A cautionary tale; squamous cell carcinoma of the gingiva
Ng P, Clark E

ABSTRACT

Background and objectives: Oral squamous cell carcinoma is characterised by varied clinical manifestations and is often diagnosed at an advanced stage. This article highlights a case of gingival squamous cell carcinoma which was initially diagnosed and treated as localised periodontitis.

Methods: A 64-year-old Caucasian male had a 2-year history of discomfort and swelling around his upper anterior teeth. His dentist diagnosed localised periodontitis around tooth 11. The patient was treated with regular scaling but showed no improvement. Teeth 11 and 21 were subsequently extracted. He returned later with a swelling in his anterior maxilla and was referred to the Whangarei Hospital Dental Department.

Results: The histopathological report confirmed a diagnosis of squamous cell carcinoma. The patient was referred to Auckland for treatment and underwent a tracheostomy, maxillectomy, bilateral selective neck dissection and fibula free flap reconstruction. All lymph nodes retrieved and margins of the lesion were clear, and the patient did not require radiotherapy. He will be monitored over the next 5 years for recurrence.

Conclusions: Gingival squamous cell carcinoma can be easily misdiagnosed. Suspicious lesions which are non-responsive to conventional therapy should be biopsied, even if they are not in the classic high risk anatomical areas of the oral cavity.

INTRODUCTION

Oral squamous cell carcinoma (SCC) accounts for up to 90% of all malignant neoplasms of the oral cavity (Wallace and Neville, 1996). It can display a wide variation of clinical presentations such as verrucous or papillary exophytic lesions, leukoplakia, erythroplasia or ulcerated forms. Lesions may be painful or asymptomatic (Scully, 2014). Radiographically, lesions often show bone resorption with a “moth-eaten” appearance (Cabral et al., 2010). Early clinical presentation of oral SCC can be similar to some common inflammatory lesions such as a major aphthous ulcers, or periodontal disease. SCC arising in the gingivae accounts for 4% of all oral SCC (Kumari et al., 2013). It can present as ulcerated, exophytic, granular, or verruciform growths. About 30% of gingival SCC arises from the maxillary gingiva and 70% from the mandibular gingiva. Although oral SCC affects males more than females, there is no gender difference in gingival SCC (Pei-Yu Li et al., 2004).

Early forms of oral SCC can be easily misdiagnosed. This article highlights a case of gingival SCC which was initially diagnosed as periodontitis.
Squamous cell carcinoma of the gingiva revealed a total of 27 lymph nodes retrieved from the bilateral neck dissection and none showed metastatic malignancy. After the neck dissection a maxillectomy was performed. The incision was made along the vestibule of the maxilla posterior to tooth 16 and running obliquely on the hard palate to the posterior of the left maxillary tuberosity. All teeth in the 2nd quadrant were included. The nasal septum was divided from above the nasal spine, along the floor of the maxillary sinus to the posterior end of the sinus. Bone cuts were performed through the canine fossa and the maxillary antrum bilaterally. The post-operative laboratory report stated ‘Sections show respiratory epithelium, nasal cartilage with underlying bone, minor salivary glands and squamous mucosa. There is a well-differentiated squamous cell carcinoma arising from the palate, which has a prominent exophytic component with complex papillary fronds. The tumour thickness is 24 mm (including the exophytic component). The depth of deepest invasion is 6 mm. The tumour has penetrated the maxillary/palatine bone and focally into the nasal floor submucosal mucous glands but the nasal floor mucosa remains intact. Excision appears complete with the lesion 6 mm from the anterior margin, 17 mm from the posterior margin, 9 mm from the nasal septum margin and more than 5 mm from both lateral margins. No lymphovascular space invasion is seen.’

A second biopsy was taken two weeks later which revealed the lesion to have ‘profound epithelial hyperplasia and dysplasia’. This report confirmed that the lesion was a well-differentiated squamous cell carcinoma.

A computed tomography (CT) scan demonstrated the lesion involved the anterior midline region of the maxillary alveolar ridge and extends to the posterior of the hard palate (Figure 4). There were multiple bilateral cervical lymph nodes, the largest measuring 12 mm. A 9.6 mm precarinal lymph node was also present.

The patient was referred to the Auckland Multidisciplinary Head and Neck Oncology Meeting. The lesion was clinically classified as a T4N0M0 lesion. Nodes seen on the CT scan were not considered pathological. The treatment comprised an extended surgical excision of the lesion, which involved an infrastructure maxillectomy, fibula free flap reconstruction and bilateral selective neck dissections from level I to level III.

The patient underwent an extensive 10-hour surgery. Firstly, a tracheostomy was performed to clear the surgical field and to maintain an airway during and after surgery. This was followed by bilateral neck dissection where a curvilinear incision line was made from the mastoid on each side down to just below the hyoid bone and above the hyoid in the midline. The flap was raised in a subplatysmal plane to the lower border of the mandible. The node bearing tissue was cleared from level I to level III with the preservation of the accessory nerve, internal jugular vein and carotid system. The nodes were collected and sent for histology. The post-operative laboratory report revealed a total of 27 lymph nodes retrieved from the bilateral neck dissection and none showed metastatic malignancy.

After the neck dissection a maxillectomy was performed. The incision was made along the vestibule of the maxilla posterior to tooth 16 and running obliquely on the hard palate to the posterior of the left maxillary tuberosity. All teeth in the 2nd quadrant were included. The nasal septum was divided from above the nasal spine, along the floor of the maxillary sinus to the posterior end of the sinus. Bone cuts were performed through the canine fossa and the maxillary antrum bilaterally. The post-operative laboratory report stated ‘Sections show respiratory epithelium, nasal cartilage with underlying bone, minor salivary glands and squamous mucosa. There is a well-differentiated squamous cell carcinoma arising from the palate, which has a prominent exophytic component with complex papillary fronds. The tumour thickness is 24 mm (including the exophytic component). The depth of deepest invasion is 6 mm. The tumour has penetrated the maxillary/palatine bone and focally into the nasal floor submucosal mucous glands but the nasal floor mucosa remains intact. Excision appears complete with the lesion 6 mm from the anterior margin, 17 mm from the posterior margin, 9 mm from the nasal septum margin and more than 5 mm from both lateral margins. No lymphovascular space invasion is seen.’

The closest surgical margin was 5 mm (Figure 5). This patient did not require any postoperative radiotherapy and he will be closely monitored for the next 5 years. The maxilla was reconstructed using bone from the patient’s left fibula.

The patient’s post-operative recovery was unremarkable. He was discharged 13 days later and attended a 4 week post-operative follow up appointment. He was healing well. There was some numbness across his neck and upper lip. Intraorally, the surface of the fibula graft had undergone epithelialization (Figure 6). The 5-months post-operative review revealed that the patient is having some trouble with breathing during sleep. This is caused by the bulk of the flap obstructing the patient’s nasal airway. He underwent a sleep study, which showed mild obstructive sleep apnoea, which did not warrant a CPAP.
The scarring in the mouth had obliterated the sulcus by five months. The management of the patient's nasal obstruction and concerns on function and cosmetic outcomes led to a further operation in July 2015. He underwent sulcoplasty in the maxilla around the neo-maxilla, a split skin graft from the right thigh and contouring of the bony piriform aperture. He also had four titanium implants into his neo-maxilla, and a healing plate placed. The patient now wears a maxillary complete denture retained by the four implants, which is fixed and stable.

DISCUSSION

SCC accounts for more than 90% of all malignant lesions of the oral cavity. The most common locations for oral SCC are the lower lip (35%), ventral surface of the tongue (25%), floor of the mouth (20%), soft palate (15%), alveolar ridge and gingiva (4%) and buccal mucosa (1%) (Kumari et al., 2013). The literature reports smoking and alcohol consumption as the two major risk factors for oral SCC. Other risk factors identified include age, sex, human papilloma virus, betel quid and chronic inflammation (Akhtar et al., 2012; Kaminagakura et al., 2012; Scully, 2014). This patient has never been a smoker and he only enjoys wine occasionally. Tezel et al. (2009) reported that patients with periodontitis were more likely to have poorly differentiated oral SCC than those without periodontitis. This may be due to the continuous stimulation of cellular proliferation by chronic inflammation and the rapid cell division increasing the replication errors and aberrant DNA repair (Tezal et al., 2009). We were unable to establish if the patient had localized periodontitis prior to their oral SCC.

Clinically, most surgeons would decide to elect for selective neck dissection if there are 1 cm nodes palpable, due to the potential risk of having occult metastases. For this patient, the largest cervical lymph nodes measured 12 mm, so bilateral selective neck dissection was conducted. Mourouzis et al. (2010) investigated whether selective neck dissection was justifiable for patients with SCC of the maxillary gingiva, alveolus and hard palate. About 15% of the patients developed regional metastases within the first 18 months of initial treatments. Hence, it is suggested that surgeons should treat patients with SCC of the maxillary gingiva, alveolus and hard palate aggressively due to the high risk of occult metastases (Mourouzis et al., 2010).

Regardless of the advances in diagnosis and treatments for SCC for the past 40 years, the overall 5-year survival rates of oral and oropharyngeal SCC have remained at about 50% (Levi et al., 2005).

Regular medical and dental examinations are the most effective way to detect SCC at an early stage. The latest New Zealand Oral Health Survey suggests that only about half of New Zealanders attend a dentist for regular dental examinations (Ministry of Health, 2010). Clinicians should have a high index of suspicion for any oral lesion with an unusual presentation which persists for more than 3 weeks, when a biopsy may be recommended.

ACKNOWLEDGMENTS

We would like to thank the patient, the Auckland District Health Board and Northland District Health Board surgeons, pathologists and staff who contributed to this case report.

REFERENCES


Figure 5. Clinical photograph showing the maxillary sinus after the maxilla was removed.

Figure 6. Four weeks post-operative intra-oral view. The surface of the fibula free flap had undergone epithelialisation.


**AUTHORS**
Pamela Ng, BBiotech (1st Class Hons) (UQ), BDS (Otago), Timor Street, Warrnambool, Australia 3280.

Ellen Clark, BDS (Otago)
Clinical Head of Department
Oral Health Services
Ward S, Whangarei Hospital,
Private Bag 9742,
Whangarei

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