

Case report

Reconstruction of oral mucosal defect with Oven Dried Human Amniotic Membrane graft: A case report

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Abstract

A case of premalignant lesion- leukoplakia of the left buccal mucosa, was excised and defect was reconstructed with human amniotic membrane graft. We evaluated the effectiveness of HAM as a grafting material for the reconstruction of oral mucosal defect after surgical excision of leukoplakia. After 4 weeks of grafting procedure, mucosal defect was restored successfully without any complications.

Keywords: Leukoplakia, Buccal mucosal defect, Human amniotic membrane.

Introduction

Leukoplakia is a potential premalignant condition of oral cavity. Precursor lesions, particularly leukoplakia, precede a substantial percentage of oral cancer. It is usually treated by surgical excision with a healthy margin. In case of a large mucosal defect after excision of any benign or malignant soft tissue lesion, reconstruction is mandatory phenomena. A number of surgical procedures have been advocated for the reconstruction of oral cavity defects after ablative surgery, including primary closure, buccal mucosal graft, split thickness skin graft, buccal pad of fat, allogenic graft, regional rotational flap and distant flap¹. The choice is based on type and size of the defect. Local closure can be done for small defects only whereas for a relatively large defects reconstruction is necessary. In most cases, surgeons prefer to use autograft for reconstruction that needs donor site surgery, lengthy operation time and creates donor site morbidity.

Human amniotic membrane have been used successfully over 70 years for a wide range of surgical application. The use of fetal membrane in skin transplantation was

first reported by Davis in 1910². In 1913, Stern described the use of HAM for burned and ulcerated skin surfaces³. The use of HAM as a surgical wound dressing, treatment of leg ulcers, skin loss in Stevens-Johnsons diseases, reconstruction of the pelvic floor, vaginal epithelialization, replacement of normal mucosa in Renov Osler-weber diseases, and ear surgery has been described earlier⁴. In this case report, we described our methods and results of HAM used in buccal mucosal defect after excision of leukoplakia.

Case Report

A 50 year-old women was attended at the Department of Oral & Maxillofacial Surgery of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh on 17 August, 2009 with the complains of unusual feeling with a non healing whitish ulceration of left buccal mucosa, occasional burning sensation and difficulties in taking food. On examination, we found a whitish exophytic lesion on left buccal mucosa measuring **about 3x2 cm**

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extending from canine to second molar teeth. The patient had a habit of chewing betle leaf.

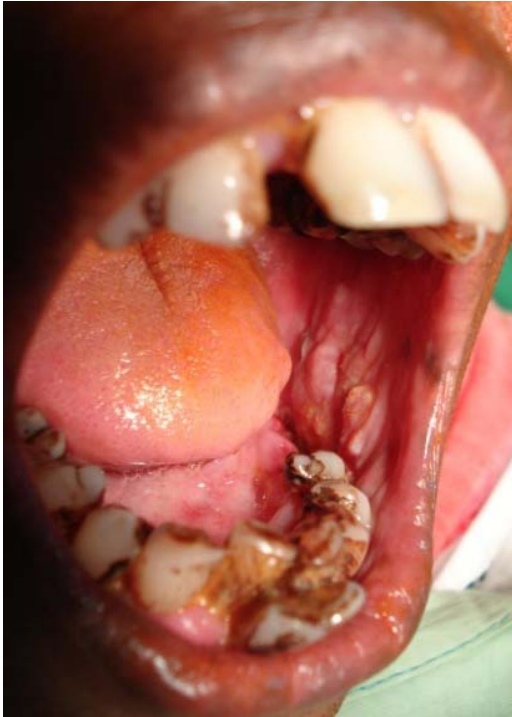


Figure 1/A: Premalignant lesion-left buccal & alveolar mucosa

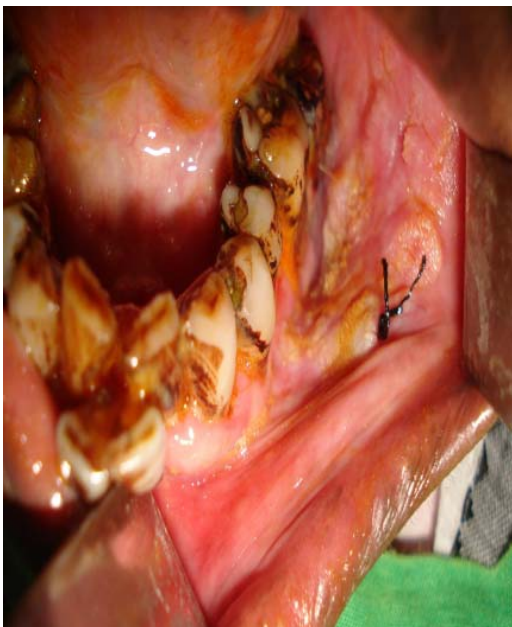


Figure 1/B: Premalignant lesion-left buccal & alveolar mucosa



Figure 2/A: Excised lesion



Figure 2/B: Defect after excision of lesion



Figure 2/C: Amniotic membrane ready for grafting

She presented with poor oral hygiene and mobility of lower left 1st and 2nd molar teeth. No regional lymphnodes were palpable. Overlying skin was normal and free. After complete examination we have decided to excise the lesion under local anesthesia and intravenous sedation followed by reconstruction with oven dried human amniotic membrane graft.



Figure 3/A: After 4 weeks



Figure 3/B: After 3 months

After excision of lesion with a healthy margin, haemostasis achieved over the bed of the wound. Approximately 6 sq cm wound was discovered for reconstruction. Oven dried human amniotic membrane was prepared for grafting with proper precautions and measure⁵. Prepared HAM placed over the wound and secured with tie-over sutures. Nasogastric tube feeding advised for next one week to secure the graft properly preventing contamination, wound dehiscence, infection and **eventual** graft rejection. **The area clinically examined weekly for 4 weeks and then after three and six months.** After 1st week-a healthy granulation tissue was formed, after 2nd weeks-epithelialization completed and after 4 weeks completed wound healing noticed.

Discussion

The Amniotic membrane (AM) is considered as an important potential source

for scaffolding material that must easily integrate with host tissue and provide an excellent environment for cell growth and differentiation⁵. Normal AM is 0.02-0.5 mm thick, which is equivalent to 6-8 cells, and has an average surface area of 1600 sq cm. The AM represents the innermost layer of the placenta and is composed of a single epithelial layer, a thick basement membrane and an avascular stromal layer⁵. Harvesting the HAM is a simple procedure and it does not require any special arrangements. After harvesting the HAM, it is sterilized by Gamma radiation and oven dried. Amniotic membrane is an excellent vapour barrier although having only one third of the thickness of the stratum corneum epidermidis⁴.

Human amniotic membrane is mostly used as dried, frozen, irradiated and lyophilized form⁶. HAM also used as a potential dressings that accomplishes four major goals: (i) haemostasis; (ii) provision for water barrier to reduce water loss through evaporation and to provide a moist environment for cell survival and growth; (iii) provision of a barrier to microbial colonization and infection (iv) reduction of pain⁴.

Several characteristics explained the effectiveness of the amniotic membrane can be used to promote epithelialization. A fibrin-elastin biological bond effecting tight closure seems to exist between the defect surface and the AM⁶. Amniotic membranes have been shown to stimulate accentuate granulation tissue formation and new vessel formation^{4,7}.

Talmi et al have reported the use of human amnion for overlying epithelial defects after flap necrosis following surgery in the head and neck region with good results⁴.

Guler et al in 1997 concluded that grafts of amniotic membrane is better than other grafts for mandibular vestibuloplasty⁸.

Samandari MH et al suggested the use of amniotic membrane graft in oral surgery⁹. Being readily available, inexpensive, easily stored allograft has almost no antigenicity with potential antibacterial properties and ability to enhance epithelialization, HAM may be suited for temporary or long-term coverage of mucosal defect.

Conclusion

In our case report, we have found that human amniotic membrane is a potential grafting material for oral cavity reconstruction as the result was exciting. It opted very good coverage without any complications. In view of the successful result of our case, we can advocate that the

Human amniotic membrane can be one of the best options for the reconstruction of oral cavity defect as it ensured proper reconstruction, post operative function and esthetics also. Clinical acceptability and applicability of HAM as a good grafting material for oral cavity reconstruction above all other graft materials will ensure a reliable, available and easily affordable option for surgeons and patients.

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