

Background information

Bone augmentation only after the soft tissue healing has been completed

Karl-Ludwig Ackermann:

«When there is a large defect in the soft tissue situation, wound closure over the extraction wound is only possible with significant soft tissue manipulation, if it is possible at all. Such manipulations can not only damage soft tissue esthetics, they also pose a high risk for post-operative wound dehiscences. Therefore, bone-regenerating procedures are not yet indicated at the time of extraction. This is because for an optimal bone augmentation, one needs complete coverage and protection of the defect.»

2. Aims of the therapy

- > Optimal healing of the keratinized gingiva with respect to its structure, thickness and contour. With the follow-up operation, there is thus an ideal amount of soft tissue available for the implantation and the augmentation.
- > Prevention of post-operative wound dehiscences
- > However, the goal is not that the bone be augmented at the time of extraction. This is why the defect is often not covered with a membrane or soft tissue. In the coronal area of the socket, one finds that a connective tissue integration of the Bio-Oss® collagen material has usually occurred. Bone regenerative procedures likewise take place at the time of implantation when the healing of the soft tissue has been completed.

3. Concept Dr. Karl-Ludwig Ackermann

Creating an optimal soft tissue structure over the extraction socket using a space-stabilizing matrix that promotes wound-healing (Bio-Oss® Collagen), that heals open:

- > Space maintenance thanks to Bio-Oss®
- > Promotion of wound healing and easy handling due to the collagen portion of the material
- > Thanks to the collagen, there is good adhesion in the defect with open healing until primary wound closure has been achieved. In contrast, normal Bio-Oss® granules could escape from the defect.

4. Surgical procedure

Preparation: Manufacturing of an adhesive bridge, optional antibiotic treatment.



Fig 1 Clinical view of the front tooth 11 that had to be removed due to a fracture.



Fig 2 The tooth extraction occurs without a flap procedure in order to protect the soft tissue as much as possible.



Fig 3 The socket after tooth extraction. The granulation tissue is first thoroughly removed.



Fig 4 Using scissors and scalpel, Bio-Oss® Collagen is tailored to the size of the alveolus and then carefully applied. The Bio-Oss® Collagen blocks should not be compressed in too tightly so that ideal packing density is maintained.



Fig 5 The Bio-Oss® Collagen completely fills out the extraction socket.



Fig 6 For covering, a Bio-Gide® Membrane can be used.



Fig 7 The Bio-Gide® is sutured



Fig 8 An adhesive bridge serves as a securely-set, temporary tooth substitute.



Fig 9 2 weeks after extraction, granulation tissue covers the socket.



Fig 10 6 months after extraction, the soft tissue is in good condition.



Fig 11 After a flap procedure, one sees bony tissue that has formed in the extraction socket.



Fig 12 After implantation, one sees a fenestration defect that must be treated using an augmentation procedure.



Fig 13 Positioning and fixation of a Bio-Gide® Membrane. Resor-Pins® are used for fixation.



Fig 14 Bio-Oss® and autologous bone are applied over the fenestration defect. The slowly-resorbing Bio-Oss® protects the augmented area from premature resorption and thus ensures optimal soft tissue facial esthetics.



Fig 15 The Bio-Gide® is placed over the augmented area and 2 Resor-Pins® are additionally fixed on the lingual aspect. The Bio-Gide® not only holds the granulates in place, but also ensures that there is good soft tissue healing.



Fig 16 The palatal incision and the vertical relief cut are sutured to close the soft tissue flap.



Fig 17 1 year after extraction, the final prosthetic reconstruction takes places.



Fig 18 13 months after tooth extraction, one sees an optimal soft tissue course with intact papillae.

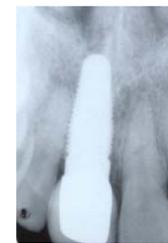


Fig 19 The x-rays show an osseointegrated implant where the crestal peri-implant bone follows an ideal course.

Limitations, open questions

- > Bone regeneration can only be expected in the apical defect area. In the coronal area, one usually sees that there has been a connective tissue integration of the matrix material because no membrane was applied and the material healed in an open fashion. That is why it is necessary to remove these particles during implantation.
- > The method has been successfully clinically used in the Ackermann / Kirsch practice. The proof of the efficacy, prognosis and the advantage of this method when compared to others has not yet been scientifically demonstrated in studies.

Extraction Sockets



Treatment concept by Dr. Karl-Ludwig Ackermann,
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- > Creating an optimal soft tissue structure using Bio-Oss® Collagen
- > After extraction of front teeth
- > For later implantation

1. Indication profile

Region	<input checked="" type="checkbox"/> Esthetic Region	<input type="checkbox"/> Non-esthetic Region
	Comment: front tooth region, maxilla	
Bony situation around socket	<input type="checkbox"/> No bone defect present	<input checked="" type="checkbox"/> Bone defect present
	Comment: extensive buccal defect after extraction	
Soft tissue situation	<input type="checkbox"/> Primary wound closure possible without problems	
	<input checked="" type="checkbox"/> Primary wound closure problematical	
Bone augmentation indicated	<input checked="" type="checkbox"/> Yes, in a follow-up operation.	<input type="checkbox"/> No
	Comment: Due to an inadequate soft tissue situation, bone regeneration is not recommended at the time of the extraction	
Implantation planned	<input checked="" type="checkbox"/> Yes	
	<input type="checkbox"/> No	

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