

Ackerman's Tumour of Mouth: Review with Case Reports

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Abstract- Verrucous carcinoma is the uncommon variant of squamous cell carcinoma characterized by exophytic overgrowth. It constitutes 1-10% of cases of squamous cell carcinoma. It is locally invasive with low metastatic potential. It usually occurs in 6th – 7th decade of life. Larynx and oral cavity are the common sites of involvement in head and neck region, with buccal mucosa frequently involved in oral cavity. Tobacco is considered as chief etiological agent in this disease entity. Many treatment modalities are currently available, surgery being the most preferred treatment modality. In this article, we report case series of verrucous carcinoma seen in older female patients who gives history of chronic usage of tobacco along with review of literature.

Index Terms- CARCINOMA, PAPILLARY, PROJECTIONS, TOBACCO, VERRUCOUS

I. INTRODUCTION

Verrucous carcinoma (VC) was first described by Ackerman in 1948 as a distinct clinicopathological entity.¹ It is defined as “A warty variant of squamous cell carcinoma characterized predominantly by exophytic growth of well differentiated keratinising epithelium having minimal atypia and with locally destructive pushing margins at its interface with underlying connective tissue”.² It is also called as Ackerman's tumor, snuff dipper's tumor, buscke Lowenstein tumor, florid oral papillomatosis, epitheliomacuniculatum or carcinoma cuniculatum.³ It is seen at several extraoral sites such as skin, from the breast, axilla, ear canal, soles of feet, vaginal and rectal mucosa.⁴

The mucosal membrane of head and neck are sites of predilection, with oral cavity and larynx being at risk.⁵ Male predilection is seen and usually occurs in 6th- 7th decade of life. Tobacco is considered as one of the major risk factor for verrucous carcinoma of oral cavity.⁷

II. CASE REPORT 1:

A 70 year female patient reported to the department of Oral Medicine and Radiology, SSCDS, Vikarabad with a chief complaint of pain in the upper right back tooth region since 2 months. The patient had paanchewing habit for 20 years. She used to have 2-3 paancontaining betel nut, zarda and slaked lime per day and placed the quid in the right buccal mucosa.

On inspection, a proliferative exophytic growth was seen in maxillary right posterior alveolus and posterior hard palate, of approximately size 3×4 cms. It extended anteroposteriorly from

distal surface of 1st molar to maxillary tuberosity area and mediolaterally from 1.5 cms away from the midpalatine raphe towards the alveolus. Colour was white interspersed with red areas. Surface is rough and pebbly. On palpation, the growth was firm in consistency with rough surface and nontender. Borders were raised, no bleeding / discharge was seen. Lymphnodes were not palpable. Incisional biopsy was performed. Verrucous carcinoma was confirmed histopathologically and patient was sent for surgical excision and was kept under regular follow up.



Figure 1: Verrucous carcinoma of right alveolus and right posterior palate

III. CASE REPORT 2

A 60 year female patient reported to the department of Oral Medicine and Radiology, SSCDS, Vikarabad with a chief complaint of growth in the left side of cheek since two months. The patient had paan chewing habit from the past 30 years. She used 2-3 paan per day containing zarda, slaked lime and betel nut.

On inspection, a diffuse exophytic growth was seen in the left buccal mucosa of approximately 2×2 cms in size at the level of occlusion extending anteroposteriorly 2cms beyond the corner of the mouth to 2cm behind and superoinferiorly 1cm above and below the level of occlusion. Surface appeared to be rough with color same as that of adjacent mucosa interspersed with keratotic areas. On palpation, the surface was rough and raised, borders were well demarcated with induration present in the anterior border, mobile over the underlying structures

A white plaque was seen in the posterior buccal mucosa on left side approximately of size 3×3 cms. Surface appeared to be

rough. On palpation, it was non tender, leathery in texture, firm in consistency, non scrapable.

Incisional biopsy was performed and verrucous carcinoma was confirmed histopathologically. The patient was sent for surgical excision and was kept under regular follow up.



Figure 2: verrucous carcinoma of left buccal mucosa

IV. DISCUSSION

Verrucous carcinoma is a peculiar variant of squamous cell carcinoma, first described by Ackerman in 1948. It has distinct clinical and histopathological features and mode of behaviour. It can be differentiated from squamous cell carcinoma by growth pattern, rare dysplasia and no metastasis.² **Tobacco** - mostly in the chewing form and snuff dipping is considered as the main etiological agent.^{2,6} Human papilloma virus 16 & 18 are thought to be associated with few cases of verrucous carcinoma.⁴ Due to viral carcinogenesis there is suppression or mutation of gene p53, which is responsible for cellular tumor suppression activity.¹⁸ Few cases are also associated with Epstein Barr Virus.^{7,8} According to Sorger & Myrden syphilis, chronic dental infection and plummer-vinson syndrome are considered as predisposing factors.⁹

Verrucous carcinoma shows male predilection attributing to the tobacco usage but can also be seen in elderly females with tobacco chewing habit.² In the oral cavity buccal mucosa is frequently involved followed by gingiva, palate and floor of the mouth.^{2,4} Clinically, it is exophytic, with pebbly or papillary surface. Colour is white interspersed with red areas.² Patients usually complain of pain and inability to eat.⁴ In the initial stage, the neoplasm is soft in consistency but in advanced stages induration may be seen. It is sometimes associated with leukoplakia.¹⁰ Lymph nodes are often tender and enlarged due to inflammation.^{4, 10} Metastasis is infrequent. It should be distinguished from large papillomas, venereal warts, papillary squamous cell carcinoma and inflammatory hyperplasias.¹⁷ Histopathologically, there is an increase in the number of

epithelial cells leading to papillary projections, however there is inward movement of epithelium into connective tissue which leads to formation of wide and elongated rete pegs which are delineated by basement membrane.¹⁰ A chronic inflammatory cell infiltrate is seen in connective tissue.⁴ Epithelium is well differentiated and shows only little mitotic activity and only minor degree of cellular atypia is seen. There is an increase in the amount of keratin production i.e., parakeratin which is filled in the clefts present between the epithelial projections. This parakeratin plugging also extends into the epithelium.^{2,4} The histopathological features are misleading which leads to misdiagnosis as papillomas and benign epithelial hyperplasias.⁴ The diagnosis of verrucous carcinoma is difficult, therefore a second biopsy is usually required.

There are different treatment modalities for verrucous carcinoma which includes Surgery, Radiotherapy, Chemotherapy, Cryotherapy, Laser therapy, Photodynamic therapy and using Recombinant Interferon. Surgical excision is usually preferred.⁶

Surgery: Mohs micro-surgery is the treatment of choice. National Cancer Data Base report stated that 5 year survival rate of patients treated by surgery is 85% whereas those treated with radiotherapy showed only 42%.¹¹ Therefore, surgery is preferable treatment for verrucous carcinoma. If the lesion is present on gingival or alveolar mucosa, the excision should also involve the underlying bone.

Radiotherapy: Considerable controversies are present in the literature regarding the treatment of VC by radiotherapy. According to Perez and co-workers, 47% patients treated with radiotherapy showed anaplastic transformation.¹² Hence, the lesion is less radiosensitive.

Laser therapy: CO₂ Laser can be used to treat VC. The main advantage of LASER therapy is that, the lymphatic vessels are sealed¹³ which may prevent metastasis.¹⁴

Cryosurgery: The use of extreme temperatures to destroy the abnormal tissue is called as cryosurgery. It is used extensively to treat skin lesions. Cryosurgery is not used frequently to treat oral mucosa.⁶

Photodynamic therapy: Here, the photosensitising compound is used which is activated at specific wavelength of light to destroy the targeted cell via strong oxidizers, which cause cellular damage, membrane lysis and protein inactivation. It is effective to treat head and neck cancers and premalignant lesions.⁶

Interferon: It reduces the production of fibroblast growth factor (FGF) which is responsible for neoangiogenesis in tumors. But, the treatment takes longer time.⁶ The side effects are flu like symptoms and fatigue.¹⁵

Chemotherapy: Bleomycin can be used as an adjunct to other treatment modalities as it reduces the size of the tumor.¹⁶

Prognosis and recurrence: It has excellent prognosis because of its slow growth and lack of metastasis.⁶ According to Alper et al, local recurrence rate is 57%. Hence, long term follow ups are required.

V. CONCLUSION

Although verrucous carcinoma shows male predilection, it can also occur in female patients who are chronic tobacco

chewers. A thorough knowledge about the clinical and histopathological features of verrucous carcinoma is required to diagnose it at the early stages as there are high chances of it transforming into squamous cell carcinoma. In depth sectioning of the lesion has to be done for prompt histopathological diagnosis. Surgery stands as the first line treatment, with radiotherapy and chemotherapy being only adjunctive therapeutic modalities. Early diagnosis, proper treatment protocol of conservative excision and regular follow helps in the prognosis.

REFERENCES

- [1] Ackerman LV. Verrucous carcinoma of the oral cavity. *Surgery* 1948; 23: 670.
- [2] Neville, Damm, Allen, Bouquot, Oral and maxillofacial pathology 3rd edn, Saunders. pp 388- 397, 422- 423.
- [3] Schwartz RA. Verrucous carcinoma of the skin & mucosa. *J Am Acad Dermatol* 1995;32:1-21.
- [4] Shafer Textbook of Oral Pathology. 6th edition. Chennai: Elsevier India; 2009.
- [5] Bataakis JG, Hybels R, Crissman JD, Rice DH. The pathology of head and neck tumors: verrucous carcinoma. Part 15. *Head Neck Surg* 1982; 5: 29.
- [6] Shoaib R Tippu, Farzan Rahman, Dinesh Pilia. Verrucous carcinoma: A Review of the Literature with Emphasis on Treatment Options. *Indian J Stomatol* 2012; 3(1): 22-26.
- [7] Kannan A, Sumathy C, Jayanth Kumar V, Anitha B, Koteswaran D. Verrucous Carcinoma- Now and Then. *Annals and Essences of Dentistry* 2012; 4(3): 39-41.
- [8] Bagan J, Scully C, Jimenez Y, Martorell M. Proliferative verrucous leukoplakia: a concise update. *Oral diseases* 2010; 16:328-32.
- [9] Sorger, K. & Myrden, J. A. (1960). Verrucous carcinoma of the buccal mucosa in tobacco chewers. *Canadian Medical Association Journal* 83, 1413- 1417.
- [10] Selwyn Jacobson, Mervyn Shear. Verrucous carcinoma of the mouth. *J Oral Path* 1972; 1: 66-75.
- [11] Koch BD, Trask DK, Hoffman HT, Karnell LH, Robinson RA, Zhen W, et al. National Survey of head and neck verrucous carcinoma. Patterns of presentation, care and outcome. *Cancer* 2001 Jul 1; 92(1):110-20.
- [12] Perez CA, Kraus FT, Evans JC, Powers WE. Anaplastic transformation in verrucous carcinoma of the oral cavity after radiation therapy. *Radiology* 1996 Jan; 86(1):108-15.
- [13] Heinzerling LM, Kempf W, Kamarashev J, Hafner J, Nestle FO. Treatment of verrucous carcinoma with imiquimod and CO2 laser ablation. *Dermatology* 2003; 207(1):119-22.
- [14] Apfelberg DB, Maser MR, Lash H, Druker D. CO2 laser resection of giant perineal condyloma and verrucous carcinoma. *Ann Plastic Surg* 1983 Nov; 11(5):417-22.
- [15] De Lange J, van den Akker HP, van den Berg H. Central giant cell granuloma of the jaw: a review. *Oral Surg Oral Med Oral Radiol Endod* 2007 Nov; 104(5):603-15.
- [16] Rocco R, Addante, Samuel J. McKenna, Verrucous Carcinoma, Oral Maxillofacial Surg Clin N Am, 2006; 18: 513-19.
- [17] Alper Alkana Alper, Bultutb Emel et al. Oral Verrucous Carcinoma: A Study of 12 cases. *European J of Dentistry* 2010; 4: 203.
- [18] Lübke J, Kormann A, Adams V et al. HPV-11 and HPV-16 - Associated oral verrucous carcinoma. *Dermatology*. 1996; 192:217-21.

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