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RESEARCH ARTICLE

BUCCAL FAT PAD IN CLOSURE OF SURGICAL DEFECT FOLLOWING EXCISION OF SQUAMOUS CELL CARCINOMA OF BUCCAL MUCOSA

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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. Squamous cell carcinoma is the most common malignant neoplasm of the oral cavity, usually affecting individuals over 50 years of age. It rarely occurs in patients who are less than 40 years old (1 to 6%).We describe a case of squamous cell carcinoma of buccal mucosa surgically excised and defect closed with buccal pad of fat, with excellent post operative results.

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INTRODUCTION

Adjusting the actual anatomy with proper function is often obliterated after surgery. In oral cavity reconstruction is often required due to resection for cystic lesion or malignancy. Reconstruction with buccal fat pad (BFP) can be considered for its availability and restoring capacity. There are multiple reconstructive materials or different flaps to maintain speech, facial expression, articulation and deglutition. Immediate repair during malignant lesion resection was not appreciated due to monitoring of recurrence. However, there are no relevance between recurrence and reconstruction yet (Amin, 2005). BFP is durable, easy to harvest and can be considered in settings where access to free flaps are limited and in cases where previous flaps have failed.

Anatomy

The buccal fat pad (Bichat's fat pad) has a complex relationship to the facial structures. It has 4 parts divided by the parotid duct and facial nerve and vein into anterior and posterior portions possibly named by buccal, pterygoid, superficial temporal and deep temporal part. The main body lies on the anterior border of the masseter muscle and extends deeply to lie on the posterior maxilla and forward along the buccal vestibule.

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The parotid duct and zygomatic and buccal branches of the facial nerve cross the lateral surface of the fat pad. The buccal extension, which accounts for about half the total weight, lies superficially within the cheek and is largely responsible for the contour of the cheek. The pterygoid and temporal extensions are smaller and situated more deeply. The buccal extension is more appropriate for grafting. Moreover, the buccal extension and main body together constitutes 55%–70% of total weight. The parotid duct courses with the buccal branches of the facial nerve anteriorly (superficial), and on the lateral surface of the BFP, it penetrates the buccinators muscles, entering the oral cavity opposite the second molar. The facial vessels are in the same plane and mark the anterior extent of the BFP. The fat pad varies through the human's lifetime though it's average volume is 9.6 mL with a range of 8.33 mL–11.9 mL. It is attached by 6 ligaments to the maxilla, posterior zygoma, inner and outer rims of the infraorbital fissure, temporalis tendon, and buccinator membrane (Stuzin, 1990; Dubin, 1989; Vuillemin, 1988; Tideman, 1986). It has numerous presumed functions including suckling, contributing to mastication, protection and cushioning of neurovascular bundles, separating the muscles of mastication from one another, and aesthetics, amongst others (Racz, 1989). The first description was made by Heister in 1732 and later in 1802 by a Frenchman Bichat. Scammon and Goughran described the detail anatomy of BFP first. Then over two centuries the application of BFP was not highlighted. Later in 1977 Egyedi was the first to report the successful clinical use of the buccal fat pad. They used BFP as a pedicle graft, lined with a split thickness skin

graft, for the closure of persistent oroantral and oronasal defects in four patients after resection of tumors (Egyedi, 1977).

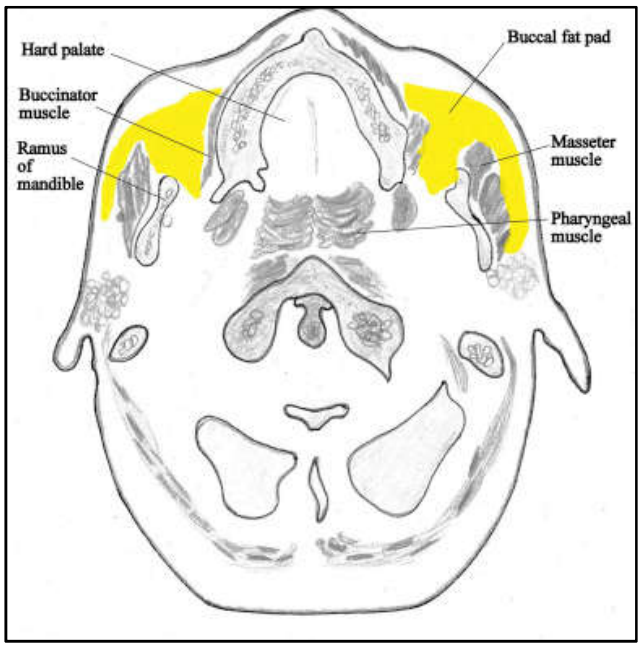

Figure 1. Anatomic position of BFP

Case Report

A 57 year old male patient presented to our clinic with a chief complaint of ulcer on right buccal mucosa for a period of one month. Intraoral examination revealed a thick, white, round shaped ulcerative growth on right buccal mucosa approximately 1.5cm × 1.5cm of size in its greatest dimension. The lesion was tender, non friable and well defined with raised margins, with no history of trismus, oral bleeding or dysphagia. Right submandibular lymph nodes were palpable and non tender. Patient gives a history of smoking cigarette since approximately 15 years. He was wearing a complete denture for the past 19 years. The patient is a known diabetic since 7 years and is on medication for the same. Incisional biopsy was performed which yielded a diagnosis of well differentiated squamous cell carcinoma following which surgical excision of the lesion along with supra omohyoid neck dissection and reconstruction with buccal fat pad was planned. General anesthesia with nasoendotracheal intubation was achieved and wide excision with safe oncological margins of the lesion was performed.

Figure 2. Lesion in the right buccal mucosa

Figure 3. Marking for Safe Oncological Margins

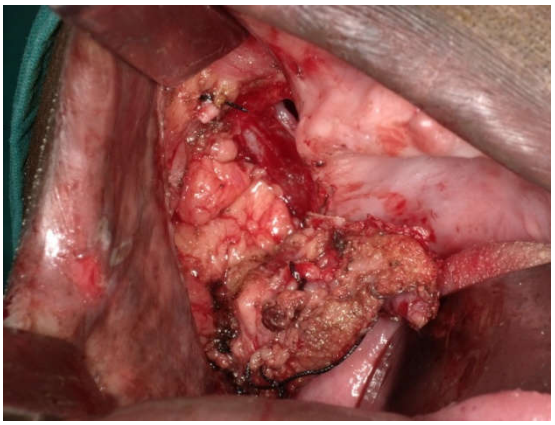

Figure 4. Wide excision of lesion and Surgical Defect

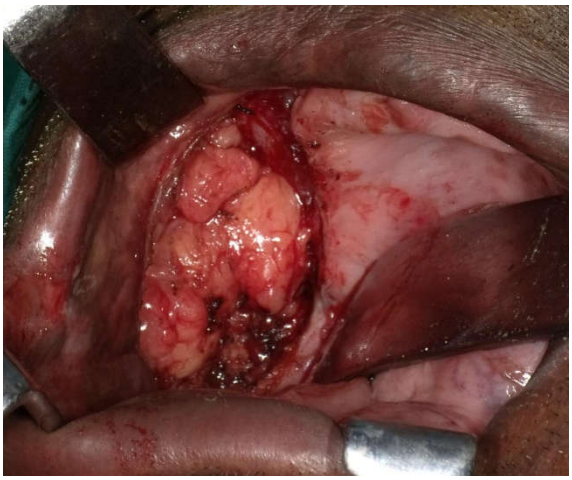

Figure 5. Harvesting of buccal fat pad

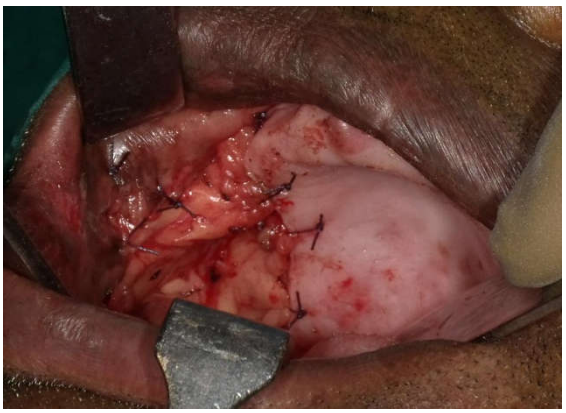

Figure 7. Buccal fat Pad sutured to the adjacent mucosa

Figure 7- 2 weeks post op

Figure 7- 1 Month Follow up

A submandibular incision was given and supra omohyoid neck dissection of level I, II and III lymph nodes was performed. Surgical defect was reconstructed with pedicled buccal fat pad which was harvested and sutured to the surrounding mucosa. The post-operative histopathological examination of the specimen revealed ulceration with superficially invasive squamous cell carcinoma invading the underlying stroma along with inflammatory reaction.

All the margins were free of neoplasm. The lymph nodes revealed reactive changes but were free of metastasis. The patient is being followed up on a regular basis. We had started aggressive physiotherapy for mouth opening 1 week post operatively.

Conclusion

We would like to conclude by stating that buccal fat pad is a safe and effective interposition graft material with advantages for correction of any small to medium surgical defects in intra oral region. The surgeon needs to be skilled to harvest and mobilize the adequate volume of the fat and suture it to the adjacent mucosa. 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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