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Case Report

Habit to Hazard: Gutka, Smoking and Alcohol as Risk Factors for Oral Squamous Cell Carcinoma: A Case Report

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ABSTRACT:
Oral squamous cell carcinoma (OSCC) is the most typical type of oral malignant neoplasmwith prevalence seen in the age groups above 50 years in males.Mandibular alveolus is the second most common site for oral cancers.OSCC of the alveolar ridge account for 9% of all the oral carcinomas. In early stages, it shares a clinical similarity with various forms of inflammatory gingival lesions. Here, we present an overview of such a case.
Keywords: Oral Squamous Cell Carcinoma, Mandibular Alveolus, Neoplasm, Precancerous Conditions, OSCC.

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INTRODUCTION

Oral cancer represents the eleventh most common malignancy worldwide, posing a significant global health burden. Among oral cancers, oral squamous cell carcinoma (OSCC) is the predominant type, accounting for more than 90% of all malignant lesions in the oral cavity. OSCC demonstrates diverse clinical presentations, ranging from innocuous-appearing white plaques to ulcerated lesions, often mimicking inflammatory conditions of the gingiva and leading to diagnostic delays.The incidence of OSCC varies geographically, with high prevalence noted in Asian countries such as India, Pakistan, and Sri Lanka, where younger populations (<40 years) are increasingly affected. In contrast, Western data suggest predominance in older age groups, particularly between the fifth and eighth decades of life, with males more commonly affected than females. Site-specific distribution highlights the tongue as the most frequent location, followed by the mandibular alveolus, which accounts for approximately 9% of cases. Importantly, mandibular alveolus carcinoma demonstrates the highest local recurrence rate compared to other intraoral sites, contributing to its relatively poor survival outcomes.Histopathological evaluation reveals two distinct patterns of mandibular invasion: the infiltrative pattern, characterized by tumor islands penetrating cancellous bone with minimal osteoclastic activity, and the erosive pattern, where tumor advances as a broad front separated from bone by osteoclasts and connective tissue. These invasion patterns have significant implications for prognosis and treatment planning. Risk factors for OSCC are multifactorial, with tobacco use, betel nut chewing, alcohol consumption, oncogenic viral infections (HPV, EBV), genetic predisposition, immunosuppression, and occupational exposures playing pivotal roles. In India, the widespread use of smokeless tobacco products has contributed to the rising incidence of OSCC, making it a major public health concern.Clinically, patients often report site alterations persisting for 4–8 months before seeking professional care, with minimal pain during early stages contributing to delayed presentation. Without a high index of suspicion, healthcare providers may

further delay biopsy and definitive diagnosis. Management of OSCC primarily involves surgical excision, often accompanied by radical neck dissection in cases of nodal metastasis. Radiotherapy and chemotherapy serve as adjuncts, particularly in advanced disease. Despite these interventions, mandibular OSCC continues to demonstrate poor survival outcomes, underscoring the need for early detection and aggressive management.Herein, we report a case of squamous cell carcinoma of the lower alveolus related to the habitual use of tobacco, betel nut, and alcohol.

CASE REPORT

A 60-year-old male patient came to the outpatient department of St. Joseph Dental College & Hospital, with complaints of acute pain in the lower front tooth region and associated gingival swelling. The pain was sharp, continuous, radiating, and accompanied by a local burning sensation persisting for one week. Clinical examination revealed swelling in the lower anterior region, Grade II mobility of teeth, food lodgment, bleeding, and an exophytic growth involving teeth 41, 42, and 43. The patient denied any history of diabetes, hypertension, allergies, or drug use. History of alcohol consumption, smoking, and betel nut chewing since past 20 years and quitted habit 4 months ago. History of underwent extraction in right lower front tooth region 15 days back. And history of growth since 10 days which is started after 4 days of extraction and attained to present size. (fig1)

Figure 1: Face Profile & Exophytic Growth Involving Lower Alveolar Region

On inspection a localized growth of size approximately 2 x 2 cm of size seen involving lower right front tooth region extending antero-posteriorly from mesial aspect of 31 to distal aspect of 45 and superior-inferiorly involving marginal and attached gingiva. On palpation all inspectory findings are confirmed of palpation, tenderness is evident on palpation, exophytic growth is evident. p/d given as exophytic growth involving right lower alveolar region irt 41,42,43,44. advised Ct, Bt, Cbp, HbsAg, tridot, Rbs & incisional biopsy. (fig2)

Figure 2: Incisional Biopsy In Lower Alveolar Region

Laboratory investigationsrevealed a bleeding time of 3 minutes 45 seconds and a prolonged clotting time of 11 minutes, indicating a mild coagulation delay. Hematological parameters showed borderline anemia with hemoglobin at 12.3 gm%, reduced RBC count (3.48 million/cumm), and elevated neutrophil percentage (80%), suggestive of an inflammatory or neoplastic process. The random blood sugar level was 152 mg/dl, indicating mild hyperglycemia. Immunological screening for HIV and HBsAg was negative. These findings support the systemic impact of malignancy. Histopathological examination of the biopsy specimen obtained from the lower anterior alveolar region revealed features consistent with moderately differentiated squamous cell carcinoma. The hematoxylin and eosin (H&E) stained sections showed Para keratinized stratified squamous epithelium with a clear breach in the basement

membrane, indicating invasive malignancy. Dysplastic changes were evident, including cellular and nuclear pleomorphism, hyperchromatic nuclei, increased nuclear-to-cytoplasmic ratio, and loss of epithelial stratification. The underlying connective tissue was fibro cellular and contained diffuse epithelial islands, keratin pearl formation, endothelial-lined blood capillaries filled with RBCs, fibroblasts, and a chronic inflammatory infiltrate. These histological features confirmed the diagnosis of moderately differentiated squamous cell carcinoma, supporting the clinical suspicion of OSCC in the lower anterior alveolus.Final diagnosis given as oral squamous cell carcinoma involving right lower alveolar region Irt 41,42,43,44.

DISCUSSION

Oral squamous cell carcinoma (OSCC) is the most common malignant neoplasm of the oral cavity, strongly associated with lifestyle habits such as tobacco chewing, betel nut use, alcohol consumption, and smoking. These carcinogens act synergistically, producing chronic mucosal irritation, genetic mutations, and epigenetic alterations that predispose to malignant transformation. In the present case, the patient had a long-standing history of all these habits, which significantly contributed to the development of carcinoma in the mandibular alveolus.

Clinically, OSCC of the gingiva often mimics inflammatory or desquamative lesions, leading to misdiagnosis and delayed treatment. In this patient, the lesion was initially managed by extraction, but persistence and progression highlighted the importance of thorough evaluation before routine dental procedures. The mandibular alveolus is recognized as the second most common site for OSCC after the tongue, and lesions in this region are notorious for their aggressive local invasion and high recurrence rates. Regional lymph node metastasis is another hallmark of OSCC, particularly in the submandibular and upper jugular regions. In this case, palpable submandibular lymphadenopathy was noted, indicating early nodal involvement. Radiographic findings revealed ill-defined radiolucency suggestive of bone invasion, consistent with the infiltrative pattern of OSCC. Histopathology confirmed moderately differentiated squamous cell carcinoma, characterized by dysplastic epithelial islands, keratin pearl formation, and breach of the basement membrane. Management of OSCC requires a multidisciplinary approach. Surgery remains the primary modality, with hemimandibulectomy and reconstruction indicated in cases of bone invasion. Adjunctive radiotherapy and chemotherapy are essential for controlling residual disease and preventing recurrence. In advanced centers, newer modalities such as photodynamic therapy, immunotherapy, and gene therapy are being explored to improve outcomes. The prognosis of OSCC depends on multiple factors including tumor size, histological grade, nodal involvement, and treatment modality. Early detection offers better survival rates, but most cases present late due to misinterpretation of lesions and patient neglect. This case emphasizes the need for clinicians to maintain a high index of suspicion for persistent gingival lesions, especially in patients with high-risk habits. Routine biopsy of unexplained lesions persisting beyond two weeks is critical to avoid diagnostic delays. Ultimately, this case underscores the importance of habit counseling, preventive strategies, and timely intervention in reducing the burden of OSCC. By integrating clinical vigilance with patient education, healthcare providers can improve early diagnosis and enhance long-term survival outcomes in populations at risk.

CONCLUSION

Oral squamous cell carcinoma is strongly linked to high-risk habits such as alcohol consumption, betel nut chewing, and smoking. In this case, the patient had a long history of these habits, which contributed to malignant transformation. The lesion was initially managed by extraction, but persistence highlighted the importance of thorough evaluation. OSCC of the mandibular alveolus often mimics inflammatory gingival lesions, leading to misdiagnosis. Early biopsy of suspicious lesions is essential to avoid unnecessary delay in diagnosis. Regional lymph node involvement and bone invasion further complicate prognosis. Surgery remains the primary treatment, supported by radiotherapy and chemotherapy. Habit cessation plays a vital role in preventing recurrence and improving survival. Clinicians must maintain a high index of suspicion for persistent oral lesions. This case emphasizes the importance of early detection, habit counseling, and multidisciplinary care in OSCC.

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