

Squamous Cell Carcinoma of the Tongue in a 21-Year Old Female: A Case Report with Review of the Literature

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Abstract

Background: The incidence of squamous cell carcinoma of the tongue is usually observed in adults, especially men from the fifth to eight decades of life. However, malignancy of the tongue is becoming more frequent in younger adults. This case report describes the occurrence of squamous cell carcinoma in a 21-year old female. The goal of this case report is to create awareness in the medical and dental community that such a malignancy can occur in young patients.

Case description: This case report describes the clinical presentation of a young adult who presented with a large exophytic squamous cell carcinoma of the tongue. Due to the invasiveness of the malignancy, treatment required hemiglossectomy with immediate reconstruction.

Practical implications: This case report describes a young patient under age 40 diagnosed with cancer of the tongue without the common risk factors, such as tobacco and alcohol consumption. Squamous cell carcinoma of the tongue should be always considered in the diagnosis when examining patients younger than 40 years of age. Biopsy is indicated to avoid a delay of obtaining a definitive diagnosis and early treatment. Further studies are needed to identify the pathogenesis of squamous cell carcinoma of the tongue in patients under age 40.

Keywords: Squamous cell carcinoma; Tongue; Young adult

Introduction

In the United States, greater than 28,000 new cases of oral cancer are diagnosed annually, resulting in over 7,500 deaths [1]. Squamous cell cancer (SCC) represents from 90 to 95% of all malignant neoplasms of the oral cavity. Cancer of the tongue, especially in the lateral posterior border generally affects men over age 50, most of them with a history of tobacco and alcohol consumption. SCC rarely occurs in the young (patients under age 40) [2-4]. In this younger age group, such carcinogenic factors are widely debated. SCC of the tongue is observed in less than 4% in this specific age group, but is the most common and lethal site for oral SCC [2,5]. This is because of the high rate of regional lymph node metastasis which is an important prognostic factor for the survival of patients with SCC of the tongue [6,7]. Recently, there has been an increase in the number of reported cases of SCC of the tongue in younger patients reported in the medical and dental literature [1-4]. When diagnosed in this younger age group, the disease progression is usually more aggressive with an overall 5-year survival rate between 42% to 73% [8,9]. In a study by Pitman et al. [10], the recurrence rate is also higher in young adults diagnosed with SCC of the tongue. In this article, we report a case of SCC of the tongue in a 21-year-old female. The goal of this article is to create awareness that oral squamous cell carcinoma of the tongue can also occur at a young age and must be considered during the oral examination and included in the differential diagnosis in the young patient. Incisional biopsy is recommended to rule-out malignancy and to manage the disease in timely fashion to preserve life.

Case Report

A 21-year old healthy female patient presented to the office of one of the authors (CYSL) with the chief complaint of a non-healing painful "sore" on the left side of the tongue that may have been caused by accidental biting of the tongue. The patient stated that when she first noticed the lesion about three months ago, it was a small ulcer that gradually enlarged with increasing pain. She initially went to a local community emergency room for evaluation and was prescribed penicillin VK, 500 mg four times per day for a total of 7 days. As the lesion failed to resolve over the next 3 months, the patient presented to an urgent care clinic closer to her home for further treatment. The urgent care physician recommended immediate evaluation with an oral and maxillofacial surgeon. The patient's medical history was unremarkable. There was no family history of cancer of the head, neck or oral cavity. She denied use of tobacco products, but used alcohol on occasion.

The maxillofacial examination was negative for neck masses or lymphadenopathy. Oral examination revealed good oral hygiene, with no carious or fractured teeth on the left side of the maxilla and mandible. Inspection of the tongue showed an impressive large exophytic mass that extended from the middle to the posterior third of the dorsolateral tongue that was painful to inspection (Figure 1). Further examination revealed a tongue with a full range of motion without motor or neurosensory deficits. With a non-healing lesion of greater than 3 weeks' duration, the diagnosis was squamous cell carcinoma and incisional biopsy was performed. Histopathology revealed a poorly differentiated squamous cell carcinoma

(Figures 2A-2C). The patient was immediately referred to the department of surgical oncology. A complete medical work-up was performed that included CT scans of the thorax and abdomen was negative for occult systemic lesions. Staging of the tumor according to the TNM classification system was Stage II. Treatment consisted of hemiglossectomy and neck dissection with reconstruction using a radial forearm soft tissue flap and skin graft to the floor of the mouth.

After surgical treatment, the patient completed postoperative radiotherapy over a 6 -week period that consisted of 4000 CGY.



Figure 1: Intraoral clinical photograph of large exophytic SCC of the left tongue

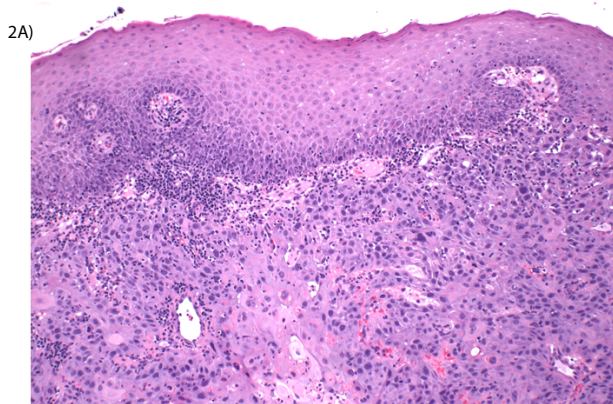


Figure 2A: Intermediate power view revealing infiltrating lesion in tongue. (H & E stain). 10 x

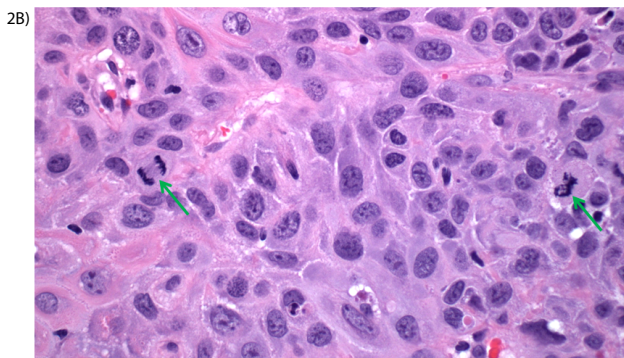


Figure 2B: H & E stained section of infiltrating SCC of tongue with nuclear atypia and mitotic figures (arrows). 40 x

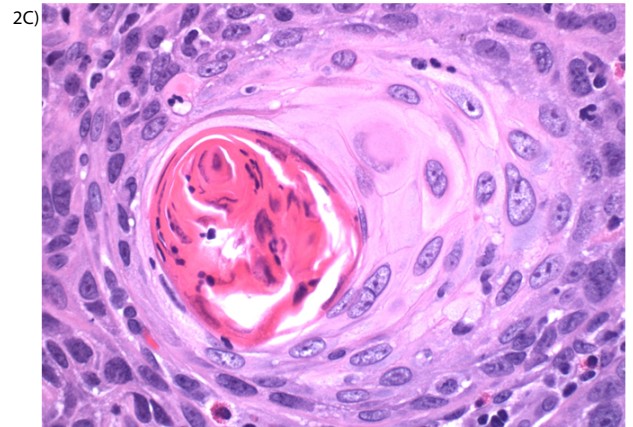


Figure 2C: High power view showing keratin pearl formation. (H & E stain). 40 x

Discussion

Squamous cell carcinoma of the tongue is rare in young adults, especially in females who do not use tobacco products and consume alcohol [1-4,11-21]. Most studies attempt to differentiate SSC of the tongue by age group and age 40 is used to define older and younger patients [22,23]. Squamous cell cancer of the tongue 40 years or younger may represent an entirely different clinical spectrum compared to adults over 40 years of age. Studies have also demonstrated that young patients have a lower 5-year survival rate compared to older adults and should be studied as a separate age group [8,9,22-24]. Further, several published studies have reported that SCC of the tongue had a significantly higher recurrence rate of disease compared to older adults [1-4,10-24].

The etiology and risk factors for younger patients diagnosed with SCC of the tongue is not without uncertainty. Risk factors such as smoking tobacco products and drinking alcohol have decreased for this specific age group compared to adults greater than 40 years old [1-4,11-28]. However, some authors speculate that these substances, recognized as carcinogenic in older adults may also be the etiology in younger patients. But, the duration of exposure to these agents would be too short to induce malignant transformation. To determine the reason why there is an increase in the number of reported cases of SSC of the tongue in this age group, other risk factors have been considered, such as socioeconomic conditions, oral hygiene status, dental trauma, viral infections, diet and immunodeficiency status [15-28].

Some clinicians have suggested that SCC of the tongue in younger patients may represent an entirely different disease entity at the genetic level [29]. It has been hypothesized that exposure of the oral epithelium to carcinogens in childhood may increase the development of cancer of the head and neck region in this group of patients [30]. Genetic vulnerability may also play a role in oral carcinogenesis together with exposure to carcinogens. In some patients, susceptibility to develop oral cancer may be due to impaired ability to repair damaged DNA [31,32]. Sorenson and colleagues [33] reported that the p53 tumor suppressor gene mutation occurs less frequently among women with cancer of the tongue who do not consume alcohol and in older patients. Lingen et al. [34] discovered high levels of p53 mutations with younger, non-smoking individuals and concluded that the etiology for the observed mutations is different and may represent a different pathological entity [34]. Additional research in molecular biology at the genetic level are needed to identify the risk factors of SCC of the tongue in young adults.

Conclusion

This case report describes a young patient under age 40 diagnosed with cancer of the tongue without the common risk factors, such as tobacco and alcohol consumption. It is of extreme critical importance for physicians to be aware that the increase in SCC of the tongue in young adults under age 40 is increasing in frequency. Therefore, SCC must be part of the differential diagnosis with lesions involving the tongue. Early detection is of great importance to the survival of the patient and biopsy of the lesion should be performed to avoid a delay in treatment.

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