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Short Communication

Use of buccal fat pad flap for premalignant buccal mucosa defect reconstruction

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ABSTRACT

Premalignant lesions over buccal mucosa are very common in India, some of these lesions require excision leaving behind defects and various techniques can be used in reconstruction of these defects. Small palatal defect, oroantral fistulas have been successfully closed by buccal pad of fat flap. Aim of this study was to evaluate reconstruction of defects after excision of premalignant lesion over buccal mucosa using buccal pad of fat. 20 patients were selected for this study who presented with different premalignant lesions like erythroplakia, proliferative verrucous leukoplakia, chronic hyperplastic candidiasis, Oral submucous fibrosis over buccal mucosa in Dr. DY Patil medical college surgery unit 4 and 7. Excision of lesion followed by reconstruction with buccal pad of fat was done. Patients were followed up every 14 days for 14 weeks, and was evaluated for epithelisation of flap and post-operative complications like infection and flap necrosis and also the functionality of the flap. In this study we have observed complete epithelisation of the flap in most of our patients. Dehiscence of the wound was observed in 3 of the patients with large defects (>4×5 cm). No postoperative morbidity was in postoperative patients. Buccal pad of fat is an excellent technique for reconstruction of small defects of buccal mucosa. It is a reliable and a fast method which has easy accessibility less complications and minimal morbidity.

Keywords: Buccal pad of fat, Buccal mucosa reconstruction, Premalignant lesions of oral cavity

INTRODUCTION

The common most premalignant oral lesions are oral erythroplakia, oral submucous fibrosis (OSMF), and oral leucoplakia.[1] While tobacco chewing is a major risk factor for oral leukoplakia, OSMF, and erythroplakia, tobacco smoking may be a risk factor for oral leukoplakia. Buccal mucosa malignancies are less aggressive when compared to other oral cavity cancers. For locally advanced disease we require major reconstructions but after excision of premalignant lesions which leave a defect, free flaps, skin grafting or regional flap can be used for its reconstruction.[2] Buccal pad of fat is an example of these various techniques which is used successfully in reconstructing small palatal defects and closing the oroantral fistula.[3]

The aim of this study was to evaluate the success of reconstruction of defects following excision of the small to medium premalignant lesions of buccal mucosa using buccal pad of fat.

METHODS

This observational study conducted in 20 patients who came to the surgery outpatient department in DY Patil medical college from October 2020 to April 2020. The inclusion criteria of these patients were confirmed cases of premalignant lesion of the buccal mucosa by biopsy between the age of 30 to 70 years. The exclusion criteria included patient with previous surgeries, or previously treated with radiotherapy for oral lesions and large lesions which would have defect more than 6×6 cm post

excision. Clearance was obtained from the institutional committee of ethics before starting the study. After detailed explanation of the procedure and post op complications written consent was taken After institutional ethical committee clearance the study was started. Patient were taken for wide local excision and covering of the bare area with buccal pad of fat after all investigations under general anaesthesia. Statistical Methods used were descriptive statistical tools like percentage.

Surgical technique

Primary lesion is excised and the bare area is covered with buccal pad of fat by mobilising it with blunt dissection using a vascular forceps from the cranial side of the defect. Careful dissection should be done to avoid damaging its blood supply within its thin capsule.

Mechanical suction is avoided once the buccal fat pad is exposed. Using 3-0 Vicryl mucosal edges and the buccal fat pad are sutured without tension. No intraoperative complications.

IV antibiotics covering gram negative and gram-positive bacteria and nasogastric tube feeds were given for a period of 5 days post operatively. For rinsing of oral cavity post operatively gentle chlorhexidine mouth washes were encouraged. Evaluation of the flap was done on a daily basis in the week and on a weekly basis for the next 5 weeks. After 2 weeks all patients were encouraged to do mouth opening exercises.

Figure 1: Post lesion excision defect covered with buccal pad of fat.

RESULTS

The maximum dimension of the defect reconstructed in this study was between the range of 2 to 5 cm.

Table 1: Results.

Diagnosis	Size of the defect (cm)	Complication
Leukoplakia	3×4	No complication
Erythroplakia	4×5	No complication
Verrucous leukoplakia	5×5	Necrosis of pad of fat
Oral sub mucous fibrosis	3×2	No complication
Erythroplakia	5×3	No complication
Leukoplakia	2×4	No complication
Leukoplakia	3×4	Partial necrosis of pad of fat
Oral sub mucous fibrosis	2×3	No complication
Erythroplakia	4×2	No complication
Oral sub mucous fibrosis	3×2	No complication
Erythroplakia	3×2	No complication
Leukoplakia	4×2	No complication
Oral sub mucous fibrosis	4×5	Partial necrosis of pad of fat
Chronic candidiasis	3×2	No complication
Verrucous leukoplakia	2×5	No complication
Erythroplakia	2×2	No complication
Oral sub mucous fibrosis	4×3	Partial necrosis of pad of fat
Leukoplakia	4×3	No complication
Erythroplakia	2×2	No complication
Leukoplakia	4×3	No complication

Table 2: Percentage of complications.

Variables	Patients with no complications	Patients with partial necrosis of flap	Patients with total necrosis of flap
Number of patients	16	3	1
Percentage of patients (%)	80	15	5

Postoperative epithelisation of the graft started by 1 week and was completed by 5-6 weeks except in 4 patients with larger defect who developed partial wound dehiscence on 4th to 5th postoperative day which was treated conservatively which resulted in complete epithelisation by end of 8-10 weeks except in one patient with complete necrosis who required regrafting.

Patients were followed up for 14 weeks and it was found that the graft was completely epithelised with no difficulty in chewing food or mouth opening or any donor site morbidity.

Figure 2: Complete epithelialisation.

Figure 3: No restriction in mouth opening of graft.

DISCUSSION

Buccal pad of fat has been described by Bichat as an anatomic element in 1802 which was first mentioned by Heister in 1732. In French buccal pad of fat is commonly referred to as boule de Bichat.[3]

Flap closure was used to fill Postsurgical defects of maxilla by Egyedi in 1977 and he was the first to use this flap. In 1986, Tideman reported the use of buccal pad of fat as a pedicled flap and its complete healing without the requirement of skin graft.[4] For many years the BPF had its limited clinical importance as it was encountered in many surgeries of pterygomaxillary space or the maxillofacial region.[4]

Buccal pad of fat is a simple lobulated mass of fat with the following parts a body and 4 extensions namely temporal, pterygoid, buccal and pterygopalatine. 55-70% of the total weight is formed by the body and the extensions. These 4 extensions of BPF lie superficial to the body, body lies deep and along the posterior maxilla and upper fibres of the buccinator and a thin capsule covers it. A part of the cheek contour is formed by the buccal extension and it lies superficial. The pterygopalatine extension is situated in the pterygopalatine fossa, the pterygoid and the temporal extension lie in the pterygomandibular space and the deep temporal fascia respectively. Each of the extensions are covered with their own capsule and are anchored by the ligaments with the surrounding structures.[4]

Laterally buccal pad of fat is related to the parotid duct and buccal branch of the facial nerve, runs superficially on its surface. The anterior extent of the buccal pad of fat is marked by the facial vessels in the same plane.[3]

Buccal and temporal branches of maxillary artery, the facial artery and the transverse branches of superficial temporal artery make a sub- scapular plexus and provides the blood supply of buccal pad of fat. The reason for the success of buccal pad fat as a pedicled graft is its rich vascularity and blood supply. The surface area which a BPF can cover is 10 cm^2 with a thickness of 6 mm and has an average volume of 10 cm^3 that's an average of 9.6 ml.[5]

Syssacosis is a specialised type of fat with the following functions, protection of neurovascular bundles, preventing negative pressure while suckling in new born, separating masticator muscle from one and another and from the adjacent bone and thereby enhancing the inter muscular motion.[3]

Buccal pad of fat is a versatile flap and most commonly it is used in reconstructive procedures such as reconstruction of oroantral fistula and closure of post excision defects and temporomandibular joints (TMJ) reconstruction, etc.[5]

Ho published an article in 1989 on reconstruction and palatal and cheek defects with buccal pad of fat flap showed that the size of the defect is the main factor. Various studies show that a defect more the 4×4×3 cm in the maxilla are showing partial dehiscence due to lesser vascularity and due to the stretching of the flap. But the flaps used to reconstruct buccal and retromandibular defect 7×5×2 cm was successful owing to its rich vascularity in the underlying bed of muscles.[4]

In the present study patient's epithelisation with proper healing was seen in most of the patients, epithelisation

started after 1 week and was completed by the end of 4 to 5 week with minimal fibrosis.

Histologically, the fat layer being replaced by granulation tissue within 2 weeks which was eventually covered by stratified squamous epithelium migrating from the margins, which has been proved by a study.[6]

Reconstruction of defects by mobilisation of buccal pad of fat are highly successful and complications are extremely rare. In some cases, partial necrosis is the reason for flap failures. In small dehiscence are to be treated conservatively for spontaneous closure to occur. Revision surgeries that can be done are reconstructions with contralateral buccal fat flaps, buccal flaps or palatal flaps. Trismus is noticed in some cases due to scarring and fibrosis when it is used for reconstruction of retromolar trigone and buccal mucosa. Mobility of the TMJ joint and mouth opening should be noted before and after reconstruction with buccal pad of fat flap, as the morbidity and failure rate are low in buccal pad of fat flaps and can be used for simple reconstructions such as maxillary reconstructions in a set of carefully selected patients.[5]

CONCLUSION

This is an excellent technique for reconstruction of small to medium sized buccal mucosa defects with fewer complications, easy accessibility, reliable, fast and with minimal donor site morbidity. As seen in this study this technique can be conveniently used for reconstructions of defect created post excision of pre-malignant lesions of buccal mucosa.

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