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# Unveiling Patterns in Oral Squamous Cell Carcinoma: A Case Series

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## ABSTRACT

Oral cancer is fast becoming one of the major health challenges in India. It has been shown through studies that prevalence of cancer of mouth and tongue taken together exceeds lung cancer. Three cases of oral squamous cell carcinoma (OSCC) that were seen in clinical settings are included in this case series. Every instance has distinct clinical characteristics, difficulties with diagnosis, and treatment modalities. Common features that highlight the need of timely discovery, precise histopathological evaluation, and interdisciplinary cooperation in managing OSCC come to light via these examples. The series also emphasizes how important routine surveillance and follow-up are for preventing illness recurrence and maximizing long-term results. This series adds to the growing understanding of OSCC and educates doctors about the intricacies involved in its diagnosis and treatment by clarifying a variety of clinical presentations and management approaches there by reducing the burden of oral cancer on individuals as well as on society.
**Keywords**:-Mouth Neoplasms, Oral squamous cell carcinoma, Potentially Malignant Disorders, Oral Health, Early detection of Cancer

## INTRODUCTION:

Cancer is potentially a fatal disease in which head and neck cancer is the sixth most common human cancer, representing 3% of all types of cancer. They are located in the oral cavity in 48% of cases, and 90% of these are oral squamous cell carcinoma (OSSC) [1]. OSCC constitutes 1-2% of all cancers in the body [2].

The terms precancer, precursor lesions, premalignant, intraepithelial neoplasia and potentially malignant have been used in the international literature to broadly describe clinical presentations that may have a potential to become cancer [3]. The majority of the initial alterations of precancerous and cancerous oral lesions are not readily recognizable, on clinical examinations [4]. The most affected sites, in descending order, are the tongue, oropharynx, lips, floor of the mouth, gingiva, hard palate and buccal mucosa [5].

Role of various etiological agents has been put forwarded by different researchers over the years. The various etiological agents include tobacco, betel, alcohol, viruses, oral health, host defences and diet [6].

Various clinical presentations of ossc are seen which include exophytic (verrucous or papillary), endophytic, leukoplastic, ulcerated, erythroplastic or erythroleukoplastic forms [7].

This article focuses on a series of cases where histopathological examination was used to arrive at confirmatory diagnosis of OSSC.

## CASE PRESENTATION

### CASE 1

An 80 -year-old female patient reported to dental OPD with chief complaint of difficulty in mouth opening and swallowing for the past 7 months. She had a habit of betel chewing with arecanut 10 to 12 times a day for the past 50 years. On extra oral examination, an ulceroproliferative lesion of size 3x 5 cms was seen on the right cheek area with rolled out margins which was extending 2cms from vermilion border of lip anteriorly to 10 cms from the angle of mandible posteriorly. Crustations was seen surrounding the ulcer and the ulcer was seen extending intraorally (Figure 1).

Figure 1-Extra oral view showing extent of lesion with surrounding crustations

On palpation, the presence of a single submandibular lymph node was felt on the same side of approximate size 1 × 1 cm, which was firm, non-tender, and mobile.

On intraoral examination, an exophytic ulceroproliferative growth of size 10x10 cm was seen on the right buccal mucosa, which was seen extending anteriorly 2 cm from the angle of the mouth to the retromolar raphe posteriorly (Figure 2).

Figure 2 : Intra oral view showing the ulcerated lesion

Palpation revealed that the lesion was tender and that there was bleeding on touch.

A provisional diagnosis of oral squamous cell carcinoma was made, and an incisional biopsy was planned. A routine blood examination was found to be normal. Informed consent from the patient was obtained, and the lesion was surgically excised under local anesthesia. The excised tissue was then sent for histopathological examination. Histopathological examination revealed neoplastic features in the epithelium, including loss of basement membrane, loss of basal cell polarity, loss of stratification, abnormal levels of mitosis, cellular and nuclear pleomorphism, individual cell keratinization, and attempted keratin pearl formation (Figure 3).

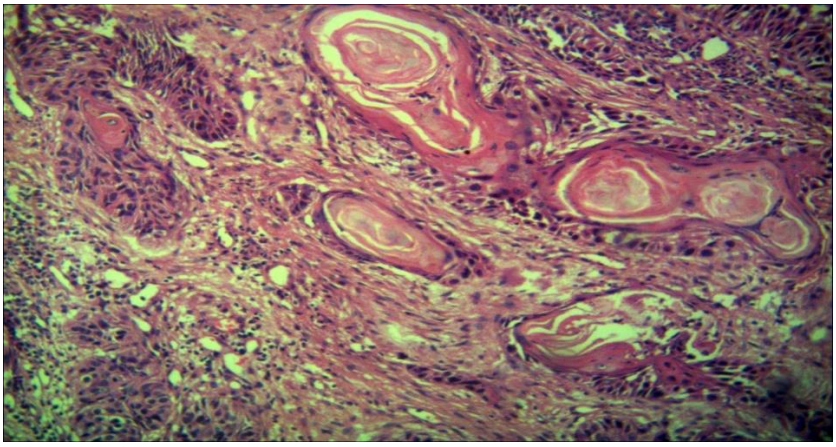

Figure 3: Photomicrograph showing epithelial islands with keratin pearl formation along with neoplastic cells showing abnormal mitosis. (H&E, 10x)

Correlating with the clinical and histopathological examination, the lesion was diagnosed as well differentiated oral squamous cell carcinoma. The patient was advised to undergo palliative management.

**CASE 2**

A 35-year-old female patient reported to a dental clinic with pain inside her mouth for the past 15 days. She had a habit of chewing tobacco 3–4 times a day for the past 15 years and also had a habit of frequent cheek biting.
On examination, a raised growth of 4x3 cm with everted edges was seen on the right buccal mucosa, which had a granular surface. The growth was seen extending 2 cm anteriorly from the angle of the mouth to the retromolar area posteriorly (Figure 4).

Figure 4:Intraoral view of the lesion showing the granular surface.

On palpation, the growth was tender with no bleeding on touch. Lymph nodes were not palpable on both sides. A provisional diagnosis of traumatic fibroma was made. Informed consent was obtained, and an incisional biopsy was done.

Histopathological examination of the biopsied lesion showed neoplastic features like loss of basement membrane and numerous keratin pearl formations with abnormal mitosis(Figure6).

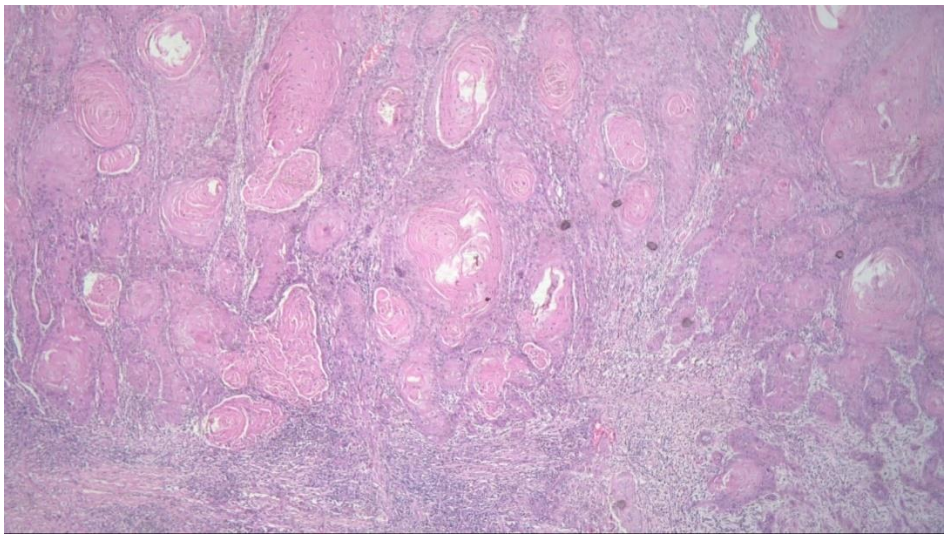

Figure 5: Photomicrograph showing proliferating neoplastic islands with keratin pearl formation showing breakage in the continuity of epithelium (H&E, 4x)

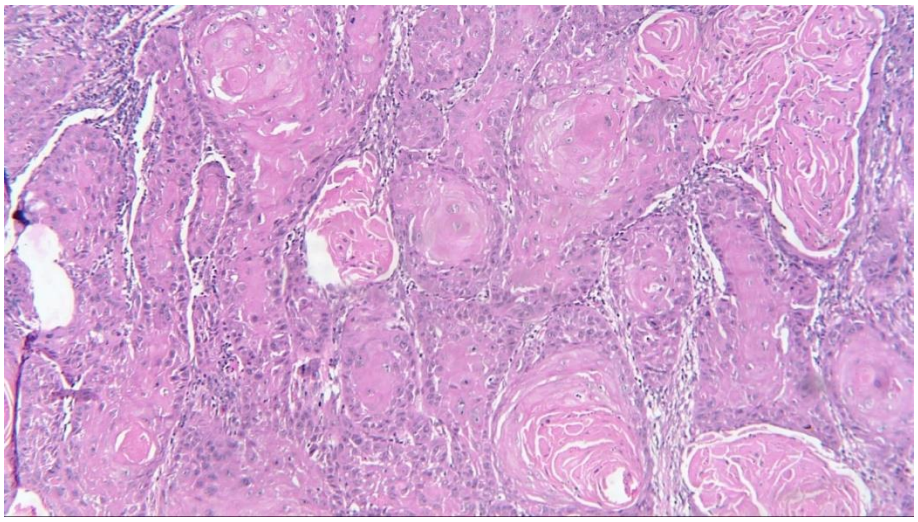

Figure 6: Photomicrograph showing sheets of proliferating epithelial neoplastic islands with keratin pearl formation along with abnormal mitotic figures (H&E, 10x)

Based on the histopathological examination, diagnosis of well differentiated oral squamous cell carcinoma was made. Patient was recalled but didn't come back for further treatment.

**CASE 3**

A 60-year-old male patient came to the dental OPD with a chief complaint of pain and ulcers in the right back tooth region for the past 2 weeks. History reveals that the patient had swelling in the right back tooth region, which was painful. He had a history of chewing tobacco for 15 years, 4 to

5 times daily, but stopped the habit 10 years ago. He also had a history of the extraction of many teeth due to caries five years ago. There was mobility of the teeth on the right side, so extraction of the teeth was performed 20 days ago in a private dental clinic, and medication was given. After a week, the extraction site was not healed. On examination, an extraoral lobulated swelling of size 1.5x0.5 cm was seen on the right lower border of the mandible with an erythematous surface (Figure 7).

Figure 7: Extraoral view of the swelling

On palpation the swelling was tender and firm.

Intra oral examination showed an ulcerated area which was seen extending from 44 region to mesial region of 48 extending in to the buccal sulcus (Figure 8).

Figure 8: Intraoral view of the ulcerated lesion involving alveolar ridge and the buccal sulcus.

OPG was taken and it showed no bone involvement (Figure 9).

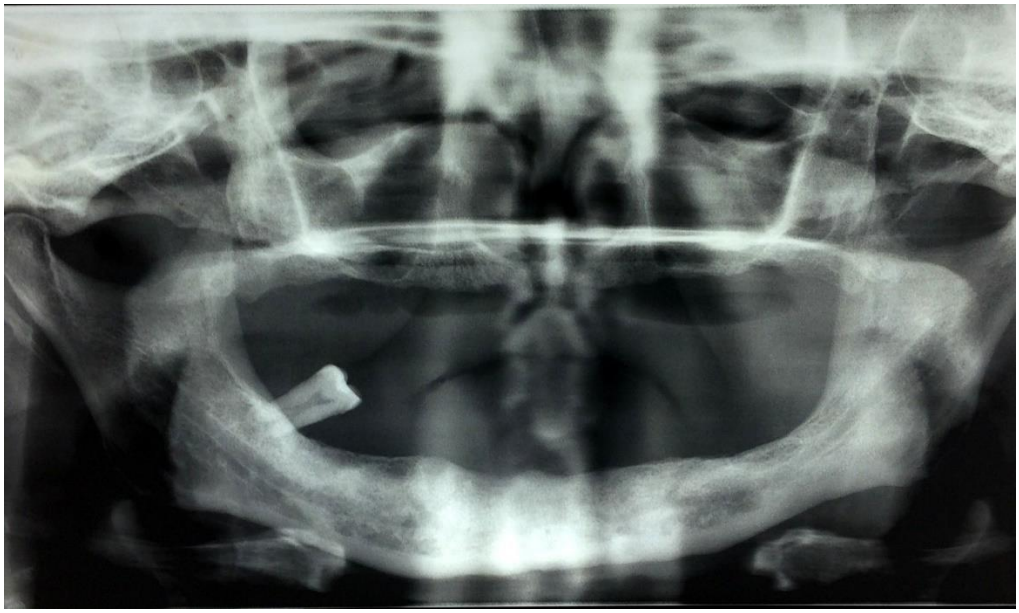

Figure 9: Orthopantamogram of the patient showing no bony tissue changes

So a provisional diagnosis of non-healing extraction socket/acute osteomyelitis was made. All the routine blood examinations were carried out, and an incisional biopsy was done. Histopathological

examination showed few keratin pearl islands with severe neoplastic features, giving a diagnosis of moderately differentiated SCC (Figures 10 and 11). The patient has been advised to undergo surgical treatment for the management of oral cancer.

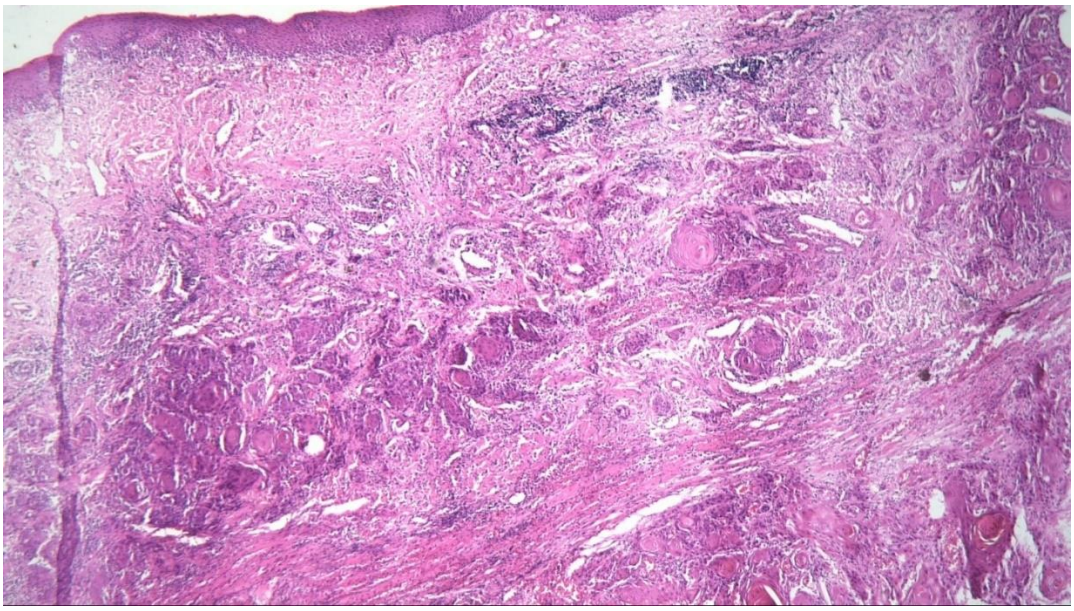

Figure 10: Photomicrograph showing neoplastic epithelial islands deep in to the connective tissue. overlying epithelium with minor dysplastic features can be seen (H&E, 4x)

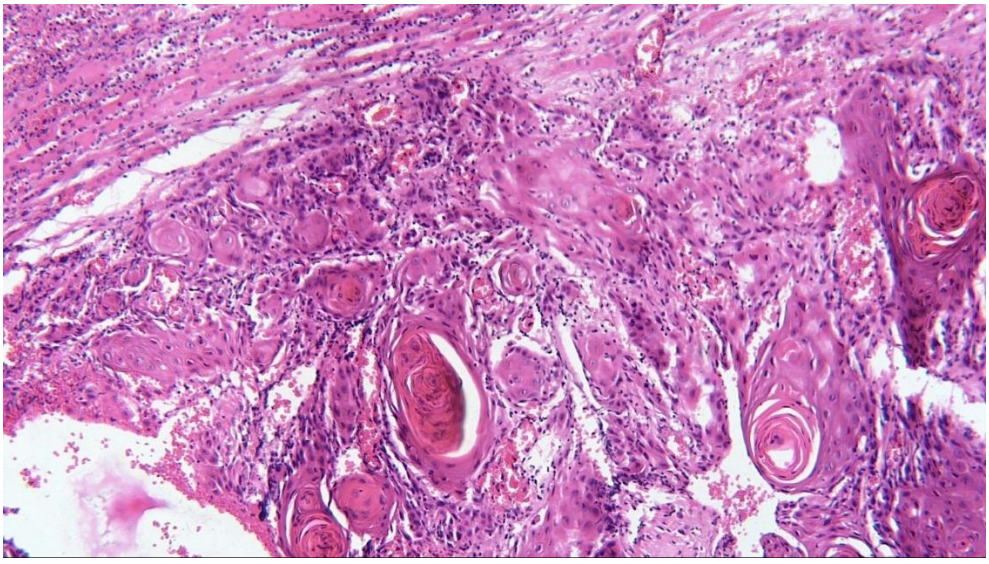

Figure 11 : Photomicrograph showing neoplastic islands of epithelial cells with keratin pearl formation in a background of dense inflammatory cell infiltrate. (H&E, 10x)

## DISCUSSION

Oral cancer, also known as lip and cavity cancer, is now considered a global threat, particularly in developing nations like India. It is currently the 17th most common cancer globally, and while incidence and fatality rates from it are declining globally, they are actually rising in India. Of all the cancer-related deaths in India, oral cancer ranks third and is the leading cause of death for men [8, 9]. The Indian Council of Medical Research's 2021 Report of the Hospital-Based Cancer Registries states that oral cancer would account for 27.2% of all cancer cases anticipated in India [10].

Although OC typically affects older age groups, young individuals are seeing an increased prevalence of OC, according to recent studies [11]. The most common risk factors for OC are alcohol products, which are commonly consumed by the rural populace, especially the underprivileged, as well as tobacco use in various forms, such as cigarettes, beedi, and hookah, as well as smokeless forms, like khaini, gutkha, betel quid with tobacco, and zarda [12]. Tobacco is an important etiological agent for oral cancer. Estimates show that 57% of all men and 11% of women between 15 and 49 years of age use some form of tobacco [13]. These behaviors are a key contributing factor to the disease, take a long time to develop, and are difficult to break [11]. If the risk factors are identified early on, OC is largely avoidable.

It is also important to consider that smokeless tobacco and areca nut usage are bigger problems than smoking for the Indian nation and South Asia. The Indian subcontinent accounts for one-third of the global burden of cancers of the oral cavity and lip. The incidence of OC in Indian towns such as Wardha, Kanyakumari, Trivandrum, Kollam, and Pondicherry ranges from 9.1 to 14.1, which is much higher than the global average [14].

Squamous cell carcinoma is defined as "a malignant epithelial neoplasm exhibiting squamous differentiation as characterized by the formation of keratin and/or the presence of intercellular bridges." . SCC carcinoma of the oral cavity may occur at different sites like the lip, tongue, floor of the mouth, buccal mucosa, gingiva, palate, and maxillary sinus. The lateral border, the ventral surface of the tongue, and the lips are the most frequently affected sites, followed by the floor of the mouth, the gingival, the alveolar mucosa, and the palate [15, 16].
Because they frequently go undetected during standard screening exams and because the tumors are already progressing when signs of regional lymph node metastases are observed, posterior localized tumors have a dismal prognosis [15].

Oral leukoplakia is a white, keratotic, non-scrappable lesion in the oral mucosa that represents the most prevalent precursor lesion of oral SCC [14].

For medical specialists and general dentists, diagnosing early lesions such as carcinoma in situ or microinvasive carcinoma of the oral cavity poses a significant problem. The most common clinical

features are leukoplakia, erythroplakia, or erythroleukoplakia, which can manifest as superficially eroded patches. The aforementioned lesions are asymptomatic, have a tendency to remain unchanged in size, may exhibit surface abnormalities, and are resistant to localized therapies. The lesion may begin as an endophytic growth with a depressed ulcer and grayish-white margins, everted, raised, and indurate borders, and an infiltrated base, or it may form and proceed as an exophytic, irregularly lobulated lesion. Most of the time, lesions are asymptomatic; pain doesn't occur until the illness has progressed to the point where muscles or nerves are invaded [17].
A greater than one-month diagnosis delay may raise the risk of a poor outcome for individuals with head and neck cancer (HNC) and ovarian cancer (OSCC). Additionally, it was shown that in early-stage HNC, treatment delays longer than 40 days were linked to a higher probability of locoregional failure and had an impact on survival [18].

Table 1

| **Differential diagnosis of persistent oral ulcers** [19] |
|---|
| Traumatic ulcer |
| Ulcer from odontogenic infection |
| Major aphthous ulcer |
| Squamous cell carcinoma |
| Ulcer secondary to systemic disease |
| Ulcer in human immunodeficiency virus disease |
| Traumatised tumour that does not usually ulcerate |
| Metastatic tumour |
| Low grade mucoepidermoid tumour |
| Keratoacanthoma |
| Necrotising sialometaplasia |
| Systemic mycosis |
| Chancre |
| Gumma |
| Other Rarities |

Regretfully, despite advancements in diagnosis and therapy, the 5-year survival rate has remained relatively stable at 50–55% over the past 50 years. Early detection is crucial for lowering the death rate from cancer because it enables less invasive and incapacitating therapies to be administered while lesions are smaller. However, stage III or IV oral cavity tumors are nearly always diagnosed too late. The main cause of the majority of OSCC patients' advanced diagnosis when one is eventually made is diagnostic delay [17].So it is the responsibility of the dentist to accurately diagnose OC at the earliest to ensure the survival of the affected individual.

## CONCLUSION

Even with its severity, oral cancer can be avoided if detected early in the disease's progression. Therefore, it is essential that the general public and general dentists get sufficient education on oral cancer, including its diagnostic and preventative techniques. The only method to lower the death rates from mouth cancer is to prevent it by enforcing strict measures against risk factors, particularly chewing tobacco and betel nuts.

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