

## RIDGE PRESERVATION TECHNIQUE

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### ABSTRACT:

The extraction of deep fractured and compromised endodontically or parodontally teeth is a routine procedure for any dental practice. The extraction technique is of considerable importance for the bone loss in the course of the extraction as well as the post extraction period of healing. The post extraction bone loss is estimated to 40%-60% for the first six months (Cristensen GJ)

Bone presence is important for the further prosthetic recovery, especially when further implant treatment is under consideration.

### PURPOSE:

To show the necessity of manipulations related with the post extraction bone loss and to present available techniques with proven positive results.

### METHODS AND MATERIALS:

Object of the present research are patients from 28 to 52 years of age requiring teeth extraction and following implant.

The bone graft which was used is beta thricalcium phosphate ( $\beta$ TCP) with size of particles from 1000 to 2000 $\mu$  and a 4-month period of resorption. The extraction should be conducted as gently as possible to minimize the possible post extraction trauma. A preextraction splitting of roots using a high speed tip and periostome is advised for the treatment of molars. ( fig. 1.) If granulations are present they should be thoroughly cleaned not only from the marginal gingiva but from the alveola walls and bottom as well. Besides the standard surgical instruments (scalpel and curetta), the use of a round bore borer of suitable size for cleaning the alveola is advised. (fig. 2.) The round bore borer has a double function, as while eliminating the granulations it opens many capillaries to feed with blood the beta

Fig. 1.

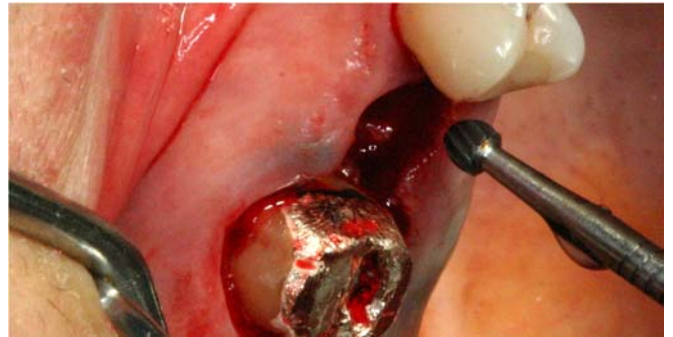


Fig. 2.

thricalcium phosphate. The post extraction bilateral compression of the alveola applied as a common practice is considered an important factor for substantial bone resorption (Palti A.) and should not be applied.

A vestibular trapezoid pedicled mucoperiosteal flap is prepared. (fig.3.) The periosteal tissue is released, thus increasing the elasticity of the flap. The beta thricalcium phosphate is mixed with blood taken from the surgical area, and is applied into the alveola without compression. (fig.4.) A resorptive membrane is inserted to impede the migration of epitel cells to the bone graft. The augmentation material as well as the membrane should be tightly covered by the flap. Membrane exposition is not desirable.

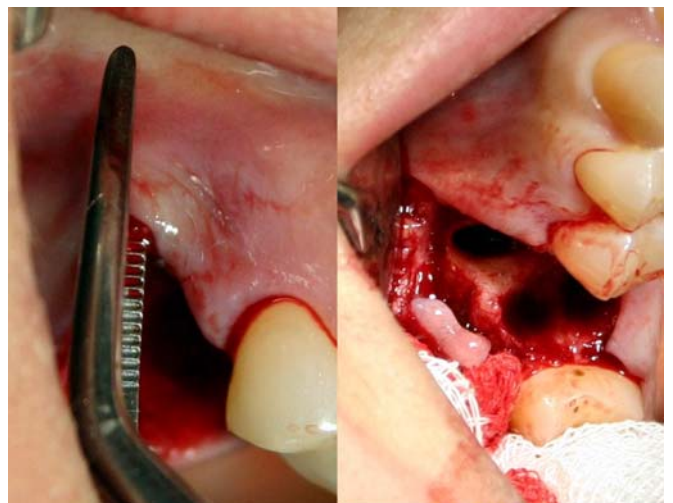
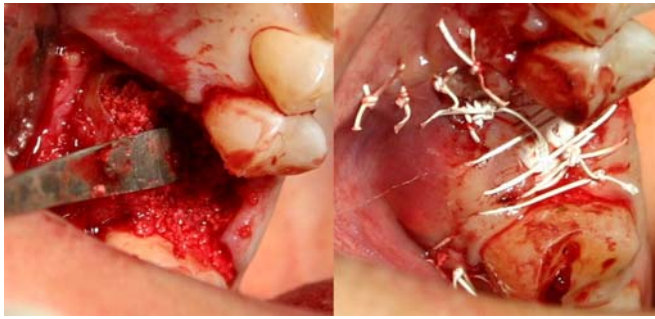


Fig. 3.



**Fig. 4.** Deficit of soft tissue.

Another method is also known – it uses a non-resorptive membrane instead of a mucoperiosteal flap. Its advantages involve a more gentle surgical intrusion, more securely immobilized bone graft and a larger attached gingiva required for the following implant treatment. The membrane is removed after 4-6 weeks. New attached gingiva has built up below. (fig. 5.)



**Fig. 5.** After 6 weeks

Another more simplified method is also known, it does not involve mucoperiosteal flap, or membrane. (fig. 6.) With this technique, after extraction and alveola cleaning, the beta tricalcium phosphate is mixed with some liquid - polylactide (supplied by the producing company). This liquid consolidates the graft and does not allow it to wash away. The  $\beta$ TCP – polylactide mixture is applied into the alveola without compression, the extraction wound is sewn and after 7-9 days the cords are removed. (fig. 7.) Implants can be inserted after the augmentation material has been resorbed (4-5 months).

Prophylactic treatment of bone loss after extraction has its impact and importance for conventional prosthetics as well.



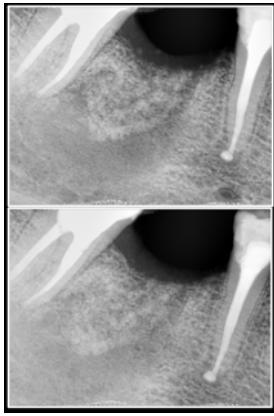
**Fig. 6.**



**Fig. 7.**

**RESULTS:**

The post surgical period is smooth and painless, with just a small soft tissue swell felt as more sensitive if the first surgical technique has been applied. As seen from the X-ray pictures taken before the insertion of implants, the beta tricalcium phosphate has been fully resorbed and the bone image is clear. (fig. 8.) What makes this technique very successful is the presence of healthy and well blood supplied bone. (fig. 9.) This is clearly seen when implant osteotomy is made (fig.10.) The three surgical techniques presented yield similar results, the resorptive membrane technique showing the most advantages.



**Fig. 8.**



**Fig. 9.**



**Fig. 10.**

### **CONCLUSIONS:**

The post extraction augmentation is an easily accessible method for bone loss prophylactic treatment. This technique could save some possible consecutive manipulations like sinus lift, lateral alveolar ridge augmentation, splitting, spreading, and bone distraction.

In such cases, where the treatment plan does not involve immediate implant, it is advised that the extraction alveola be augmented with resorptive bone replacement material.

The future in ridge preservation techniques is the Use of Autologous Platelet-Rich Fibrin Matrix (PRFM)

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