Biological wound dressing - role of amniotic membrane
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Abstract

Amniotic membrane, the innermost layer of fetal membrane used as a biological membrane for the management of burns and skin ulcers. This paper reports the reconstruction a buccal mucosal defect after excision of speckled leukoplakia using human amniotic membrane.

Key Words: Leukoplakia; Buccal Mucosal Defect; Human Amniotic Membrane

Introduction

Human amniotic membrane (HAM) has been used successfully for over 70 years for a wide range of surgical application. The use of fetal membrane in skin transplantation was first reported by Davis in 1910. The use of HAM as a surgical wound dressing in treatment of leg ulcers and ear surgery has been described earlier. This paper reports the reconstruction buccal mucosal defect after excision of a speckled leukoplakia using Human Amniotic Membrane.

Case Report

A 65 year old male patient reported to the department with chief complaint of ulcer in his right buccal mucosa for last 9 months. History revealed previous ulceration in the same area 3 years back which was removed by surgical excision of the lesion 2 years back. Patient was smoker and pan chewer for last 20 years. Intraoral examination revealed white lesion with erythematous area extending anteriorly from the angle of the mouth to 2.5cms posterior to it. Posterior surface of the lesion shows small pebbled shaped appearance (Figure 1).

Oral hygiene of the patient was poor with generalized attrition of the teeth with sharp cuspal margins of maxillary teeth impinging the mucosa over the lesion. Dysplastic changes in the posterior aspect were ruled out with toluidine blue test (Figure 2) and wide surgical excision was planned. Surgical excision of the lesion under LA was done with the extraction of offending teeth (Figure 3).

Amniotic membrane was prepared a day before the procedure by separating it from chorion of placenta under sterile aseptic conditions. The amniotic membrane was cleared of all blood clots and gross tissue attachment with copious amount of distilled water. The membrane was stored in a large bottle containing 85% of glycerol and stored in refrigerator at temperature of 4°C. On the day of application it was soaked in normal saline for period of 10 minutes (Figure 4).

It was then spread over the surface of the ulcer and stay sutures were placed (Figure 5). Patient follow up after 15 days (Figure 6) and later after 1 month (Figure 7) which shows surrounding area of granulation tissue. After 12 weeks the lesion was almost covered by normal epithelium (Figure 8).
Discussion

Amniotic membrane or amnion is the innermost layer of the placenta and consists of a thick basement membrane and an avascular stromal matrix.(4) Amniotic membrane had used as a graft or a dressing in different surgical subspecialties reported in early literature. (5) Normal amniotic membrane is 0.02-0.5 mm thick, which is equivalent to 6-8 cells, and has an average surface area of 1600 sq cm. (6) 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. (1, 4) 

Ali .A.M et al recommended the wide spread use of amniotic membrane in burns.(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 results.(3) Guler et al in 1997 concluded that grafts of amniotic membrane are better than other grafts for mandibular vestibuloplasty.(8) Samandari MH et al suggested the use of amniotic membrane graft in oral surgery. (9) Being readily available, inexpensive, easy storage, this 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.(1) Prasad et al have suggested the use of amniotic membrane for extra and intra oral ulcers. (10) Though the skin graft are widely used, but in intra oral environment the presence of adnexal structure like hair, the texture and resiliency are compromise for it to be called the ideal substitute. (10, 11) In our case, the human amniotic membrane was potentially a good grafting material with very good wound coverage. It enhanced wound healing process, good post-operative function and esthetics without any complications. In view of the successful results achieved, authors advocate that the Human amniotic membrane could be one of the considered options in reconstruction of oral cavity defects as it ensures good reconstruction, post-operative function and esthetics.

Conclusions

Clinical acceptability and applicability of HAM as a good grafting material for oral cavity reconstruction will ensure a reliable, available and easily affordable option for surgeons and patients.

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