

Squamous cell carcinoma of tongue in a 19-year-old female

Randhawa T, Shameena PM, Sudha S, Nair RG

Department of Oral Pathology and Microbiology, Government Dental College, Calicut - 673 008, Kerala, India.

Correspondence to: Dr. Tanu Randhawa, E-mail: drtanurandhawa@yahoo.com

Abstract

Squamous cell carcinoma is the most common malignant neoplasm of the Oral Cavity, usually affecting individuals over 50 years of age. It rarely occurs in patients who are less than 40 years old (0.4-5.5%). However, since it is so rare, when cases occur they are often misdiagnosed and inappropriately treated leading to delay in definitive treatment. This report describes a case of squamous cell carcinoma, involving the posterolateral border of the tongue of a 19-year-old female patient, with no deleterious habits usually associated with oral cancer. This report focuses on the etiological factors and prognosis related to the case. Additionally, a brief literature review regarding squamous cell carcinoma in young patients is also included.

Key words: Squamous cell carcinoma, tongue, young adults

Introduction

Squamous cell carcinoma (SCC) represents more than 90% of all head and neck cancers. It typically occurs in the elderly men during the fifth-eighth decade of life^[1] and rarely occurs in the young patients under the age of 40. The recent literature has given increasing attention to SCC of tongue in young adults as authors have speculated that the incidence of SCC of tongue is increasing.^[2,3] Most of the existing literature on the subject emphasizes the difference between younger and older cancer patients. Our understanding regarding the etiology, natural history and optimal therapeutic management is limited due to rarity of this tumour. In this article, we report a case of SCC of tongue in a 19-year-old female. It emphasises on the fact that oral squamous cell carcinoma can occur even at a young age and must be considered in the differential diagnosis of suspicious lesions even in the young.

Case Report

A female patient of 19 years visited our institution with the complaint of intense pain associated with a tongue lesion present for last three months. On examination, an ulcerative lesion of size 2.2 x 2 cm was seen on the

right posterolateral border of tongue [Figure 1]. The margins of the ulcer were irregular and indurated and the ulcer was covered with a fibrinous exudates. The presence of lower right first molar with sharp cuspal edges was also noted in the region of the ulcer causing obvious trauma in the area. Medical history of the patient was insignificant and she denied any tobacco or alcohol related history. Provisional diagnosis of traumatic ulcer was given and biopsy was performed. Histopathologic result was moderately differentiated squamous cell carcinoma [Figure 2]. In the present case, the staging of the tumor according to the TNM system was evaluated and it was found to be stage II (T₂N₀M₀). Patient was referred to the Oncology Department at Medial hospital for treatment, which consisted of hemiglossectomy and reconstruction using radial forearm flap. A unilateral modified radical neck dissection type III was performed. The margin of the excised tissue was found to be free of tumor but there was histological evidence of metastasis into the level Ia lymph nodes without extracapsular metastasis. After surgery, treatment was completed with radiation therapy given six weeks postoperatively. The patient received a radiation dose of 4000 CGY over a six-week period. Despite radical surgery and radiotherapy the patient died eight months after first presentation due to distant metastasis to lungs.



Figure 1: An ulcerative lesion noted on the right posterolateral border of tongue

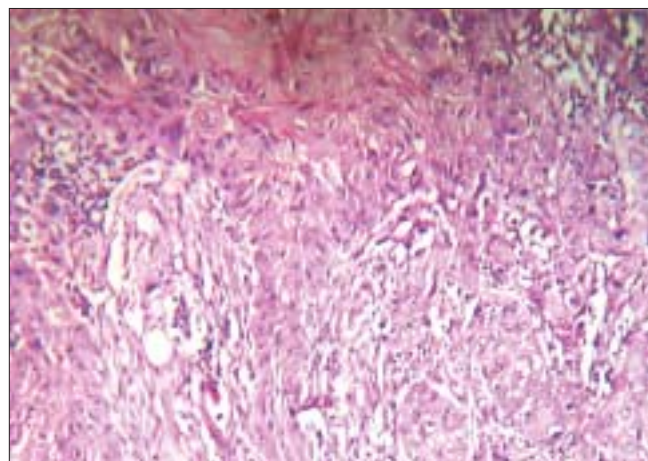


Figure 2: H&E stained section showing features of moderately differentiated squamous cell carcinoma (10x)

Discussion

SCC of the oral tongue is rare in young adults. Literature shows an increase in the incidence of SCC of tongue in young adults. Atula *et al* in Finland found that percentage of SCC of tongue cases occurring in young adults increased from 3% per year for the decade 1953 to 1962 to 7% per year for the decade 1983 to 1992.^[2] Similarly in another study by Myers *et al* incidence of SCC of tongue in young adults was found to be gradually increasing during the past 25 years.^[3]

Characterization of young patients with head and neck SCC is arbitrary. Most authors consider young patients with SCC as those less than 40 years of age,^[1,4,5] even though others use as reference ages under 20 or 30 years.^[6,7] Age average in cases registered in literature as young bearers of SCC ranges from 30.8 to 34.2.^[1,4,8]

Mc Gregor *et al*, in their study of SCC tongue in patients less than 40 years of age found that the site distribution and male to female ratio differed markedly from those above 40. The tongue was the most common site and the majority of the patients were women as has been confirmed by other studies.^[4,9] Clinical manifestation of SCC in young patients has no distinguishing features from that of the older; nevertheless, literature reports that many clinicians tend not to include SCC as a diagnostic hypothesis in young patients, simply because such a disease is not compatible to the age range. In a review by the Armed Forces Institute of Pathology (AFIP), 20 cases of oral SCC in patients < 20 years of age were identified (mean age 15 years). Nine of these were in the tongue. The male to female ratio was 1:1. Of the 18 patients receiving long-term follow-up, 14 were treated with surgery only, while the remaining 4 patients received adjuvant radiotherapy for cervical lymph node metastasis.

After a follow-up of at least five years, 14 patients were disease free (mean age 17.9 years), two had died of the disease (the mean survival time from diagnosis in these two patients was 0.7 years) and two had died with no evidence of disease. The AFIP reports a good prognosis with adequate surgical treatment of these tumors.^[10]

There is a wide debate on SCC in young patients regarding the etiological factors associated to the development of the disease. This is based on the fact that risk factors (smoking and drinking) that are usually observed in elderly patients are not verified in young ones.^[7] Kurikose *et al* in their study comparing the tongue cancer in young and older SCC patients in India concluded that in younger patients, SCC of tongue was associated with fewer etiologic factors, and in older patients, it was always seen in association with smoking, alcohol or chewing.^[11] In an earlier review of 197 consecutive patients treated for oral tongue cancer in Kerala, 82% of patients under the age of 30 years did not have tobacco-related habits as compared with 10% of patients older than 30 years of age.^[7]

However Miller *et al*, in their study of the habits of 39 adults under 40 years found that most of the patients had heavy smoking and drinking habits as suggested by various other studies.^[6,12] Despite the demonstration by these studies that the same etiological factors are present for both age ranges. The possibility of the existence of a carcinogenic action of tobacco and alcohol in the young patient is low, given that in this group exposure time would be relatively short for the establishment of a cause-effect relation. Thus, other factors should be investigated in order to explain the etiology of SCC in young patients. Some of the possible factors suggested are: genetic predisposition, previous viral infection, feeding habits, and immunodeficiency states, occupational exposure to the carcinogenic factor,

socioeconomic condition, oral hygiene and trauma.^[13]

In the present report, the patient was 19-years-old and did not report of any deleterious habits. Past medical history and family history were not significant. The elucidating factor in this patient was the history of chronic trauma due to sharp edges of the carious broken lower first molar which may be considered as one of the possible mechanism of her tongue cancer. Chronic mechanical trauma due to sharp remaining teeth, less than ideal fillings, badly fitting dentures or unsuitable denture-bearing tissue, and loose anchoring attachments in the etiology of oral squamous cell carcinoma has been reported in literature.^[14,15] In this regard Monkman *et al* carried out a review of the literature relating cancer to trauma and found no evidence to suggest that single uncomplicated trauma can cause cancer. However they concluded that trauma in combination with other factors may act as a cocarcinogen and that there was adequate evidence suggesting that metastatic spread of malignant tumors can be affected by trauma.^[16]

Conflicting report have also been reported regarding SCC prognosis in young patients. Several studies have shown that young patients tend to present a greater loco-regional recurrence rate and a smaller survival rate when compared to that of older patients,^[1,4,11] suggesting that it may be considered an distinct disease entity whereas others have described a similar prognosis for both age ranges.^[2,5,17] Vargas *et al*, in their study of 17 females less than 40 years of age with invasive SCC of tongue found that young women with SCC of the anterior tongue have significantly higher rates of recurrent diseases and the interval to recurrence is significantly shorter than in older patients.^[18] Garavello *et al* suggested that in patients with SCC of tongue young age is an independent predictor of worse survival.^[19] Other investigators whereas suggest that younger patients do not have a worse shorter survival rate. In fact Yamazaki *et al* found a worse prognosis rate in elderly patients (> 65years) with SCC of tongue.^[20] Therefore, some authors have indicated a more aggressive treatment for SCC in young patients,^[5,21] while others recommend that treatment be similar to that in patients of older age.^[22]

Treatment adopted for this case followed the recommended standards for tongue SCC, regardless of patient age. But despite the recommended treatment modality the carcinoma was of aggressive nature and the patient died eight months after the first presentation. It still remains unproven if oral cancer in younger patients is inherently more aggressive with a worse prognosis than the disease in older individuals. Further in depth studies are needed to better understand the behavior and carcinogenesis process in these patients.

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