Infiltrating Oral Squamous Cell Carcinoma- A Case Report

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Abstract

One of the most prevalent cancers of the head and neck is oral squamous cell carcinoma (OSCC). It has a high prevalence in certain parts of the world, and is associated with a high mortality rate. There are numerous etiological variables that can lead to OSCC, which develops in the oropharynx and oral cavity. However, the most common risk factors are still alcohol and smoking. The survival rate of oral cancer is 5 years , depending on the stage it is diagnosed. To diagnose in the early stage, specialized tumor markers may assist and also help in improving the survival rate of oral cancer. The purpose of this article is to present the histological characteristics of the most common type of oral cancer, so called oral squamous cell carcinoma

Keywords: Oral squamous cell carcinoma, Tumor, Biopsy, Dysplasia

INTRODUCTION

One of the top three malignancies in India is oral cancer, which has major implications for public health. One of the most prevalent forms of cancer in the head and neck area is oral squamous cell carcinoma (OSCC), which originates in the lips and oral cavity. According to data from the Global Cancer Observatory (GCO), there were 377,713 instances of OSCC annually in 2020 around the world. Asia had the highest number of cases (248,360), followed by Europe (65,279) and North America (27,469)[1] .The five-year prevalence of OSCC surpassed one million (959,248) and was consistent with the previous pattern, with Asia having the highest frequency followed by Europe and North America[2]

About 84-57% of cases of oral cancer are caused by OSCC. Typically, normal epithelial linings or possibly malignant lesions cause OSCC. Due to increased tobacco product consumption and limited access to new diagnostic tools, oral cancer is more common in low-income groups in India and is reported later than other cancers[3, 4.] The main risk factors for OSCC are alcohol and tobacco use, socioeconomic level, poor oral hygiene, and defective dental prosthesis, such as ill fitting dentures[5]. WHO has marked smokeless tobacco as a cancer-causing agent . The amount of carcinogenic substances found in various brands varies[6]

The detection of oral cancer typically involves the use of a variety of traditional clinical procedures, including staining, biopsy, physical and histological examination, as well as spectroscopic and radiographic methods. The survival rate can be increased by up to 90% with prompt and appropriate therapy following an early diagnosis. Progress in science and technology has led to the development of several new methods that are superior than the traditional diagnostic approaches that are now in use.

The prognosis and treatment success rate are significantly influenced by the tumor size, stage, grade, location, depth of invasion, lympho-vascular dissemination and performance. Response to treatment differs from person to person, even when the tumor is in the same stage. Because of detection in the late stage , the chances of cure are very low, almost negative, leaving five-year survival rates of only around 20%[7]

CASE REPORT

A 54 years old male patient came to our hospital with the chief compliant of inability to open his mouth for the past 2 years, he experienced burning sensation while taking spicy foods . He also developed ulcer in left buccal mucosa with no evidence of pain and discharge from the region. Later he developed swelling in the left side of cheek region , then he

reported to a private hospital at Chennai , where biopsy was done and report revealed well differentiated Squamous cell carcinoma and advised to do PET Scan and then reported to our hospital . Patient has a history of diabetic and hypertension for past 10 years and he is under medication. Not known case of cardiac disease, tuberculosis and any other bleeding disorder. Patient has a history of tobacco chewing for past 20 years and alcohol consumption for past 3 years and he quit the habit before 3 months. On clinical examination, the patient is stable, conscious and oriented, a diffuse swelling evident in the left middle third of face .Facial asymmetry is evident and mouth opening is retarded. TMJ movements retarded and patient has no evident of swelling over submandibular region.

**Fig: 1** (a) Frontal　　　　**Fig: 1**(b) Right lateral　　　　**Fig: 1(c)** Left lateral

On intra oral examination, the swelling of size approximately 5*5 cm in the left side of middle third of face , extending anteriorly 3cm posterior to commissure of the lip, posteriorly extending into retromolar region , superiorly extending in to the buccal vestibule and inferiorly into the labial vestibule .


Fig: 2 –Intra Oral

On palpation the surface is rough, irregular in shape and surrounding structure is abnormal ,no evidence of tenderness on palpation, edge is indistinguishable , no warmth and the lesion is soft in consistency. Incisional biopsy was taken under local anesthesia and the specimen sent for histopathological examination.

Histological examination shows stratified squamous epithelium exhibiting focal full thickness dysplasia and ulceration with an underlying infiltrating malignant neoplasm arranged in solid sheets and nests. The individual tumor cells are polygonal in shape with abundant eosinophilic keratinised cytoplasm and pleomorphic hyperchromatic nuclei. Areas of keratin pearl formation and central necrosis within the tumor cell population are seen. The tumor shows moderate mitotic activity and the surrounding fibrofatty stroma contains lymphoplasmacytic infiltrate along with foreign body giant cells. Perineural invasion was present. Lymphovascular and bony invasion was not made out. These microscopic features revels the diagnosis of   INFILTRATING SQUAMOUS CELL CARCINOMA
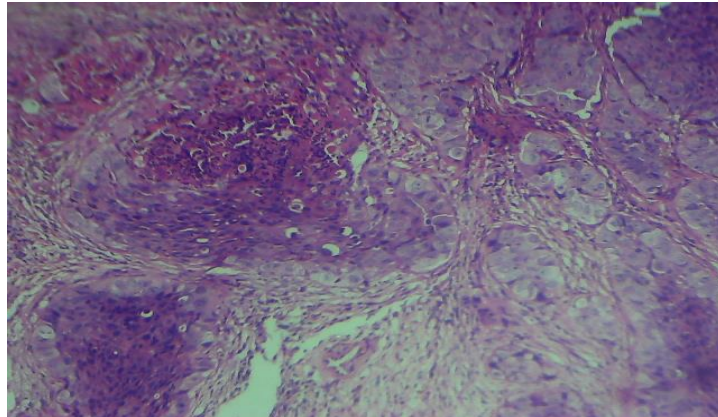
Fig: 3(a) H & E section shows infiltrating tumor cells in connective tissue stroma (X-10 magnification)
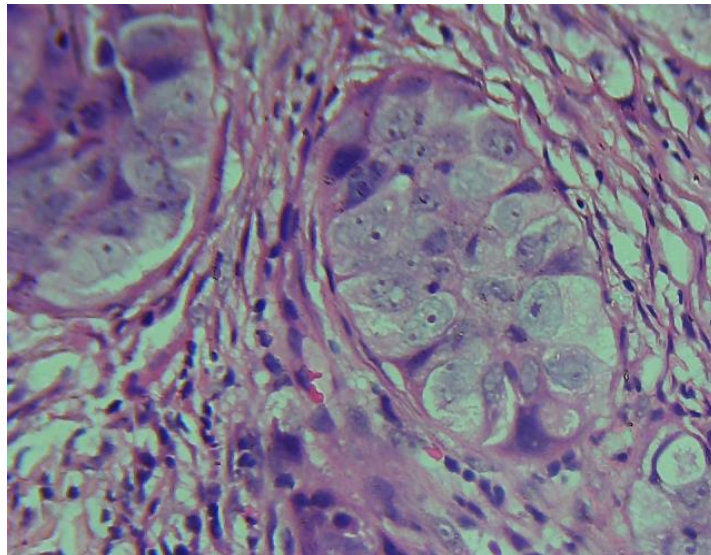
Fig: 3 (b) H & E section shows tumor cells with dysplastic features (X-40 magnification)

DISCUSSION

Oral carcinogenesis is a gradual condition in which dysplasia is the initial stage followed by invasive phenotypic transformation by normal epithelium. The most typical type of oral cancer is called OSCC. The molecular pathological picture of oral cancer has been made clear in recent years by the application of proteomics and genomic techniques. A search is currently underway to determine the significance of genomic instability and epigenetic modifications, genetic abnormalities in tumor suppressor or oncogene genes, and the creation of a gene expression profile in oral oncogenesis[8] .The molecular pathophysiology of oral cancer must be understood in light of these genetic alterations and patterns of gene expression.

Early detection of oral cavity cancer has been associated with the initial tumor location[9] . Consequently, cancers of the oral, lingual, or lip mucosa favor their early diagnosis, while their location on the retromolar trigone or oral floor is linked to a delayed diagnosis[10]. Numerous epidemiological studies have demonstrated a link between alcohol consumption and cancer, indicating that alcohol has the potential to cause tumor[11]. Alcohol intake has been linked to a considerable number of cancer cases in Western Europe (Denmark, France, Germany, Greece, Italy, Netherlands, Spain, UK) according to Schutze M et al[12]. Due to its propensity to either increase the expression of specific oncogenes or decrease cells' capacity to repair DNA, alcohol may play a significant role in the onset of cancer. This increases the risk of oncogenic mutations. An essential control mechanism for gene expression is DNA methylation. One potential mechanism for the development of cancer has been suggested: reduction of methylation of the tumor promoter gene[11]. Even if early detection of oral cancer is achievable compared to other sites of the body, a significant percentage of cases were observed at advanced stages. However, early oral cancer identification is greatly aided by patient education about health issues and improved general practitioners' diagnostic standards, especially in developing nations[13]

Microscopic examination of squamous cell carcinoma revels Dysplastic stratified squamous epithelium that extends through the basement membrane and into the underlying fibrous connective tissue without attachment to the surface. Malignant epithelial cells show eosinophilic cytoplasm, hyperchromatic nuclei, pleomorphism, mitotic activity, individual cell keratinization and internuclear bridging. Keratin pearls of round; eosinophilic, concentric layers of keratin can be seen and are associated with well differentiated tumors. Similarly in our case also has the histological features such as eosinophilic keratinized cytoplasm, Pleomorphic hyperchromatic nuclei , mitotic activity and areas of keratin pearl formation. Based on histological features we arrive to a diagnosis of Infiltrating Squamous cell carcinoma.

CONCLUSION

Early detection of oral cancer is one of the most efficient ways to reduce the high mortality from this disease. Early detection can minimize the morbidity of the disease and its treatment, which is associated with a severe loss of function, disfigurement, depression, and poor quality of life. OSCC is mainly diagnosed by tissue biopsy which remains the gold standard for diagnosing potentially malignant diseases (PMDs) and oral squamous cell carcinoma (OSCC). Various conventional clinical techniques, such as physical and histopathological examination, staining, biopsy, and spectroscopic and radiological techniques, are routinely used to detect oral cancer[14.] The prognosis and treatment plan of OSCC can be predicted by evaluating the histological parameters like tumor budding and the invasive characters such as the mode of invasion, worst pattern of invasion and depth of invasion, all of which can be assessed on routine haematoxylin and eosin stains.[15] According to a World Health Organization report, the mortality rate for oral cancer within 5 years of diagnosis is 45% (for all stages of diagnosis combined). By contrast, the survival rate is 80–90% if the disease is detected early in its development[16].

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