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RESEARCH ARTICLE

A RARE CASE OF FIELD CANCERIZATION OF ORAL SQUAMOUS CELL CANCER ALONG WITH BRAIN METASTASIS: CASE REPORT WITH REVIEW OF LITERATURE

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ABSTRACT

Oral cancer is any malignant neoplasm of buccal mucosa, tongue, lip, floor of mouth, gingival or palate. Oral cancer is the 6th most common cancer of the world and 3rd most common in South-Central Asia. In Asian countries like India, buccal mucosa is the most common site of oral cancer. Head and neck cancer patients are at high risk of developing Second primary tumor arising from same dysplastic mucosal field. Metastasis of OSCC occurs at a reported rate of 4% to 26%. Most distant metastasis from OSCC is reported to occur in liver, lungs and bone. Although brain metastasis is commonly seen in lung cancers, breast cancers and melanomas, it is a rare finding in OSCC, accounting for as low as 1% of all reported cases.

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INTRODUCTION

The head and neck cancers account for about 6% of all the cases of cancers worldwide (Parkin *et al.*, 2001; Argiris *et al.*, 2008). Cancer of oral cavity is the most frequent type of cancer of the head and neck region with squamous cell carcinoma being the most common type. Oral cancer is the 6th most common cancer of the world and 3rd most common in South-Central Asia (Warnakulasuriya, 2009). It is more common in developing countries like India, Bangladesh, Pakistan, Sri Lanka (Sharma *et al.*, 2015). Oral cancer is any malignant neoplasm of buccal mucosa, tongue, lip, floor of mouth, gingival or palate. About 90% of all malignancies of oral cavity, the most common sites are tongue and floor of the mouth (Brandizz *et al.*, 2008). In Asian countries like India, buccal mucosa is the most common site of oral cancer (Giri *et al.*, 2013). Severe use of tobacco like cigarette and smokeless tobacco (betel chewing) and Human Pappiloma Virus are the most common risk factors for oral cancers (Chaturvedi *et al.*, 2008; Jornet *et al.*, 2015). Head and neck cancer patients are at high risk of developing Second primary tumor arising from same dysplastic mucosal field (Mathew *et al.*, 2017). Metastasis of OSCC occurs at a reported rate of 4% to 26%

(Coca-Pelaz *et al.*, 2012). Around 15% of patients with clinical evidence of metastasis have no detectable nodal disease (Allen *et al.*, 2013). A review of Surveillance, Epidemiology and End-Results(SEER) Database revealed that 2.82% had distant metastasis (Kuperman *et al.*, 2011). Most distant metastasis from OSCC are reported to occur in liver, lungs and bone. Although brain metastasis is commonly seen in lung cancers, breast cancers and melanomas (Dagogo-Jack *et al.*, 2017), it is a rare finding in OSCC, accounting for as low as 1% of all reported cases (DeBree *et al.*, 2001; Jimenez *et al.*, 2015). Through the present case report we want to present one such rare case of oral squamous cell carcinoma with brain metastasis and field cancerization.

CASE REPORT

A 40 year old male patient reported to the Department of Oral and Maxillofacial Surgery with chief complaint of pain in right buccal mucosa and tongue for 4-5 months. He developed a growth in right buccal mucosa in the right posterior vestibular region 5 months back which gradually increased to current size. The pain was moderate in intensity and continuous in nature and subsided after taking analgesics. Two teeth i.e., 46 and 47 were lost during this period. Trismus grade 1 was

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present. Past medical and dental history were within normal limits. Patient is a tobacco chewer having 3-4 quid per day for 3-4 years. Patient is also a smoker and smokes around 7-8 beedi per day for 5-6 years. On extra oral examination asymmetry of the face was observed with puffiness on right side of the face with skin involvement of 2X2 cm and mouth opening was restricted to 1.5cm. Lymphadenopathy of ipsilateral submandibular lymph node was present. It measured 1cm X 1.5cm in dimension, was tender, hard and mobile. On intraoral examination, an ulceroproliferative growth was found on right buccal mucosa which was oval in shape measuring 3cm X 3cm in its greatest dimensions. The margins were sloping and edges were everted. There was no associated bleeding on discharge (Fig 1).



Fig. 1. 3X3cm growth in right buccal mucosa involving right gingivobuccal sulcus

An ulcer was also found on right lateral border of the tongue which was pink in color, 2cm X 2cm in its greatest dimensions, with sloping margins and everted edges and not associated with bleeding or discharge. Provisional diagnosis of malignant neoplasm of right buccal Mucosa was made. Punch biopsy was taken from the growth and also from the ulcer of the tongue and sent for histological examination. The histopathology revealed numerous epithelioid cells proliferating irregularly in connective tissue stroma under scanner and low power view. Under higher magnification the proliferating epithelioid cells showed dysplastic features like hyperchromatism, pleomorphism, increased nucleocytoplasmic ratio, vesicular nuclei and abnormal mitosis in few areas. Aggregates of chronic inflammatory infiltrate predominantly comprising of lymphocytes was evident. The overall histopathologic features were suggestive of Invasive Carcinoma, most likely Squamous cell carcinoma (Fig 2). The histopathological report tongue biopsy revealed stratified squamous hyper-parakeratinized type of epithelium with mild degree of dysplasia and chronic inflammatory infiltrate suggestive of Hyperkeratosis and Mild Epithelial Dysplasia (fig 3). The Contrast Enhanced Computed Tomography (CECT) of head and neck showed: (Fig 4)

Heterogeneously enhancing ulcerated soft tissue density on the right part of oral cavity with extensions of 21 X 12 X 26mm Large lobulated hyperdense enhancing extra-axial mass lesion in the sellar and supra sellar location with extension of 40 X 32 X 49 mm with bony destruction. The image morphology was suggestive of metastasis. TNM staging was cT₄N₁M₁ and AJCC Staging was Stage IVC. Further confirmation with histopathological examination was suggested but patient was not willing for further investigations and treatment due to financial problems.

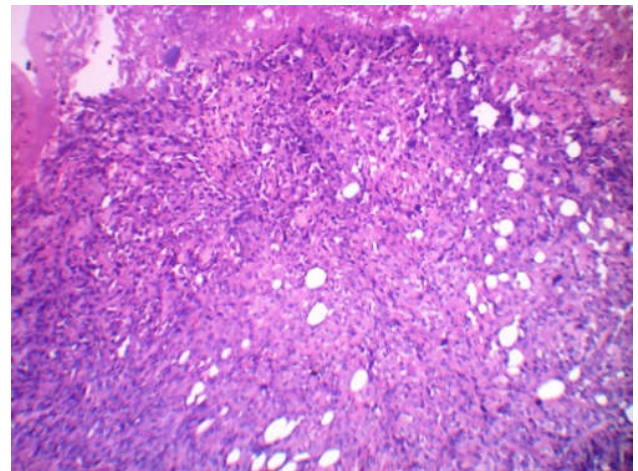


Fig. 2. Buccal Mucosa- Invasive carcinoma

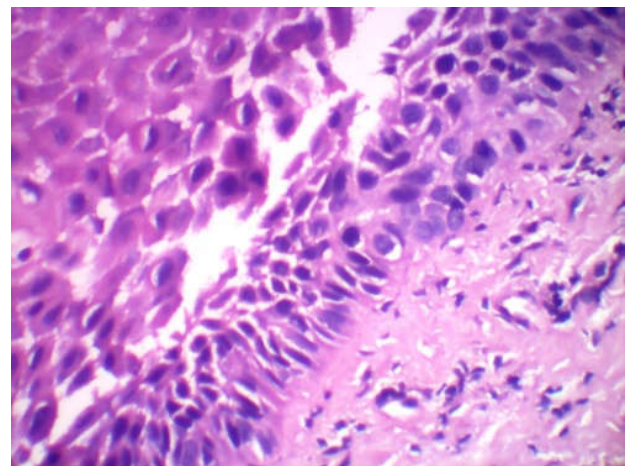


Fig. 3 Tongue- mild epithelial dysplasia



Fig. 4. Enhancing extra-axial mass lesion in the sellar and supra sellar location

DISCUSSION

The burden imposed by cancer varies greatly between the different regions of India. Oral cancer mortality rate is high due to the mortality in rural areas where cancer treatment facilities are scarce (Varshitha, 2015). The use of smokeless tobacco and betel is on rise in North India and especially in states like Uttar Pradesh, as in our case (Nair *et al.*, 2005). High incidence of oral cancer in India is attributed to a number of etiological factors. Tobacco consumption habit among the

patients either as smokeless tobacco or smoking, alcohol consumption are the common causes for oral cancer. Positive family history of oral cancer, viral infections like HPV, poor oral hygiene are the other causes for oral cancer (Mallath *et al.*, 2014). OSCC classically metastasizes to cervical lymph nodes first. It has been suggested that late-occurring metastases may result from differences in the proliferative potential of a subgroup of cells in the growth-arrested metastatic tumor (Kirsch *et al.*, 2000). Malignant cells that access the vasculature, known as circulating tumor cells, have been detected in patients both with and without pathological evidence of nodal disease in Head and Neck SCC (Jatana *et al.*, 2010). It is hypothesized that tumors of neuroepithelial origin, such as melanoma or small cell carcinoma of the lung, infiltrate the brain at higher rates because of an increased preference of these cells for the microenvironment of the brain, compared with cancer cells of epithelial origin, such as SCC, which find the environment of the brain parenchyma less amenable (Nathoo *et al.*, 2005). The major determinant of the prognosis of oral carcinoma is the risk of cervical metastasis (Noguti *et al.*, 2012). The outcome of treatment in patients with early (Stage I and II) squamous cell carcinoma of the head and neck (SCH) has improved, second primary cancers (SPCs) have become the principal posttreatment concern (Panosetti *et al.*, 1989; Licciardello *et al.*, 1989). As in the present case the lesion present on right lateral border of the tongue was taken into consideration for histopathological investigation to rule out the presence of Second Primary Cancer (SPC). We wanted to bring one such rare case of OSCC with evidence of field cancerization as well as cerebral metastasis.

Conclusion

Oral Squamous cell cancers have propensity for field cancerization highlighting the importance of complete oropharyngeal examination in such patients. CT imaging of lesion and neck should also include brain parenchyma to rule out such rare case of brain metastasis.

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