CASE REPORT

Squamous cell carcinoma of tongue in a young patient

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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. We here, describe a 19 year old male patient with squamous cell carcinoma, staged T2N1M0 (stage III), involving the lateral border of the tongue. The occurrence of oral cancer in individuals under 30 years old is rare, and when it occurs, show a weaker relation to those risk factors and a more aggressive clinical course with a worse prognosis. A brief review of literature regarding OSCC and its etiology in young patients is also included.

Introduction

The morbidity in young patients due to oral cancer is low (less than 2% in tongue cancer). Oral squamous cell carcinoma (OSCC) is primarily the 6th most common malignant disease worldwide, rare in patient aged 30 and younger. There is a latency period between initial exposure to carcinogens to the development of clinically visible carcinogens. Various studies suggest that OSCC in the young is a disease distinct from that seen in the older age group with different etiology and disease progression. Patients belonging to the younger age range groups are considered by some authors to have more aggressive disease when compared to those in the older age.¹²

The etiology includes history of tobacco smoking, alcoholism, betel nut chewing, marijuana use, two year disease free survival after a primary tumour excision, human papilloma virus type 16 (HPV), Epstein Barr virus (EBV), HIV, immunosuppression and polymorphism of interleukin 6, inherited syndromes like Fanconis anemia and Aplastic anemia.³⁶

Patients younger than 30 years exhibit a significantly increased chromosome fragility compared to other patients following exposure to Epstein Barr Virus (EBV), HIV, immunosuppression and polymorphism of interleukin 6, inherited syndromes such as Fanconi’s anemia and aplastic anemia.³⁶
We present the clinical characteristics and outcome of OSCC in a patient younger than 20 years emphasizing significant clinical-pathological factors that affected the prognosis. Oral SCC is rarely seen before the age of 30. The risk of developing a second malignancy in 20-year survivors, following a first childhood malignancy such as acute myeloid leukemia (AML), is estimated at 3-12%, which represents a ten-fold increase in survivors of childhood AML as compared to the general population.  

 Patients younger than 30 years exhibit a significantly increased chromosome fragility compared to other patients following exposure to tooth brushing and chewing. Our patient did not have any relevant medical or dental history. He was not on particular medications and had never been admitted to a hospital for any reason previously. He had no known allergies and did not have any habits such as smoking, alcohol consumption, or the use of any drugs. Weight changes or malaise was not reported.

On external examination, the patient had a symmetrical face with normal colour; motor and sensory nerve functions were normal. Submandibular lymph nodes were palpable on the right side. The nodes measured 0.5 cm x1 cm and were hard and tender on palpation.

Intra orally, there was a punched out ulcer on the lateral border of the tongue and a whitish patch on the posterior aspect of the same side. There were no sharp edges of teeth (Figure 1). The size of the lesion was 2.5 cm x 3 cm (punched out) x 0.5 cm in depth. Lesion extended onto the floor of the mouth and also onto the posterior aspect of the tongue (Figure 2). The central ulcer appeared to infiltrate the tongue musculature. No reduction in mouth opening was noted.

Considering the clinical appearance and rapid growth of the lesion, we postulated a malignant nature for the lesion, on the first day of the examination. A soft tissue incisional biopsy was done under local anesthesia. The tissue was sent for histopathological examination.

**Histopathology**

Histopathological examination of haematoxyline-eosin stained sections revealed several islands of dysplastic epithelium infiltrating the connective tissue. Multiple large keratin pearls (Figure 3) were seen along with individual cell keratinisation, nuclear hyperchromatism, enlarged nucleoli, increased nuclear-cytoplasmic ratio, nuclear and cellular pleomorphism as well as atypical...
mitotic figures. Dense chronic inflammatory cell infiltrates, extravasated red blood cells and a few tumour giant cells were present in the connective tissue (Figure 4). A diagnosis of well differentiated squamous cell carcinoma was made substantiating our provisional diagnosis.

The neoplasm was classified as T2N1M0 (stage III), based on mouth cancer TNM classification criteria of the AJCC (American Joint Committee for Cancer Staging).

Treatment done in this case followed the recommended standards of tongue SCC regardless of the patient’s age. Treatment consisted of wide excision including 1.5 cm of normal margins and a radical neck dissection. The surgical excision margins were all safely clear of tumour and no positive lymph nodes were noted. Excision was followed by radiation and chemotherapy. Patient is under periodic monitoring in the outpatient clinic and hospital and is being followed up with adequate nutrition and speech therapy.

**Discussion**

Oral squamous cell carcinoma is not a frequent event in young patients. Average age of cases registered in literature for young patients with SCC ranges between 30.8-34.2 years, with majority being males. Site of greatest occurrence of OSCC in these age group patients is the tongue. Patients belonging to younger age range groups are considered to bear more aggressive diseases when compared to population in the older age ranges. The factors to be investigated to explain OSCC occurrences in young patients include genetic predisposition, previous viral infections, deleterious habits, immune deficiency states, occupational exposure, previous exposure to carcinogens, socioeconomic conditions and oral hygiene.

Our patient who was 19 years of age did not have any smoking or drinking habits. Past medical history did not reveal anything significant. As far as family history was concerned there the patient’s grandfather suffered from colon cancer.

There was no premalignant lesion in the particular site. Serological studies did not indicate any signs of cytomegalovirus, EBV, HPV or HIV infection. Routine blood examination also did not have any significant findings.

Chemotherapy drugs and radiation are known for their long term carcinogenic
effects; therefore second malignancies are one of the most serious side effects of treatment of childhood cancer survivors. This could have happened had the patient survived any childhood cancers such as acute myeloid leukemia (AML).

Differential diagnosis in our patient, included traumatic eosinophilic granuloma and hystoplasmosis. Traumatic eosinophilic granuloma was considered due to patient’s age and clinical features, even though central necrosis in this case was not very typical. As to hystoplasmosis, even though our lesion was compatible with this infection, a medical history with no suggestive symptoms of this disease and a good physical state of the patient restrained this differential diagnosis. The differential diagnosis also included deep mycosis, primary syphilis and tuberculous ulcer.

Presence of a precursor lesion with a three year duration, previous to the appearing of a tongue lateral border SCC was described by Torossian et al. But this was also absent in our patient. He did not have any signs of a precursor lesion.

Prognosis in young patients with OSCC is not well known. Some authors consider the lesion to be aggressive in the young patients with the worst prognosis compared with older patients. Studies have shown that young patients tend to present a greater loco regional recurrence and a poor survival rate. Therefore the authors have indicated more aggressive treatment plan for young patients. Some others indicate a similar prognosis for both old and young age groups.

Conclusions

OSCC in young patients is rare. Various etiological factors are to be noted in these patients. Review of literature suggests that these patients present with a high rate of loco regional recurrence. The risk of second primaries increases over time. In our patient who developed oral cancer in the absence of known risk factors, it is probable that there was a continued presence of an unknown risk factor. Young patients cured of first primaries deserve long term adherence to routine follow up and cancer surveillance regardless of etiology.

References

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