Clinical features of oral cancer

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SUMMARY

Oral cancer (OC) is a major cause of global morbidity and mortality. Squamous cell carcinoma accounts for more than 90% of oral malignancies and occurs most frequently in middle-aged to elderly patients who smoke and drink heavily. The overall outlook for patients diagnosed with oral squamous cell carcinoma (OSCC) remains poor, largely due to late clinical presentation. Early lesions are frequently undetected due to the lack of accompanying symptoms. Early recognition, diagnosis and treatment of OSCC significantly enhance patient survival and minimise the need for extensive surgery. It is thus essential that the oral health care worker (OHW) be familiar with the variable clinical manifestations of both potentially malignant disorders (PMD) as well as invasive malignancy. OC screening, particularly in high-risk patients should be an integral component of routine intra-oral clinical examination. The aim of this article is to highlight the varied clinical appearance of OC and to emphasise the importance of early recognition and diagnosis.

ACRONYM

OC:	Oral cancer
OSCC:	Oral squamous cell carcinoma
OHW:	Oral health care worker
PMD:	Potentially malignant disorders
GDPs:	General dental practitioners
GMP:	General medical practitioner

INTRODUCTION

Oral squamous cell carcinoma (OSCC comprises more than 90% of all cancers occurring in the oral cavity. The terms oral cancer (OC) and OSCC are therefore used interchangeably.[1,2] OSCC is the most common malignancy of the head and neck area and represents the eighth most common cancer worldwide.[2,3] A large number of invasive tumours evolve from PMD's. General dental practitioners (GDPs) and other oral health care workers (OHWs) who examine the oral cavity on a regular basis should be aware of the clinical features of oral cancer. Advanced OC rarely poses a diagnostic challenge; however, signs of early malignancy are often subtle and may be clinically overlooked. GDPs have a moral and ethical responsibility to routinely biopsy persistent, suspicious oral lesions in order to confirm or exclude the possibility of OSCC.

The survival rate of oral cancer has failed to improve over the last fifty years.[4] The clinical significance of early recognition and diagnosis is exemplified by a five year survival rate approaching 90% in patients with early stage lesions. Late diagnosis, associated with advanced disease reduces this survival to a mere 20%.[5-7] The GDP is the only OHW with adequate training in the detection and examination of suspicious oral lesions and diseases. This article discusses the typical clinical features of oral cancer from the earliest detectable signs of malignancy to advanced disease while commenting on diagnostic aids that may be used to more accurately detect OC at the time of intra-oral examination.

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SITES INVOLVED BY ORAL CANCER

OSCC preferentially involves the ventral surface of the tongue and floor of mouth, sites which account for nearly 50% of all cases. These sites are followed by the retro-molar regions, gingiva, buccal mucosa, posterior tongue, soft and hard palate. Squamous cell carcinoma of the lip is aetiologically distinct from OSCC and shows a geographic variation in distribution being strongly associated with chronic exposure to ultraviolet radiation.[8]

CLINICAL SYMPTOMS OF ORAL CANCER

The timely diagnosis of OC relies on a detailed clinical history (for description of symptoms) and a comprehensive clinical examination (for detection of any abnormal tissue) in each and every patient. Early disease is usually asymptomatic and incidentally detected whereas advanced stage cancer is frequently painful.[9] The OHW is thus central in the recognition of early lesions, particularly when symptoms go unnoticed and are not reported by patients.[6,10] In more advanced disease, ulceration may be a common finding, which may be accompanied by pain.[2,6,10] Pain is pronounced in tumours of the tongue due to its mobility and inherently sensitive nature. Advanced tumours that infiltrate the soft tissue and bone of the periodontium result in tooth mobility whereas large tumours involving the posterior oral cavity cause breathing and/or speech impediments.[2,8] Additional clinical features include bleeding, paraesthesia, trismus and referred pain which may be mistaken for earache.[8]

It is the author's experience that many painful oral cancers of the tongue are frequently misdiagnosed as traumatic lesions. All OHWs should follow the golden rule when dealing with oral ulcers: if it does not heal within three weeks, it should be examined by biopsy.[8,11] The only exception to this rule applies in those cases in which the history and clinical features are supportive of the diagnosis of recurrent oral ulceration. An additional complicating factor in the drive for earlier OC diagnosis is the fact that patients associate their GDP with dental work and not soft tissue pathology for which they consult the general medical practitioner (GMP). South African GMPs do not receive the necessary formal training in Oral Pathology that enables them to consistently recognise or diagnose oral disease.

Swelling, pain and ulceration are the most frequent symptoms and complaints from oral cancer patients. The OHW would be wise not to ignore these symptoms, nor to delay the taking of an appropriate biopsy for histology (Table 1). The OHW and more specifically the GDP, should therefore shoulder responsibility for the diagnosis of OC and refer such patients for appropriate specialist management.

CLINICAL PRESENTATION

OC may present in a variety of forms, all of which should be familiar to the OHW. The diagnosis is not always apparent, as OC may have features which overlap with those of benign, infective and traumatic lesions (Table 2). The early stages of oral cancer are more difficult to detect (Figure 1), whereas advanced OC is recognisable. Early lesions tend to be small and manifest as rough, red or red-white erosions with variable induration. Late-stage OSCC is larger in size and associated with irregular margins, ulceration, nodularity and fixation to surrounding and adjacent tissue as a result of tumour infiltration. The features of the "malignant ulcer" at high-risk sites are well known and present as solitary, chronic, non-healing ulcers which have rolled, raised borders and indu-

Table 1: Symptoms indicating possible OC*

1. Red, white or mixed red-white lesions
2. Ulcer lasting longer than three weeks
3. Pain, especially associated with the tongue
4. Swelling inside mouth or in neck area
5. Discomfort with speech and /or swallowing
6. Mobile teeth without periodontitis
7. Anaesthesia and earache without apparent disease

** Adapted from McGurk and Scott[10]*

Table 2: Possible clinical features of OC

Clinical diagnosis	Clinical descriptors
PMD*	White lesion
	Red lesion
	Mixed red-white lesion
Erosion	Red lesion
Ulceration	Fungating exophytic mass with ulceration
	Deep penetrating ulcer, no external component
Granular	Gingiva has a whitish, granular appearance
Exophytic	Exophytic growth with papillomatous projections

*Potentially malignant disease

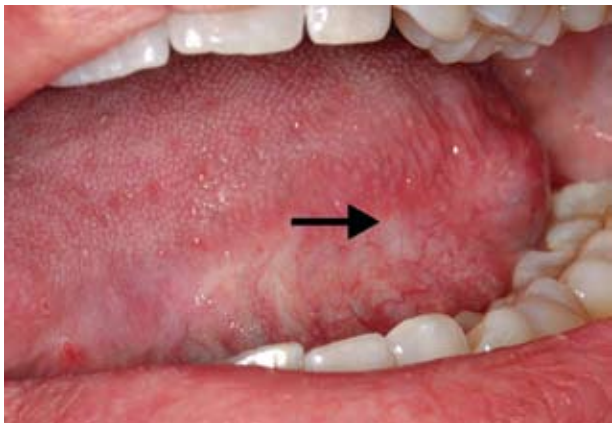

Figure 1: Known cancer patient presenting with a small erosive lesion on the left side of tongue (arrow). Histology showed an early SCC.

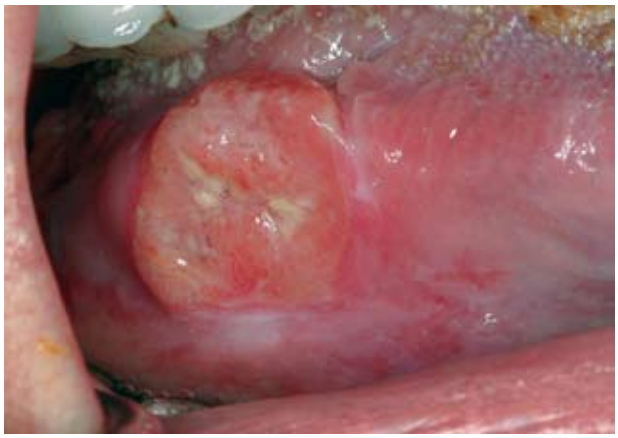

Figure 2: The typical features of a "malignant ulcer" are demonstrated in this advanced lesion. The ulcer is irregular in outline with elevated margins and indurated borders.

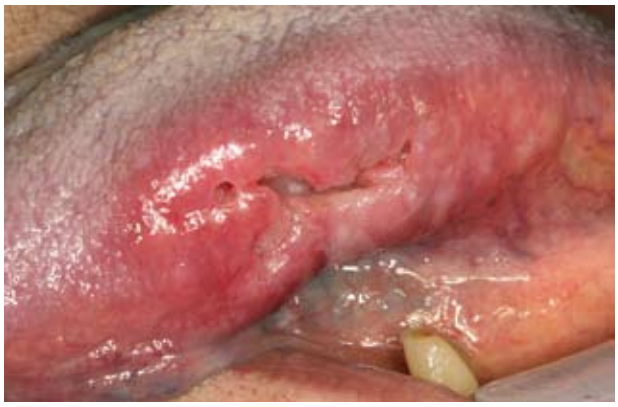

Figure 3: OC presenting as an exophytic ulcerative lesion.

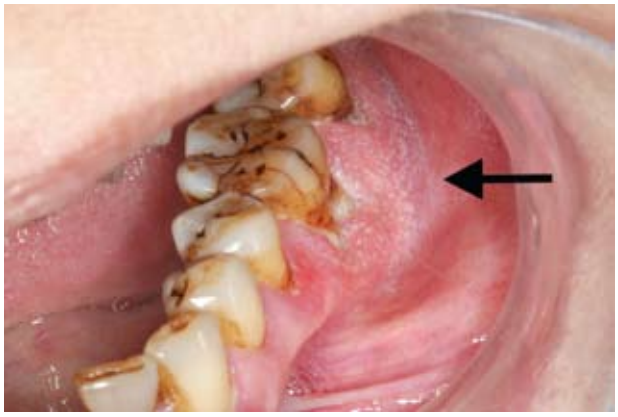

Figure 4: SCC of the gingiva frequently presents with a granular appearance (arrow).

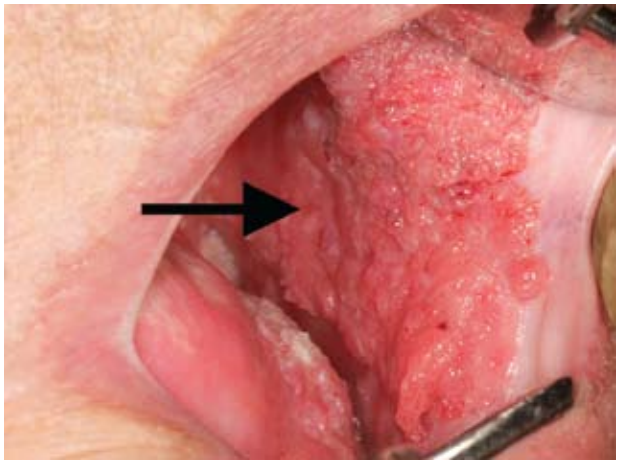

Figure 5: Papillary squamous cell carcinoma (arrow) of the buccal mucosa presenting with an exophytic papillomatous appearance.

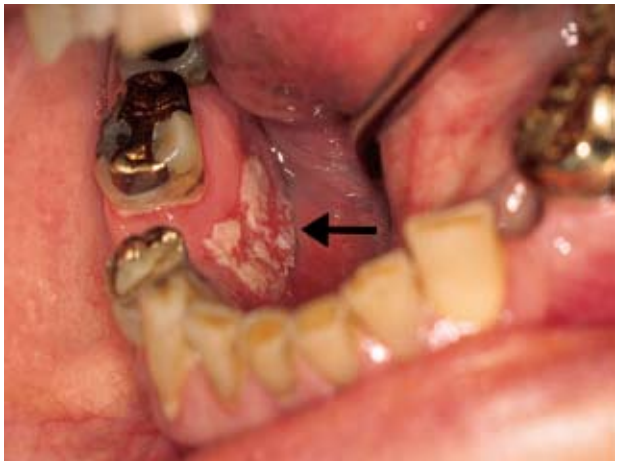

Figure 7: SCC of the lingual mucosa of the mandible (arrow) visible following tongue retraction.

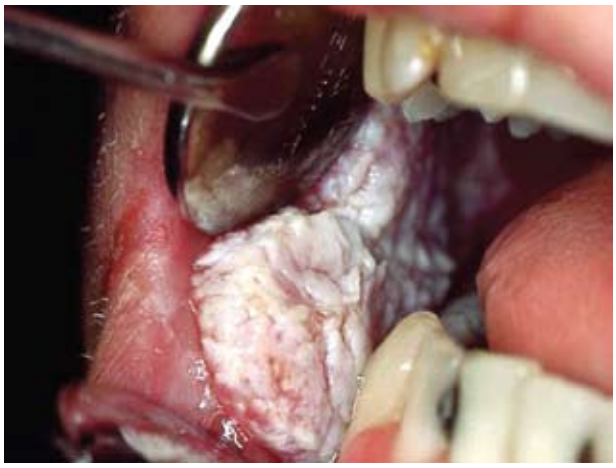

Figure 6: Verrucous carcinoma has a warty, white appearance due to hyperkeratotic finger-like processes.

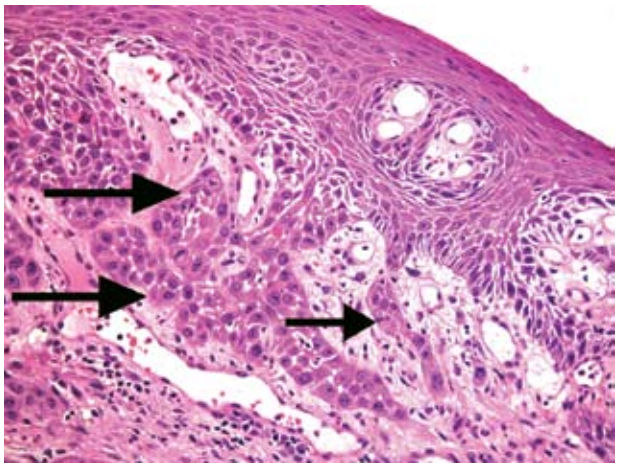

Figure 8: The photomicrograph clearly demonstrates invasive SCC (arrow) arising from epithelium which fails to show evidence of dysplasia in the upper layers. The epithelium appeared normal on clinical examination.

rated margins with necrotic bases (Figures 2 and 3). Cancer arising within the attached gingival mucosa tends to have a whitish, granular appearance (Figure 4). The papillary variant of OSCC is an exophytic papillomatous proliferation which may histologically be mistaken for a benign squamous papilloma (Figure 5). This is a rare variant in the oral cavity and due to its exophytic nature has a better prognosis compared with conventional OSCC. Verrucous carcinoma and occasionally other forms of OC present as large masses with a warty clinical appearance and imperceptible margins (Figure 6). Verrucous carcinoma is a tobacco-associated lesion with a good prognosis, most often seen in older patients. Verrucous carcinoma seldom metastasises but may transform into ordinary OSCC with a corresponding worsening of the prognosis. Less frequently, the spindle cell variant of OSCC may present as a polypoid mucosal projection. More unusual clinical presentations include tumour extrusion from post-extraction sockets which fail to heal and loose teeth in the absence of periodontal disease. Tumour thickness has been shown to correlate with clinical appearance. Lesions presenting as erosions, patches and plaques tend to demonstrate minimal tumour thickness whilst those presenting as ulcers have increased tumour depth/thickness.[6]

ORAL CANCER DIAGNOSIS

Comprehensive intra-oral examination should include visual assessment of all mucosal surfaces as well as digital palpation of adjacent soft tissues.[6,7,10] The tongue should be retracted either by a mirror or using gauze to allow direct vision of the posterior aspects of the lateral border of the tongue, floor of mouth and the lingual mucosa of the mandible (Figure 7). Diagnostic aids such as autofluorescence are useful adjuncts for the identification of early carcinoma.[4] An all-inclusive systematic approach to intra-oral examination should be routinely employed at the beginning of each new cycle of dental treatment.[10] In addition, it is imperative that all clinical findings be documented, even in the absence of intra-oral lesions, as these may prove to be of critical relevance, should litigation follow OC diagnosis. Patients older than 45-years of age, smokers, heavy drinkers, betel-quid chewers, patients with poor oral hygiene and those with a previously diagnosed PMD are considered to be high-risk.[1,2,8,12-15] The British Dental Association and World Dental Federation (FDI) recommend screening for cancer and pre-cancer in all high-risk patients.[10] The use of visual diagnostic aids is strongly advised within this patient group. Loss of autofluorescence in a suspicious mucosal lesion has been shown to represent genetic changes and/or progression to dysplasia.[4] Vital staining with toluidine blue may also help to identify the area of highest risk within a PMD and therefore assists in identifying the most appropriate biopsy site.[16-18] These visual diagnostic aids form an integral component of the screening armamentarium for both PMD's and OC. Despite recent advances in OC clinical screening, there is no substitute for thorough clinical exami-

nation.[2,4] Vital staining, DNA ploidy analysis and autofluorescence remain diagnostic adjuncts, designed to assist in the decision-making and disease management process.[4,17,18]

CONCLUSION

The clinical diagnosis of advanced oral cancer is usually characteristic, particularly where the accompanying clinical details include a lesion of long duration, ulceration with pain, positive risk factors and older age.[2,8] The detection of early invasive malignancy, however, may pose a greater diagnostic challenge. A subset of oral malignancies does not originate from any recognisable precursor lesion with some arising in what appears to be clinically and histologically normal mucosa. This presents a unique, disconcerting diagnostic obstacle. OC may in such cases infiltrate across the basement membrane without involving the upper layers of the epithelium (Figure 8). It is these cancers that will benefit from screening with diagnostic aids. Such early detection is potentially life-saving.

Declaration: No conflict of interest declared

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