

## Ackerman Tumor of the jaw:A Destructive Entity?

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### Abstract

Ackerman tumour or Oral verrucous carcinoma, a rare tumour, is a warty variant of squamous cell carcinoma characterized by a predominantly exophytic overgrowth of well-differentiated keratinizing epithelium with specific clinical and histological features and it can be differentiated from squamous cell carcinoma based on their mode of growth, infrequent dysplasia, and absence of metastases.

To describe this entity many names have been used, Florid oral papillomatosis tumor, Buschke-Loewenstein tumor, Epithelioma cuniculatum, and Carcinoma cuniculatum<sup>1</sup>.

A cauliflower-like growth that is painless, grows slowly and locally, is invasive in nature, and is unlikely to metastasize. The commonest site is the buccal mucosa, mandibular alveolar crest, gingiva, and tongue. Lesions on the mandibular ridge or gingiva grow into the overlying soft tissue and become fixed to the periosteum, gradually invading and destroying the mandible.

Verrucous hyperplasia as described by Shear and Pindborg in 1980 has been considered an early stage of verrucous carcinoma and is having the same biological capacity but without the destructive pushing border as its interface with underlying connective tissue.

Verrucous carcinoma has been treated in several ways with surgery, surgery combined with radiotherapy in cases of extensive lesions. In cases in which either irradiation or surgery alone is performed recurrence rate is higher<sup>2</sup>.

This article describes a case of a 50-year-old patient with oral verrucous carcinoma seen in the lower gingivobuccal sulcus and alveolus for the last five months which was non-scrapable, non-tender, with no bleeding on probing, and non-indurated. Incisional biopsy was done and treatment was planned for segmental resection of mandible under GA with nasolabial flap reconstruction.

**Keywords:** -Ackerman tumor, anterior segmental mandibulectomy, nasolabial flap, cauliflower-like growth.

### Case report

A 50-year-old male patient complained of swelling in the anterior region of the mandible for the last five months. The patient stated that he noticed sudden severe mobility of the anterior teeth and painful swelling projections at the lower labial vestibule that interfered with eating.

Extraoral examination showed no significant facial asymmetry or cervical lymphadenopathy. Intraorally, there was papillomatous exophytic growth which was non-scrapable, non-tender, no bleeding on touch, and non-indurated seen in the lower gingivobuccal sulcus and alveolus extending from the right lower canine region to left canine region and the lesion was extending to the floor of the mouth without any interference with the tongue movements. (Figure 1).

Computerized tomography (CT) neck plain revealed proliferative growth along midline mandibular alveolus measuring 30\*20\*13mm suggestive of the malignant neoplastic lesion.

An incisional biopsy was done and revealed a squamous proliferative lesion. Since the clinical presentation was more toward papillomatous squamous cell carcinoma (SCC); a re-biopsy was requested to confirm the diagnosis and came up with squamous papillomatous lesion with dyskeratosis.

Pre-operative planning was done by printing a 3-D stereolithographic model and the patient was posted for segmental resection of the mandible under GA with nasolabial flap reconstruction. Intra-operatively, after infiltration full mouth extraction, was done as the teeth were unsalvageable.

Extra orally, a visor incision was given from one side of the angle to another side of the angle following subplatysmal dissection and exposing the inferior border of the mandible (Figure 4).

Intra-orally, a vestibular incision was given from the right second premolar to the left second premolar. Safe margins were marked measuring 1cm away from the primary tumor. Dissection of the anterior belly of digastric, geniohyoid, and genioglossus was done. Osteotomy sites marked using no. 702 straight fissure bur anterior to mental nerve bilaterally.

Segmental resection was done using a Gigli saw(Figure 3) Reconstruction was done using a Recon plate using a 2.5 mm titanium plate and 2.5 \* 8 mm titanium screws(Figure 4) Anterior belly of digastric,geniohyoid, and genioglossus sutured along with recon plate.

For reconstruction of soft tissue,an intraorally inferiorly based nasolabial flap was taken from left side (Figure 5). Flaptunnelingis done(Figure 6) and sutured intraorally using 3-0 vicryl. Layer-wise closure was done in the donor site (Figure 7). Irrigation is done and a pressure dressing is applied. The specimen was sent for excisional biopsy and the confirmed the incisional biopsy which was verrucous carcinoma (Figure 8). In one year follow up the patient was disease-free with a healthy flap<sup>3</sup>. (Figure 9)

Figure 1- Clinical picture showing papillomatous exophytic growth in the lower anterior mandibular segment.

Figure 2- 3-D printing was done and a stereolithographic model was printed. Pre-treatment planning was done using a reconstruction plate.



Figure 3- Clinical specimen measuring 3.5x3.5 cms (approx.)



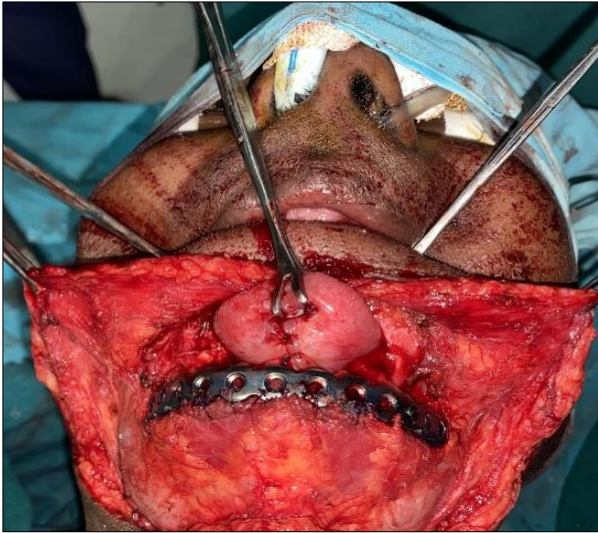


Figure4-Visor incision was given, subplatysmal dissection was done, an intraorally vestibular incision was given, the primary tumor was exposed and resection was done keeping safe margins in hand. Reconstruction was done using a reconstruction plate.



Figure 5-Inferiorly based left nasolabial flap was reflected.



Figure 6- Tunnelling of the nasolabial flap was done for intraoral soft tissue reconstruction.





Figure 7-layer-wise closure was done.

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**GROSS:** Segmental resection specimen of anterior mandibular region received with attached Soft tissue showing papillary surface. The soft tissue is firm in consistency, greyish white in colour with irregular borders measuring about 3.5X2.5cm in diameter.

**PROVISIONAL DIAGNOSIS:** verrucous / papillomatous lesion

**HISTOPATHOLOGICAL REPORT:**

H&E stained section show stratified squamous parakeratinized epithelium with endophytic and exophytic proliferation. Epithelium shows broad pushing rete ridges and parakeratin plugging. Minimal dysplastic features are seen. Underlying connective tissue shows chronic inflammatory cells and small epithelial islands with keratin near the epithelium are evident. Mucous salivary gland acini with excretory duct are also seen. Blood vessels, cross section of muscle fibers and nerve bundles are noted.

**Histopathological Features:** Features are suggestive of  
"Verrucous Carcinoma"

Note: - Close follow up is recommended.

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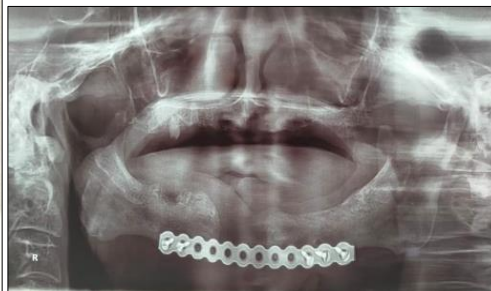


Figure 8 - Post-Operative  
Histopathological biopsy report

Figure 9-Post-Op OPG

## Discussion

Verrucous squamous cell carcinoma, also known as Ackerman's tumor, Buschke-Loewenstein tumor, florid oral papillomatosis, epithelioma cuniculatum, and carcinoma cuniculatum<sup>4</sup>, is a highly differentiated, low-grade squamous cell carcinoma, characterized by an exophytic warty/papillomatous growth<sup>5</sup>. It shows a typical pushing border that has a local invasive pattern with rare regional and distant metastasis<sup>4</sup>. The etiology of VC is immense and not well defined.

OVC has a strong association with alcohol consumption, smoking, areca nut chewing, and oral microbiota. They either have an individual or synergistic effect. Pre-malignant lesions like oral verrucous leukoplakia, oral lichen planus, and OSMF are also majorly involved in the causation of OVC.

Oral microbiota presents a non-ignorable role in oral carcinogenesis through its impacts on the local metabolism of alcohol and smoking-related carcinogens. It was found that 5 bacterial phyla, including Firmicutes, Proteobacteria, Bacteroidetes, Actinobacteria, and Fusobacteria, are associated with oral cancer<sup>6</sup>.

VC often occurs in the buccal mucosa, tongue, lip, gingiva, alveolar ridge, and floor of the mouth. Due to its distinct nature of slow growth and local aggression, it leads to rare and regional or distinct metastasis contributing to a relatively good prognosis<sup>7</sup>.

Based on clinical and pathological features, our diagnosis was outlined. It's characteristic exophytic, cauliflower and slow growth can designate it as verrucous. Pathologically, the presence of rete-pegs to connective tissue in the same depth indicates V.C. As is the case with any disease, proper medical history, and clinical examination can help us in briefly diagnosing verrucous.

In our case, soft and hard tissue reconstruction was acknowledged. For hard tissue reconstruction, a stereolithographic model was made on which a recon plate was adapted. For soft tissue reconstruction, an inferiorly based left nasolabial flap was raised, tunneled, and sutured intraorally in the defect site.

## Conclusion

Verrucous carcinoma of the oral cavity is a rare form of the tumor with aggressive behavior and has been known as a distinctive clinical and pathologic entity. Although based on shreds of evidence its histology is seemingly benign, but follows an insidious clinical course with aggressive local invasion and sometimes lymph node metastasis. The prognosis was found to be prolonged with surgical treatments with patients requiring long-term follow-up.

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