Oral carcinoma of the anterior hard palate: an unusual presentation

Précis
Squamous cell carcinoma (SCC) is the most common malignant disease of the oral cavity. It usually affects individuals over 50 years of age, with a history of tobacco or alcohol abuse, or both. This case report highlights the unusual presentation of an SCC in a young 22-year-old male. He was a non-smoker, social alcohol drinker, and was generally fit and well. Alongside the fact that this young patient had none of the usual risk factors for oral cancer, the abnormal lesion discovered on his anterior palate did not resemble a typical oral SCC. It was found in proximity to the maxillary central incisors, which had previously suffered trauma. Clinical and histopathological findings, and treatment, are discussed.

Introduction
Head and neck cancer, the sixth most common cancer, is described as cancer of the lip, mouth, tongue, tonsil, pharynx (unspecified), salivary gland, hypopharynx, larynx and other. Oral cancer refers to cancer of the tongue, gingiva, floor of the mouth, palate, vestibule and retromolar area, and represents more than 90% of all head and neck cancers. Historically, scientific literature has demonstrated a preferential incidence of head and neck cancers in men aged 50 to 70 years. However, an increasing number of young patients are being affected worldwide and most studies suggest that 4-6% of oral cancers now occur at ages younger than 40 years. These are predominantly oral and oropharyngeal cancers. Recent epidemiological studies have shown an increase in the development of oral SCC in women and a decrease in the male:female ratio in young patients diagnosed with oral cancer. The increasing incidence of oral cancer in females results from an increased acceptability of tobacco and alcohol use among young women.

Risk factors
Several studies examining risk factors for oral cancer in the young provide evidence that many younger patients have never smoked or consumed alcohol, or that duration of exposure may be too short for malignant transformation to occur. In these cases, cancer may have a different aetiology and clinical progress, with a weaker link to the risk factors, and it has been suggested to have a more aggressive course. Factors that have been investigated in order to explain the aetiology of oral SCC in young patients include genetic predisposition, previous viral infections, nutritional patterns, immunodeficiency, occupational exposure to carcinogens, socioeconomic conditions and oral hygiene. A family history is associated with an earlier onset of head and neck SCC and there are several studies indicating an increased risk in first-degree relatives. Evidence is perhaps strongest for infection with the human papillomaviruses (HPV). A recent multi-centre case control study reported that
infection with HPV-16 increased the risk of cancer of the oral cavity and particularly the oropharynx.15,4

Site
Head and neck SCC in young patients tends to occur in the oral cavity and oropharynx.16 In the oral cavity, the tongue is the most common site in the young and, interestingly, the floor of mouth has been reported as a less common site compared with older patients.2,3,17 There appears to be a rising number of HPV-associated tonsil carcinomas, particularly in males (smokers and non-smokers). El Mofty demonstrated a strong association with HPV-16 and tonsillar cancer in males less than 40 years of age.18 It has been suggested that HPV must be a factor in the distinct group of less than 40 year olds, usually female non-smokers, with oral cancer, but El Mofty and O'Regan indicate otherwise.18,19

The increasing trend of oral SCC in young individuals without known risk factors highlights the need for clinicians to be vigilant and carry out mouth cancer screening examinations for every patient regardless of age or associated risk factors. It is paramount that we are able to recognise oral disease/pathology at an early stage, providing a better prognosis, chance of survival, and quality of life for the patient. Unfortunately, many patients are still diagnosed with advanced disease, with over 60% presenting with either regional or distant spread.20,21 The five-year survival rates of oral cancer range between 50 and 80%, depending on the stage of the disease, varying from 86% for stage I (early diagnosis) to 12-16% for stage IV (late diagnosis).22,23 A major factor in poor outcome for oral cancers is late presentation, due in part to lack of awareness about oral cancers in the community. In a recent study of an outpatient hospital population, it was concluded that there was a poor level of knowledge about head and neck cancers in a population in the West of Ireland. Some 70% of respondents had never heard of head and neck cancer, 73% did not consider alcohol a risk factor and less than 50% would be concerned by persistent hoarseness or a prolonged oral ulcer. It has been shown that the probability of avoiding regional spread, and the associated 50% reduction in survival, is inversely related to diagnostic delay.24

The significant link between diagnostic delay and advanced stage presentation in relation to oral and pharyngeal cancer was confirmed in a recent meta-analysis by Gomez et al. in 2011.25

Treatment of oral cancer has a major impact for patients in view of the importance of the mouth for speech, mastication and swallowing. However, advances in reconstruction have contributed greatly to patients’ quality of life. Microvascular replacement of missing tissue and bone, innervated flaps, facial reanimation, and the advent of osseointegrated implants have led to functional rehabilitation.

In this article, we present an unusual case of oral SCC in a fit and healthy 22-year-old male with no history of alcohol or tobacco abuse. There was also a history of trauma to the incisor teeth in proximity to where the cancer was located approximately five years prior to the diagnosis.

Case report
A healthy 22-year-old male was referred by his general dental practitioner (GDP) to the Dublin Dental University Hospital for a periodontal assessment of a red swelling on the anterior palate (Figure 1). The swelling had been present for approximately two years and when the GDP noticed the abnormality on routine examination he recommended further investigation immediately. His presenting complaint was the presence of a red swelling on the anterior region of the hard palate related to the palatal gingival margin of 2.1 and 2.2 (Figure 2). The patient felt that the red swelling on the palate had been slowly increasing in size over the previous two years but he was not concerned as there was no associated pain. There was bleeding from the palatal area at times but no discharge or bad taste from the site. The central incisors had suffered minor trauma approximately five years prior to this and two composite restorations were required. Medically, the patient was fit and well, a non-smoker and a social drinker.

Clinical findings showed a swelling on the hard palate in close proximity to the upper left central and lateral incisors. It measured 15mm in size, had an irregular shape and was well defined with rolled margins. The swelling had a sessile granular appearance and was dark...
red in colour with a vascular appearance. The area was soft to touch, non-tender, non-indurated, non-ulcerated, and the edges were slightly raised (Figure 3). All the anterior teeth responded to electric and thermal pulp testing. A panoramic radiograph revealed significant bone loss around the upper left central and lateral incisors, although there was no periodontal bone loss elsewhere in the mouth (Figure 4).

Management
The lesion had some features similar to an endodontic infection, clinically and radiographically, but the teeth remained vital. The margins of the lesion were slightly raised and rolled, raising suspicions of a cancer. A biopsy was carried out and histological analysis confirmed an SCC. The patient was immediately referred to the Oral and Maxillofacial Surgery Department in St James’s Hospital for an oral cancer work up. Investigations included computed tomography (CT) and positron emission tomography (PET) scanning. In this case, investigations confirmed that the carcinoma was confined to the palate and no secondary tumours were located with a diagnosis of T1N0M0. Surgery was the treatment of choice for this cancer of the maxillary alveolus and the hard palate. This patient had wide local excision with resection of the involved mucoperiosteum and the underlying bone to ensure that an adequate margin was removed. An anterior maxillectomy, including the right and left inferior concha extending from the upper left second premolar to the upper right first molar, was carried out under general anaesthetic (Figure 5). Access was adequate to the posterior margin of the tumour and, therefore, it was not felt necessary to perform a lip-split to achieve a clear margin. Mucosal incisions were made allowing a 1cm margin of normal tissue, and bony cuts were made with an oscillating saw. After the exposure was obtained, dental extractions were performed as planned (Figure 6). The alveolar cuts were made through the sockets of the extracted teeth. This allows good bony support for the remaining teeth to support early dental rehabilitation. The specimen was removed from the mouth and prompt packing of the maxillectomy cavity helped to achieve haemostasis. A preformed dental obturator was placed in the defect. Obturation is relatively quick as a reconstructive option at the time of primary surgery. The obturator had the advantage that the cavity could be inspected for recurrence and that it was relatively easy to achieve adequate speech and dental aesthetics. The disadvantage is the need for maintenance of the obturator over the life span of the patient and the debilitating effect of the prosthesis on an otherwise young, healthy, previously fully dentate male.

A permanent cobalt chrome obturator was fabricated when healing of the surgical site was adequate (Figure 7). Due to the early diagnosis, this disease was managed by surgery alone. Chemotherapy and radiotherapy were not indicated. This significantly reduced the long-term morbidity for the patient. The patient underwent an intense oral hygiene and preventive programme with the dental hygienist in the Dublin Dental University Hospital. Poor oral hygiene is a frequent finding in cancer patients and the need for adequate pre-operative and postoperative intraoral cleaning procedures was emphasised. This patient managed extremely well postoperatively and is currently wearing a cobalt chrome denture replacing his front teeth with a palatal obturator (Figure 8). He is now considering the possibility of free flap reconstruction with bone and soft tissue to complete full oral reconstruction.
Discussion

The above case describes an unusual case of oral SCC treated recently. In this case report, the patient did not present with any of the usual risk factors. He was young, otherwise healthy, a non-smoker and a social drinker. Although smoking, especially with alcohol consumption, is a major cause of oral cancer, we must remember that non-smokers and non-drinkers can also develop the disease. Carcinomas of the hard palate and upper alveolus are relatively uncommon, accounting for 10% of oral cancers, except in areas of India and Southeast Asia where reverse smoking is practised. In the West, smokeless tobacco has not emerged as a significant risk factor in young patients. Shiboski noted carcinoma of tonsil, tongue and base of tongue increasing in young white patients from 1973-2001 in the United States. Carcinoma of the hard palate is only half as common as carcinoma of the soft palate, and carcinoma of the maxillary alveolar ridge is only one-third as common as carcinoma of the mandibular alveolar ridge. These areas are lined with adherent keratinised mucosa that provides protection from the forces of mastication and may provide relative protection of the basal nuclei from the effects of carcinogens. Lesions of the maxillary alveolar ridge are often symptomatic, allowing early diagnosis. Some 82% of maxillary alveolar ridge carcinomas are T1 or T2 at the time of diagnosis, and 86% are N0. Palatal carcinomas tend to be larger when diagnosed, but only 13% have regional metastases when diagnosed. The presence of regional metastases to the neck or locally advanced disease decreases five-year survival from approximately 70% to approximately 30%. Fortunately, this cancer was well localised and diagnosed early. However, this is not always the case and, when the cancer is more advanced, the effects of treatment can be debilitating and disfiguring as well as having serious psychological effects on the patients. If we can strengthen the patient, dentist and doctor awareness of oral cancer, we can ensure a prompt referral to a secondary care facility. This can usually improve their treatment outcomes. If mouth cancer is suspected, patients should be directly referred by dental surgeons or...
medical practitioners to the dental hospitals or nearest oral cancer service by telephone and referral letter. Dentists and dental hygienists also have an important role in prevention, with regard to smoking cessation, alcohol intake and diet, especially in our younger population. Diagnosis of any ‘potentially malignant lesions’ such as leuko/erythroplakias needs to be at the forefront of our minds when doing clinical examinations of patients regardless of age, risk factors and presenting complaints (Table 1). The mainstay of management at present involves a biopsy, investigations of the size, local spread and distant spread, discussion at a multidisciplinary meeting and a decision based on present research on the best treatment: oral and maxillofacial surgery, head and neck radiotherapy or chemotherapy. Most often it is a combination of treatments.

References