With the view of clinical symptoms and D/D of an infectious granulomatous process, malignant neoplasm was given. An incisional biopsy was obtained from the lesion; which was later diagnosed as GSCC.^[14]

Sheikh and D'souza reported a case of a 29-year-old female patient who presented with a nonhealing wound for about 1.5-month postextraction. The wound was associated with pain and suppuration. A provisional diagnosis of alveolar osteitis was derived at with a D/D of osteomyelitis and carcinoma of the alveolus.^[5]

Rakhewarp and Kanjalkar reported a case of 50-year-old female seen with 3-week history of a painless mass over the lower left posterior buccal gingival area. Clinical examination revealed a reddish-white, ulcerative spongy asymptomatic lesion around the buccal area of teeth 33–37 and a leukoplakic lesion over the left border of

the tongue and whole of posterior left buccal mucosa; which was later confirmed as well-differentiated SCC was made, and 14 days after incisional biopsy, healing was found to be unsatisfactory.^[15]

Meister *et al.* (2014) reported a case in a 69-year-old Caucasian race male who recently completed comprehensive periodontal and restorative therapy. Early detection and diagnosis were paramount in limiting the potential invasiveness and extent of the surgical resection for this patient.^[16]

In Bharanidharan *et al.*'s report, a 62-year-old female patient reported to a private dental clinic with pain in the right lower back tooth region for the past 2 weeks. Intraoral examination revealed the presence of reddish buccal gingival growth in relation to mesial aspect of tooth no. 47 measuring approximately 0.5 cm × 0.5 cm. Grade III mobility was evident in 47. The rest of the dentition exhibited generalized chronic periodontitis. The patient gave no history of tobacco usage in any form. Buccal growth was provisionally diagnosed as an inflammatory/reactive gingival growth and apical periodontitis in relation to 47 after biopsy; it was diagnosed as SCC.^[17]

In Keshava *et al.*'s report, a 48-year-old male patient reported with a 1-year history of burning sensation and painful lesion on the gingiva from 35 to 37 (mandibular) regions. On clinical examination, desquamated gingival lesion was seen with no purulent exudation. Clinical characteristics and D/D indicated the lesion for an excisional biopsy. Histopathological examination confirmed the lesion to be a well-differentiated SCC.^[18]

The prognosis of the carcinoma depends on the histological subtype. The prognosis can be determined using Border's classification, well differentiated (Grade 1) ≤25% undifferentiated cells, moderately differentiated (Grade 2) ≤50% undifferentiated cells, poorly differentiated (Grade 3) ≤70% undifferentiated cells, anaplastic/pleomorphic (grade 4) ≥75% undifferentiated cell. The prognosis is favorable for well differentiated (Grade 1). The present case was well differentiated and the prognosis is favorable.

CONCLUSION

This case report reinforces the need for early and quick diagnosis to favor the prognosis and to prevent further metastasis. The final presenting clinical signs and symptoms such as "pain," "moving teeth," and the presence of ulceration with rolled borders, often associated with initiating further biopsy procedures.

Therefore, clinicians should be vigilant of all lesions in the oral cavity and provide close follow-up and

monitoring of such lesions since changes can happen that may require instant attention.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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