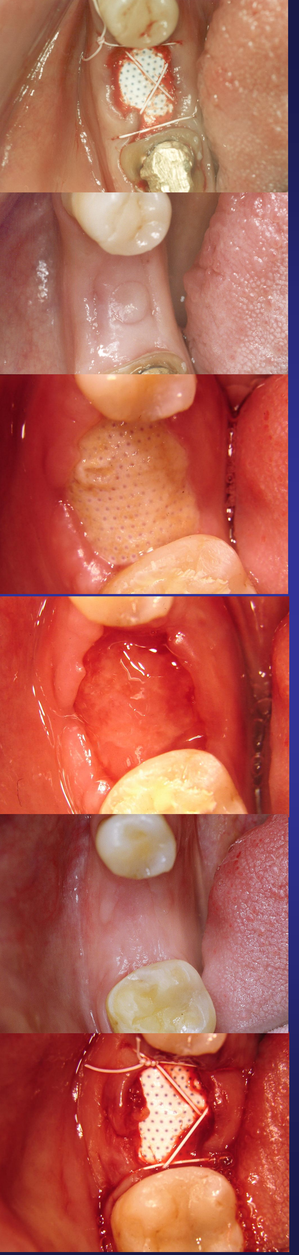


Soft tissue enhancement using non-expanded PTFE membranes without primary closure

Barboza EP*, Francisco, BS; Ferreira, VF.
Fluminense Federal University, School of Dentistry – Rio de Janeiro - Brazil

Abstract

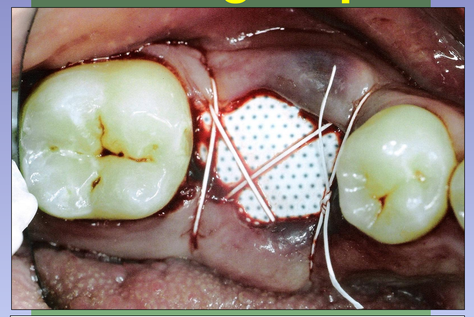
Background: The most common barrier membranes used for bone regeneration are made of expanded–polytetrafluoroethylene (e-PTFE) or resorbable membranes. These types of membranes require primary closure which, consequently, impede tissue enhancement. Non-expanded PTFE (PTFE) membrane presents low porosity, resists the incorporation of bacteria into its structure and can be left exposed, promoting soft tissue enhancement. The objective of this study was to evaluate the soft tissue enhancement utilizing PTFE membranes over extratction sites, without primary closure.

Methods: Thirty lower posterior teeth were extracted. Minimal flap reflection was performed to preserve the mucogingival line original position. Fifteen extraction sites were randomly selected to receive PTFE membranes. The control sites received no membranes. All cases were sutured with no attempt to achieve primary closure. In the test group, membranes were removed at 28 days after extraction. Measurements of buccal and lingual keratinized gingiva were taken from the mucogingival line to the most coronal gingival margins. The occlusal distance between buccal and lingual gingival margins was also recorded. Measurements were taken at surgery time and 90 days after extractions. Soft tissue enhancement was evaluated by comparison of initial and final measurements. A statistical analysis was obtained utilizing independent t-test.

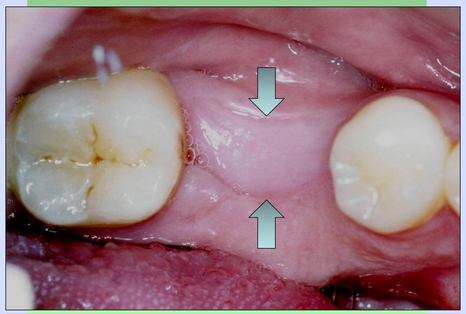
Results: Inflammation or infection was not observed during healing period. A soft tissue mean enhancement of 59.68 ± 21.30% and 18.25 ± 13.63% was observed in the test and control groups, respectively. Tissue measurements presented normal distribution allowing parametric tests. A significant statistical difference ($p<0.05$) was found between test and control group at 90 days after extraction.

Conclusion: Non-expanded PTFE membrane utilized over extraction sockets, without primary closure, can be predictably used to promote soft tissue enhancement.

Test group

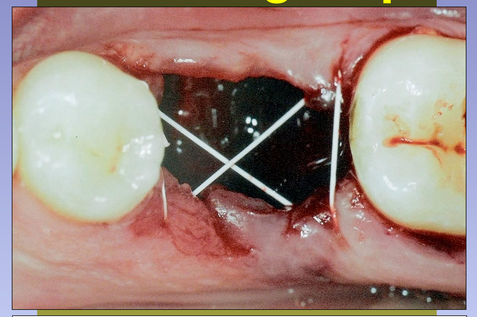


Immediate aspect of PTFE membrane in place after tooth extraction. Suture was performed with no attempt to achieve primary closure.

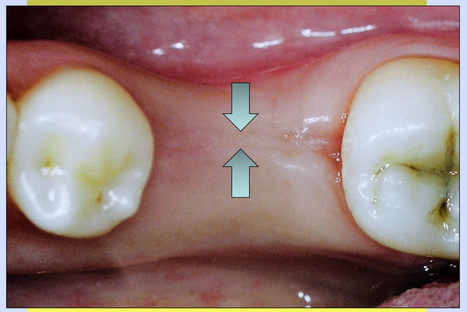


Oclusal view 90 days after tooth extraction. Note (arrows) the soft tissue enhancement (mean 59.68 ± 21.3%).

Control group



Immediate aspect of post extraction socket. Note the suture with no attempt to achieve primary closure.



Oclusal view 90 days after tooth extraction. Note (arrows) the minimal soft tissue enhancement (mean 18.25 ± 13.63%).

Results

Statistical analysis of the soft tissue enhancement

Group	N	Mean (%)	SD	t-test
Test	15	59.68	21.30	p<0.05
Control	15	18.25	13.63	p<0.05

A comparison of the initial and final measurements revealed a soft tissue mean enhancement of 59.68 ± 21.30% and 18.25 ± 13.63% in the test and control groups, respectively.