

# BioBrief

## Complex Augmentation



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Dr. Arnd Lohmann

Lateral and vertical  
bone regeneration with  
simultaneous soft tissue  
augmentation



## The Situation

> After extraction of the periodontally damaged tooth (35) the preoperative CBCT imaging shows reduced vertical bone volume in sector 35–37. A lateral and vertical bone regeneration was necessary.

> The goal of treatment was a late implant placement after bone regeneration and creation of stable periimplant soft tissue for long-term implant preservation.

## The Risk Profile

	Low Risk	Medium Risk	High Risk
Patient's health	Intact immune system	Light smoker	Impaired immune system
Patient's esthetic requirements	Low	Medium	High
Gingival biotype	Thick – “low scalloped”	Medium – “medium scalloped”	Thin – “high scalloped”
Infection at implant site	None	Chronic	Acute
Bone height at adjacent tooth site	≤ 5 mm from contact point	5.5 - 6.5 mm from contact point	≥ 7 mm from contact point
Gap width between the teeth	1 tooth (≥ 7 mm)	1 tooth (≤ 7 mm)	2 teeth or more
Soft-tissue anatomy	Intact		Compromised
Alveolar ridge bone anatomy	No defect	Horizontal defect	Vertical defect



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“Implant therapy should restore the natural anatomical structures as closely as possible in order to avoid subsequent periimplant problems.

Using the Geistlich Fibro-Gide® matrix enabled concurrent augmentation of hard and soft tissues without any postoperative complications.

At the same time, the soft tissue thickening facilitated floor of the mouth surgery and vestibuloplasty.”

# The Approach

- > Customized Bone Regeneration (Yxoss CBR®)
- > Coverage of the graft with Geistlich Bio-Gide® for the purpose of Guided Bone Regeneration (GBR)
- > Soft tissue thickening using Geistlich Fibro-Gide®
- > Implantation

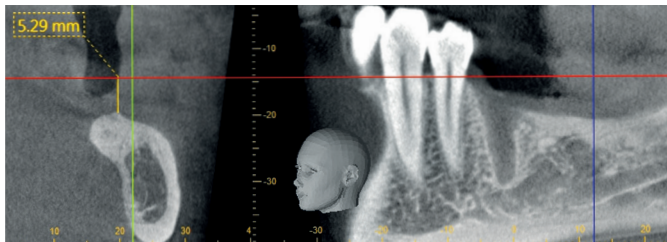
- > Vestibuloplasty with Geistlich Mucograft® for regeneration of keratinized mucosa

## Biomaterials used in this case:

- Geistlich Bio-Oss® | 0.25-1 mm
- Geistlich Bio-Gide® | 30 x 40 mm
- Geistlich Fibro-Gide® | 15 x 20 x 6 mm
- Geistlich Mucograft® | 15 x 20 mm

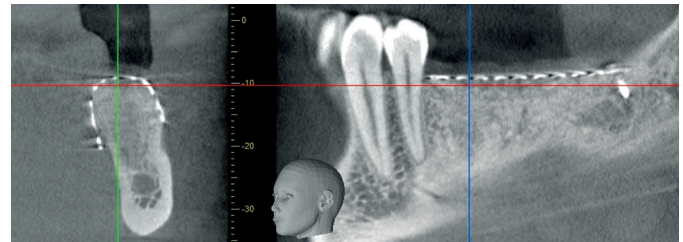
# Complex Augmentation

## Baseline situation & planning

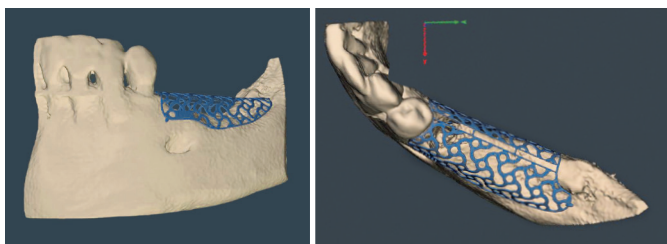


1 | Vertical bone deficit of 5.29 mm in sector 35-37

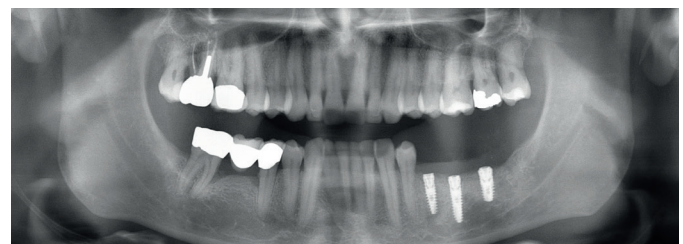
## Regeneration after 6 months



3 | Bone situation before implant placement shows about 5 mm of vertical bone regeneration



2 a+b | 3D planning view of the titanium scaffold

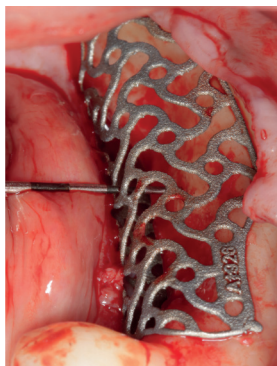


4 | Panoramic X-Ray after implant placement shows clearly recognizable mucosa shadows

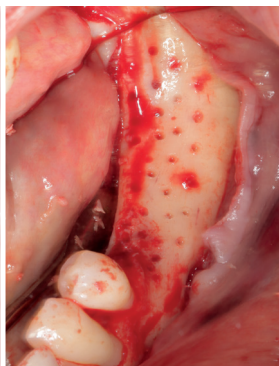
## Augmentation



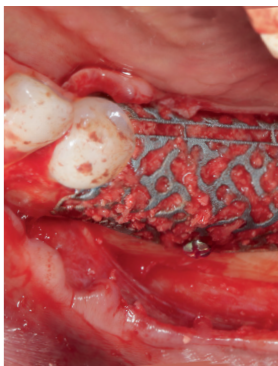
5 | Central incision in the keratinized mucosa



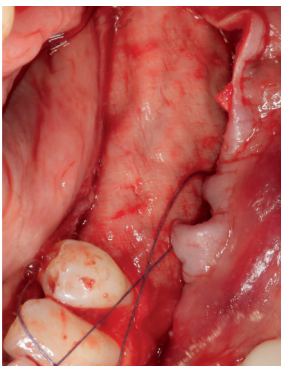
6 | Lateral view of the titanium scaffold (try-in)



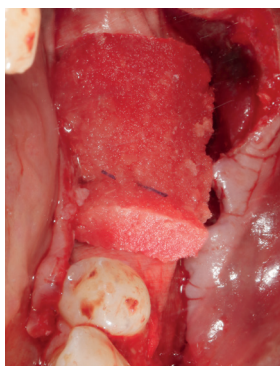
7 | Perforated cortical bone



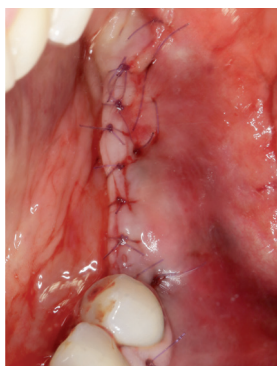
8 | Yxoss CBR® filled with autologous bone and Geistlich Bio-Oss® (50/50)



9 | Coverage of the titanium scaffold with Geistlich Bio-Gide®



10 | Geistlich Fibro-Gide® tailored to the defect



11 | Tension-free suture



12 | Situation one week postoperative



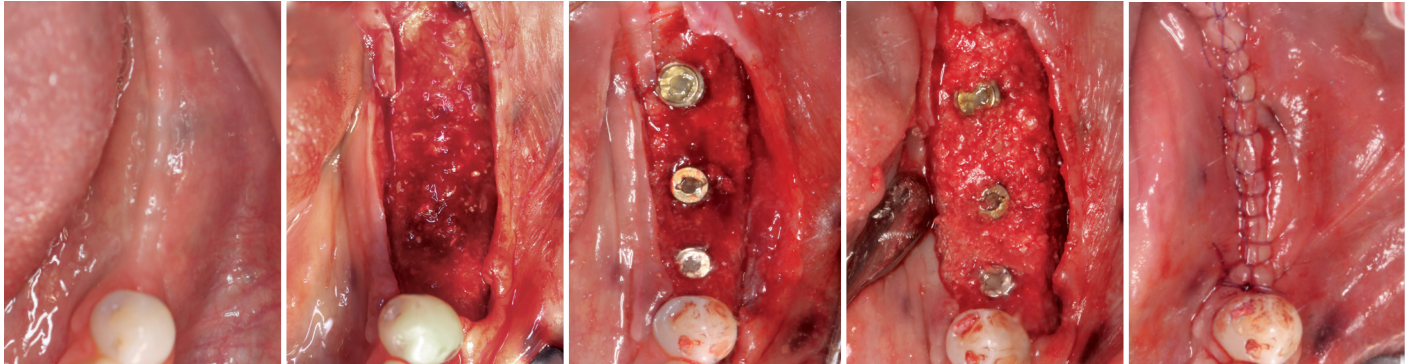
13 | Slight reduction in mucosal height visible upon suture removal

# The Outcome

- > Approx. 5 mm of vertical bone regeneration
- > The potential occurrence of a dehiscence associated with a wound opening and exposure of Yxoss CBR® was able to be prevented with Geistlich Fibro-Gide®.
- > On one hand, the quality of the periimplant soft tissue was improved by the soft tissue thickening with

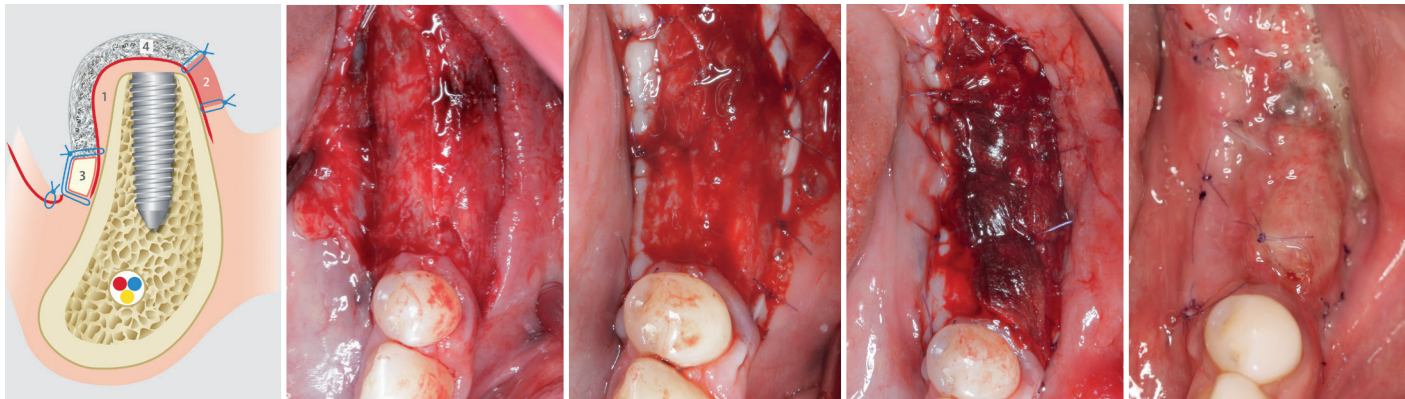
- Geistlich Fibro-Gide® and, on the other, by increasing the width of keratinized mucosa with Geistlich Mucograft®.
- > The treatment method chosen resulted in a reduced invasiveness and morbidity by avoiding a donor site for sourcing a transplant.

## Implantation 4 months after augmentation



- 14** | Soft tissue situation before implant placement
- 15** | Bone situation after removal of the titanium scaffold
- 16** | Inserted implants
- 17** | Autologous bone chips applied on top of the implants
- 18** | Mucosa level after implantation and wound closure

## Vestibuloplasty: 6 weeks after implantation



- 19** | 1. Connective tissue left in situ  
2. Displaced keratinized mucosa  
3. Exposed mucosa transplant  
4. Geistlich Mucograft®
- 20** | The mucosa is prepared apically; the preparation reaches the periosteum apically (see fig. 19/1).
- 21** | Recipient site fully surrounded by keratinized mucosa (see figs. 19/2 & 3)
- 22** | State after suturing with Geistlich Mucograft® (see fig. 19/4)
- 23** | After just a few days the keratinized mucosa is clearly recognizable.

## Approx. 1 year after augmentation

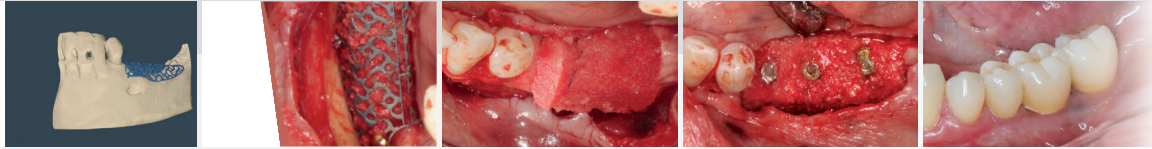


- 24** | Individual abutments in situ
- 25** | Dental prosthesis inserted laterally
- 26** | Dental prosthesis inserted occlusally



The mini-webinar with surgical video  
complementing the clinical case report

Dr. Arnd Lohmann



Your key to success

Lateral and vertical bone regeneration with  
simultaneous soft tissue augmentation

Preoperative professional dental cleaning

Fixing the titanium scaffold

Full coverage of Yxoss CBR® with Geistlich Bio-Gide® and Geistlich Fibro-Gide®

Completely tension-free wound closure (wound edges should overlap by 5-10 mm)

Creation of an at least 2-3 mm wide zone of keratinized mucosa around the implants



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distribution partners:  
[www.geistlich-biomaterials.com](http://www.geistlich-biomaterials.com)

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