

### Case Report

## APPLICATION OF BUCCAL FAT PAD AS PEDICLED GRAFT FOR RECONSTRUCTION OF SURGICAL DEFECT IN A CASE OF ORAL VERRUCOUS CARCINOMA– CASE REPORT AND REVIEW

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### ABSTRACT

Buccal fat pad (BFP) has been used clinically for various applications as pedicled graft including closure of oronasal and/or oroantral communication and for malar augmentation in Down's syndrome (Jacobson and Sheer, 1972). Histologically, buccal fat is similar to orbital fat and helps in motion of the masticatory muscles and maintaining the shape of the face. The size of the buccal fat pad is usually constant regardless of the size of individuals. Oral Verrucous Carcinoma (OVC) is a rare variant of oral Squamous Cell Carcinoma which was first described by Ackermann as a neoplasm of oral mucous membrane, now also known as Verrucous carcinoma of Ackermann'' or ''Ackermann's tumor'' (Ackerman, 1948). It is most commonly seen in oral cavity apart from other sites including larynx, pyriform sinus, oesophagus, nasal cavity, paranasal sinuses, external auditory meatus, lacrimal duct, skin, scrotum, penis, vulva, vagina, uterine cervix, perineum and the leg (Spiro, 1998; Ferlito and Reher, 1980). Verrucous carcinoma has a higher predilection to be seen in males over the sixth decade of life. Oral Verrucous carcinoma is slow growing with ability to become locally aggressive if not treated appropriately, however, with rare distant metastasis (Oliveira *et al.*, 2006). Predominantly being a squamous mucosal lesion, verrucous carcinoma may also be found on cutaneous surfaces, including upper aerodigestive tract, the genitalia or on extremities. Wherever the site of occurrence may be they are clinically same slow growing, locally invasive and non metastasizing neoplasm (Bataakis *et al.*, 1982). We describe a case of verrucous carcinoma of buccal mucosa surgically excised and defect closed with buccal pad of fat, with excellent post operative results.

**Keywords:** Oral Verrucous Carcinoma

### INTRODUCTION

Buccal fat pad (BFP) has been used clinically for various applications as pedicled graft including closure of oronasal and/or oroantral communication and for malar augmentation in Down's syndrome (Jacobson and Sheer, 1972). Histologically, buccal fat is similar to orbital fat and helps in motion of the masticatory muscles and maintaining the shape of the face. The size of the buccal fat pad is usually constant regardless of the size of individuals. Oral Verrucous Carcinoma (OVC) is a rare variant of oral Squamous Cell Carcinoma which was first described by Ackermann as a neoplasm of oral mucous membrane, now also known as Verrucous carcinoma of Ackermann'' or ''Ackermann's tumor'' (Ackerman, 1948). It is most commonly seen in oral cavity apart from other sites including larynx, pyriform sinus, oesophagus, nasal cavity, paranasal sinuses, external auditory meatus, lacrimal duct, skin, scrotum, penis, vulva, vagina, uterine cervix, perineum and the leg (Spiro, 1998; Ferlito and Reher, 1980). Verrucous carcinoma has a higher predilection to be seen in males over the sixth decade of life. Oral Verrucous carcinoma is slow growing with ability to become locally aggressive if not treated appropriately, however, with rare distant metastasis (Oliveira *et al.*, 2006). Predominantly being a squamous mucosal lesion, verrucous carcinoma may also be found on cutaneous surfaces, including upper aerodigestive tract, the genitalia or on extremities. Wherever the site of occurrence may be they are clinically same slow growing, locally invasive and non metastasizing neoplasm (Bataakis *et al.*, 1982). We describe a case of verrucous

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carcinoma of buccal mucosa surgically excised and defect closed with buccal pad of fat, with excellent post operative results.

### **CASES**

A 65 year old female patient presented to the department of oral and maxillofacial surgery at our centre with a chief complaint of proliferative painless growth on left buccal mucosa for a period of one year. Intraoral examination revealed a thick, white cauliflower like growth on left buccal mucosa (figure 1) approximately 5cm × 5cm of size its greatest dimensions. The growth was non tender, non friable and well defined with raised margins, with no history of trauma, trismus, oral bleeding, dysphagia or pain. Regional lymph nodes were non palpable and non tender. Patient gives a history of tobacco chewing since approximately 40 years. Incisional biopsy was performed which yielded a diagnosis of oral Verrucous carcinoma following which surgical excision of the lesion was planned. General anesthesia with nasoendotracheal intubation was achieved and wide excision with safe oncological margins of the lesion was performed. Surgical defect was reconstructed with pedicled buccal fat pad which was harvested (figure 2) and sutured to the surrounding mucosa (figure 3) with excellent post operative healing. The post-operative histopathological examination of the specimen revealed typical features of verrucous carcinoma depicting swollen and voluminous rete pigs extending into deeper tissues lacking cytological atypia. One year follow-up of the patient showed excellent healing and no signs of recurrence.



**Figure 1: White cauliflower like growth on left buccal mucosa**



**Figure 2: Surgical defect reconstructed with pedicled buccal fat pad**

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**Figure 3: Primary closure with buccal fat pad**

### DISCUSSION

Buccal fat pad was first described as glandular in nature and termed as glandula molaris, until in later studies its true fatty nature was described. The buccal fat pad is a rounded, encapsulated, biconvex structure located inside the masticatory spaces. Verrucous carcinoma is a form of well differentiated squamous cell carcinoma that exhibits a characteristic histopathologic picture and clinical behaviour. The tumor although locally destructive, penetrates into the underlying connective tissue with blunt and well defined borders. The tumor is slow growing and spreads mainly by lateral extension with lack of ability to metastasize. It is an uncommon variant of oral squamous cell carcinoma representing only a small percentage of intraoral carcinomas (Elliott *et al.*, 1973). Most but not all affected persons have habit of using tobacco in some form. The tumor is most commonly seen in the sixth to eighth decades of life, predominantly in men. The macroscopic appearance depends on duration of lesion, degree of keratinisation and the changes in adjacent mucosa. The fully developed verrucous carcinoma appears as an exophytic, gray to red lesion with a rough, papillomatous surface with fine, finger like surface projections (Mehta and Hammer, 1983). Verrucous carcinoma exhibits a distinctive cellular kinetics with a thick zone of non-proliferating, non keratinizing cells between the basal germinative layers of normal squamous mucosa, lacking the S-phase cells (Jacobson and Sheer, 1972), non-verrucous squamous cell carcinoma on the other hand manifests S-phase cells distribution throughout non keratinized zones (Sundstrom *et al.*, 1982). Most lesions occur on buccal mucosa, vestibule or alveolus where the tobacco is usually placed, typically appearing as a thick white cauliflower like growth. In the oral cavity, verrucous carcinoma constitutes 2 to 4.5 % of all forms of squamous cell carcinomas (Jacobson and Sheer, 1972) seen mainly in males in 5<sup>th</sup> decade and above age and having a close connection with use of tobacco in some form. The basement membrane is typically intact and the cells are very well differentiated. It is not uncommon to find focal areas of invasive squamous cell carcinoma within the excised specimen, and patients should be prepared for this eventuality. Human papilloma virus has been identified in cells of Verrucous, but its significance is undetermined. There are reports in literature concerning 'anaplastic transformation' of verrucous carcinoma following irradiation therapy, a small proportion of verrucous carcinomas reportedly changing their biological behaviour from low grade locally destructive lesion to a highly malignant, metastasizing and fatal tumor (Fonta *et al.*, 1969; Kraus and Perez, 1966; Perez *et al.*, 1966). Because of this reported incidence of anaplastic transformation, many authors recommend wide field surgical resection with good oncologic clearance as preferred treatment modality. Verrucous carcinoma has excellent prognosis with surgical treatment owing to its slow growth and gravity with which it metastasizes to regional lymph nodes (Mehta and Hammer, 1983), however in later stages it may involve adjacent tissues. Although it is a rare occurrence, metastasis from OVC has been reported (Ackerman, 1948; Duckworth, 1961). One of the important considerations in treatment planning for OVC is the need for neck dissection, as the aggressive clinical presentation of the tumor may sway clinical judgment in

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favour of performing lymph node dissection for squamous differentiation. However, data from different studies suggests that lymph node dissection in OVC should be confined to immediately adjacent lymph node groups only. Incidence of pathological bony involvement in OVC is found to be low (Oliveira *et al.*, 2006; Rajendran *et al.*, 1989) favouring more conservative surgical options.

### Conclusion

OVC have an excellent prognosis with wide surgical excision. OVC are most commonly seen within the buccal mucosa; however OVC involving the hard palate and upper alveolus are also reported, and found to be more aggressive. If the pathological diagnosis is uncertain, it is reasonable to consider neck dissection if there is presence of cervical lymphadenopathy. The presence of leukoplakia or SMF in addition to OVC could indicate a predisposition for multi-centricity, “field cancerization”, and higher local recurrence making a stronger argument for prolonged close follow up in these patients. The easy mobilization of the buccal fat pad and its excellent blood supply and minimal donor site morbidity make it an ideal flap.

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