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RESEARCH ARTICLE
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SQUAMOUS CELL CARCINOMA OF MANDIBULAR ALVEOLUS - A CASE REPORT

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ABSTRACT
Squamous cell carcinoma (OCSCC) of the oral cavity is the most prevalent kind of oral cancer. The use of tobacco products, alcohol, betel quid, areca nut, and mutations in genes are the main risk factors for OCSCC.The research indicates that 9% of all oral carcinomas are OSCCs of the alveolar ridge. Due to its clinical resemblance to other types of inflammatory gingival lesions, it is frequently misinterpreted. It is imperative that the dentist has detailed knowledge of the clinical presentation of this lethal disease, since early diagnosis and fast treatment can reduce the disease's morbidity as well as mortality. Though therapy has advanced technologically, late diagnosis lowers survival; as a result, new therapeutic approaches are always being researched.

Keywords : Betel quid , areca nut , morbidity , mortality , Keratin pearls

INTRODUCTION :
Neoplasia is an abnormal pathological growth of tissues of the body. Tumours can be cancerous (malignant) or noncancerous.Oral cavity cancer (OCC) ranks sixteenth in the globe in terms of malignancy and is classified as head and neck cancer .[1]Based on 890,000 new cases and 450,000 fatalities in 2018, head and neck squamous cell carcinoma is the sixth most frequent cancer globally The incidence of head and neck squamous cell carcinoma is expected to rise by 30%, as it continues to rise that by 2030, 1.08 million additional cases a year.Squamous tissues are the source of more than 90% of tumours of the oral cavity. Thus, it is commonly referred to as oral cavity squamous cell carcinoma(OCSCC).The term "oral cavity squamous cell carcinoma" (OCSCC)

refers to malignant neoplasia that affects the buccal mucosa, floor of the mouth, anterior tongue, alveolar ridges, retromolar trigone, hard palate, and inner region of lips.[2]OCSCC is the most prevalent cancer in the Pacific (Papua New Guinea and Melanesia) and South East Asian (India, Sri Lanka, Pakistan, Bangladesh, and Taiwan) because to the practice of chewing betel nut.

The use of smoke- or smokeless-form tobacco products is one of the contributing factors to the development of OCSCC. Furthermore, the main causes of OCSCC are ignorance, self-negligence, and low socioeconomic status [3]. OCSCC is typically seen in individuals over 40 years as opposed to younger ones. Males are more likely than females to have OCSCC globally, with 5.8 vs. 2.3 cases per 100,000 people [4].The pathophysiology of OCSCC has also been linked to secondary risk factors, including as poor oral hygiene, oral candidiasis, chronic mucosal irritation, high-risk human papillomavirus infections, and nutritional inadequacies[5].

CASE REPORT

A 44-year-old male patient reported to the department of Oral medicine and radiology with the chief complaint of painful ulcer in right lower back tooth region for past 1 month. Patient was apparently normal before 1 month after which he developed a painful ulcer in right lower back tooth region after extraction at the same site. Pain was chronic, sharp pricking type of pain in nature. Patient had the history of tobacco chewing and alcohol consumption for past 10 years. On extra oral examination face was assymetrical , a diffuse swelling was evident on right side of face in the lower third molar region.

Group 2b submandibular lymph nodes in right side were palpable. The tumour extended anteroposteriorly from parasymphysis region to angle of mandible and superiorly from angle of mandible to inferior border of mandible. Surface was smooth. The tumour was soft in consistency and mild tenderness was felt on palpation .On intraoral examination a ulceroproliferative lesion of size 4*4cm in right mandibular alveolus region was seen. The ulcer extended anteriorly from distal region of 45, posteriorly upto retromolar region, inferomedialy involving the floor of mouth and inferolateraly involving the buccal vestibule and 1 cm of buccal mucosa. Edge was everted. Base was indurated . Surrounding area was affected and erythematous. The ulcer was severely tender.

INVESTIGATIONS

CT-NECK revealed a heterogeneously enhancing soft tissue density mass lesion of size 1.5x 1.5 x 2.0 cm (CC x AP x TR) arising from lower gingivo buccal region extending laterally to buccinator and right masseter muscle, posteriorly involving retromolar trigone and medially causing erosion of lateral cortex of ramus and body of right mandible. Subcentimetric level left Ib and bilateral IIb lymph nodes were noted. Enlarged right level Ib lymph nodes of size 1cm were noted.TNM Staging was given as T1N1M0.

With the above clinical findings and investigations, a provisional diagnosis of squamous cell carcinoma of right mandibular alveolus was arrived. Wide local excision with selective neck dissection and marginal mandibulectomy was done under general anaesthesia. The specimen which was excised was sent for further histopathological investigation.

HISTOPATHOLOGICAL REPORT

On histopathological examination, mucosa lined by hyperplastic stratified squamous epithelium with an invasive malignant neoplasm arranged as confluent nests, sheets and trabeculae was seen. The cells have moderately pleomorphic vesicular nuclei, prominent nucleoli and moderate to abundant eosinophilic cytoplasm. Mitotic figures were evident. Individual cell keratinization and keratin pearls were seen. Stroma showed desmoplasia and mixed inflammatory infiltrate composed of lymphocytes and plasma cells. Brisk eosinophilic infiltrate was seen. Perineural invasion was identified. The tumor infiltrated underlying skeletal muscle bundles.Fragments of bony trabeculae

infiltrated focally by malignant tumour were seen. There was no evidence of lymphovascular invasion. Lateral posterior deep soft tissue and medial mucosal margins were free of tumour.

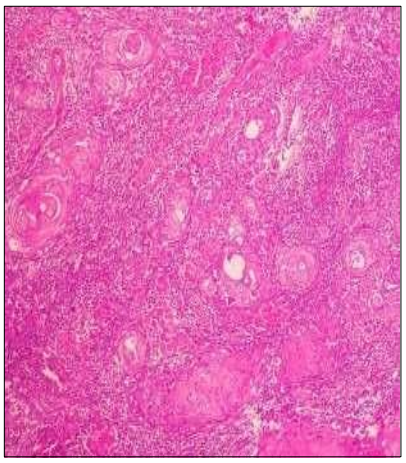

Figure 1 (a) Photomicrograph representing keratin pearls and dysplastic features of cells in 10x view (H&E Stains)

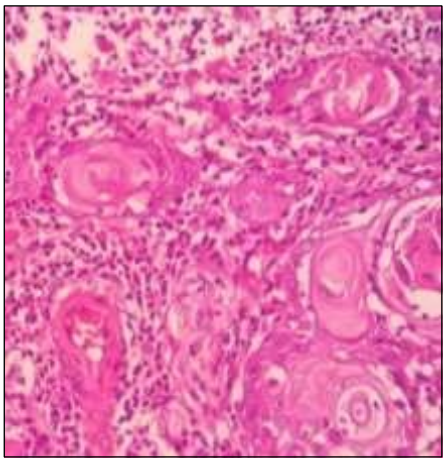

Figure 1 (b) Photomicrograph representing keratin pearls and dysplastic features of cells in 40x view (H&E Stains)

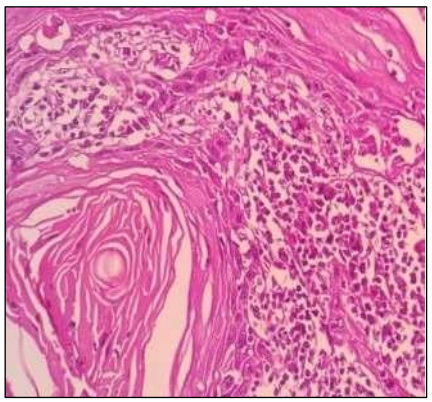

Fig 1 (c) Photomicrograph showing keratin pearls (H&E Stains)

Discussion

The eleventh most common cancer worldwide is oral cancer. [6] Persistent, non-healing ulcers are the predominant clinical manifestation of oral squamous cell carcinomas. The majority of oral cancer cases are linked to tobacco chewing habits and often manifest as premalignant lesions that give a leukoplakia look prior to the malignant stage, yet there have also been a few documented occurrences of non-tobacco-associated squamous cell carcinoma[7]. The mandibular alveolus is the second most often occurring location for carcinoma of the mouth. Men are more likely than women to have OCSCC. Men have reportedly been exposed to behaviours like smoking and chewing tobacco at a higher rate than women.[8]. The ipsilateral cervical lymph nodes are primarily reached by the lymphatics in the metastatic spread of oral SCC [9]. The histopathology of OCSCC includes the neoplastic cells which show multiple mitotic figures, nuclear and cellular pleomorphism, and keratin pearl production. In this case also the cells have moderately pleomorphic vesicular nuclei, prominent nucleoli and moderate to abundant eosinophilic cytoplasm. Mitotic figures were evident. Individual cell keratinization and keratin pearls were seen. The primary treatment for squamous cell carcinoma is surgical excision, which is followed by postoperative adjuvant treatment techniques such as radiation therapy and chemotherapy. When there is a lymph node metastasis., radical neck dissection is frequently necessary. When the bone abnormalities do not extend past the mandibular canal, segmental resection is an option for therapy, and marginal resection if they do beyond the

canal of the mandible. About 78.1% of the mandibular marginal resection group and 72.8% of the segmental resection group had a 5-year cumulative survival rate [10]. Additional advancements in the treatment of cancer included gene therapy, immunotherapy, and laser-based technology (photodynamic therapy) to treat oral squamous cell carcinoma at a much earlier stage [11].

CONCLUSION

The fatal ailment known as oral cavity cancer is associated with risk factors like HPV, alcohol, and tobacco use. The accumulation of mutations is linked to the disease's progression.The patient's survival rate has been challenging to achieve even with recent improvements in therapy. The major causes of low survival rate include drug resistance, delayed diagnosis, and a lack of targeted therapy.Because the clinical presentation of oral squamous cell carcinoma might resemble inflammatory gingival lesions, prompt and accurate diagnosis is crucial. However, there is an increased risk of misdiagnosis. Early diagnosis and prompt treatment plans are the key to increase the survival rate of patients. Therefore, adequate knowledge is necessary for the dentists to diagnose and treat the patients effectively.

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