ABSTRACT:

Purpose: The treatment of oral mucosal lesions and mucosal hypertrophy in particular, is most often achieved by an excision with or without covering the surface of the wound. The platelet rich fibrin membrane (PRFm) is an autogenous product containing platelets and leukocytes and their secreted growth factors and cytokines. The purpose of the presented clinical case is to describe a new, recent technique used for the covering of mucosal wounds left after the removal of pathological lesions.

Material and Methods: On a single patient mucosal hypertrophy was removed by an excision with scalpel and the resulting surgical wound was covered with an autogenous PRF membrane. Postoperatively the healing process was followed on the 7th, 14th and 30th day.

Results: The healing period went smoothly with minimal postoperative discomfort and no complications.

Conclusion: The results of the presented clinical case demonstrate that the PRF membrane can successfully be used to cover postoperative mucosal defects.

Key words: oral mucosal hypertrophy, PRF, oral mucosal reconstruction

INTRODUCTION:

The treatment of oral mucosal lesions involves the elimination of the cause, medical and surgical treatment.[1] The surgical treatment of different mucosal lesions, and mucosal hypertrophy in particular, consists of an excision with or without placing a graft. [2, 3] Platelet rich fibrin (PRF) is defined as an autogenous, containing increased amount of leukocytes and platelets, solid biomaterial. [4, 5] For the first time PRF is used in 2001 in France by Choukroun J, et al. [6] for purpose of the maxillo-facial surgery. The PRF polymerization is slow and occurs when the blood is being centrifugated and, due to the autogenous thrombin, a physiological autogenous fibrin begins its formation. This is an essential condition for the formation of the 3D fibrin network. [7] Such configuration suggests the prolonged survival of the growth factors (GF) and their prolonged release in the initial healing stages. GFs are available in situ longer among the surrounding cells and have more time to stimulate the healing process. [8,9] Release of the growth factors and matrix glycoproteins (glycosaminoglycans) may continue for up to 7 days, or according to other studies – up to 28 days. [10] PRF is made out of patient’s blood in clinical conditions and does not contain any chemical or biological supplements. PRF is used as a stimulating factor for the bone and soft tissue regeneration in dental implantology and periodontal surgery.[11] It is used for the healing of extraction wounds,[12] treatment of interosseous defects, [13] radicular cysts, [14] influencing the jaw bones in the case of biophosphonate osteonecrosis, [15] etc. Some authors [16, 17] use PRF membrane (PRFm) to cover excision defects of the mucosa while others [18, 19] cover palatinal defects left when taking free gingival graft (FGG). The aim of the presented clinical case is to clinically observe a new recently used technology to cover mucosal wounds left in the treatment of pathological lesions.

METHODS AND MATERIALS:

The patient was a woman aged 69 admitted in the department of oral surgery at the Medical University – Plovdiv for surgical treatment. The clinical examination uncovered mucosal hypertrophy on the right side due to chronic irritation by a denture. There were no other subjective complaints by the patient – Fig. 1.
The surgery was held under local anesthetics with 4% Articaine and 1/200 000 Adrenaline. Excision of the altered tissue was done using a scalpel. The resulting mucosal wound was covered by PRFm prepared in advance. PRFm was stitched using resorbable thread 0000 to the margins of the mucosal defect – Fig. 2 a-c.

Fig. 2a.

Fig. 2b.

The PRF membrane was prepared following the method of Choukroun J et al. [6] After the venipuncture of v. cubity with a 10ml vacuum test-tube (Advanced-PRF™), 9ml of blood is taken from the patient. The blood is then immediately put into a PRF DUO (Processfor PRF®-France) centrifuge for 8 minutes at 1500 RPM. The resulting PRF clot is put back into a test-tube using a long, straight anatomical tweezers and using surgical scissors or scalpel it is separated from the red part (erythrocytes). The PRF membrane is formed out of two PRF clots by putting two of them on top of one another - Fig. 3a, b. The areas bordering with the red part are put on the opposite ends and it is then dried in a special for this case box A-PRF Box® - Fig. 3c.

Fig. 3a.
surgical intervention. The postoperative pain was measured using a standard VAS on 24 hours and the 7th day after the surgery. The value on the 24th hour was 3cm, while the final value on the 7th day was 2cm. Clinical measurement of the wound healing was done using the 5-score Clinical Healing Score. [17] The score on the 7th day after the treatment was 3 and on the 15th and 30th day it was 0 – Table 1 end Fig. 4 a, b.

RESULTS:
The postoperative period was free of anxiety and complications. The threads were removed 7 days after the surgery.

Table 1. Clinical Healing Score (Sum of 5 criteria)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score</th>
<th>7 day</th>
<th>14 day</th>
<th>30 day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redness absent</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Redness present</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edema absent</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Edema present</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy granulation tissue present</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Healthy granulation tissue absent</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signs of epithelization present</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Signs of epithelization absent</td>
<td>1</td>
<td></td>
<td></td>
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</tbody>
</table>

Note – The sum of 5 criteria is the clinical healing score; the score is to 0, the better the healing, and vice versa.
DISCUSSION:
Excision of oral lesions is preferred over drug treatment especially in cases with potential malignancy. [1] There is a variety of different care options for the resulting in the process wounds of the mucosa with different results. Initial covering of adjacent tissues is possible in cases of mucosal defects with small surface. In the case of bigger defects this is harder and can lead to complications. The healing afterwards is associated with a lot of discomfort for the patient with a possibility of early and late bleeding infections. [17, 19] The usage of the autogenous mucosal FGG or dermal graft for the covering of mucosal excision wounds results in an additional operative trauma. [3] The covering of postexcision wounds of the mucosa is done by a variety of auto-plastic material such as hyperdry amniotic membrane, artificial derma and collagen membrane. [2, 17] PRFm was initially used to cover mucosal defects of the palate, after taking FGG, with very good results. [16, 18, 19] Pathak H, et al. [17] use PRFm to cover mucosal defects after excision in different areas of the oral cavity and report some very good clinical results. The results of our study coincide with the results published by some other authors. [16 - 19]

CONCLUSION:
The results of our study allow us to assume that PRF membrane with its qualities can successfully be used to cover mucosal wounds for the purposes of the oral surgery. More and larger studies are necessary for better evaluation of the effects of the PRFm when covering mucosal wounds.

REFERENCES:
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