

Case Report

Individualized Implants in the Atrophic Jaw: Case Reports of the First Treatments with Implantize Compact in Switzerland

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Abstract

Background: Until 1950/1960, for young women in rural areas of Switzerland (e.g., in Entlebuch) it was common practice to have all their teeth extracted or even forced to have them extracted, in order to become eligible for marriage with full dentures. This was the only way their future husbands could be sure that they would not incur any costs in this regard! This practice, which would now be considered mutilation, has led to many women today wearing partially insufficient dentures and suffering from severe alveolar bone atrophy (Fig. 1).

Fig. 1, if the local bone is no more sufficient to place conventional implants, alternatives such as invasive augmentation or zygoma implants are considered. With the further development of laser-sintering titanium in recent years, customized, patient-specific implants now offer a minimally invasive alternative which does not require the destruction of relevant bone structures and offers immediate loading

Case Presentation: Case 1: female, 74y, healthy, non-smoker, suffering from; Case 2: female, 72y, healthy, light smoker, advanced periodontitis; Case 3: male, 45y, suffering from Morbus Krohn since 30y, intense therapy with cortison, heavy smoker, Cawood Class V-VI.

Conclusion: With the development of exact 3D manufacturing of patient-specified implants the treatment options of severe bone atrophy in both jaws have increased by the option of minimally invasive use of individualized implants. The last eight years show promising data for this relatively new treatment which is not to be compared with the old subperiosteal implants. Following the principles of Branemark (Osseointegration), Ledermann (Immediate Loading) and the modern principles of titanium implant surfaces Patient-specific Implants are a valuable alternative for Full-Arch-Treatments in severely atrophied upper and lower jaws.

Keywords: Dental Implant; Individualized Implant; Patient-Specific Implant; Implantize Compact; Atrophic Jaw; Cawood Class VI; Full Arch Treatment

Introduction

Many people suffer from extremely atrophied jaws which don't allow the insertion of conventional endosseous implants to fix any kind of prosthetics. When conventional dentures don't work and endosseous implants cannot be inserted because of a massive bone loss we have to offer different treatment options to our patients. Some of them include the use of pterygoid implants, transnasal or transsinus implants, or zygomatic implants. What they all have in common is that they only offer solutions in the atrophied maxilla and significantly destroy the local bony structure. One main principle of dental training and education is to always plan for the worst-case scenario. This means that in the event of failure, the dentists must ask themselves what solution they can offer the patient. Due to the significant destruction of bony structures in the already atrophied jaw, the use of the aforementioned implant restorations carries a high risk in the event of failure. Individualized or Patient-Specific Implants (PSIs) take a different approach (Fig. 1,2). By taking into account and bypassing relevant anatomical neighboring structures such as neural foramina, PSI are precisely adapted to the bony structures in the maxilla and mandible, enabling immediate loading like other full-arch solutions. They follow the principles of osseointegration by Branemark and the findings of immediate loading, which was inaugurated by Ledermann.

Brånemark made several groundbreaking contributions to the field of dental implants, fundamentally shaping modern implantology. One of his most important insights was the recognition that materials used in the human body must be highly biocompatible. Titanium, in particular, proved to be exceptionally well-suited, as it was not only well-tolerated by the body but also capable of forming a stable and lasting bond with bone tissue. His discovery that titanium could naturally fuse with bone marked a turning point in dental medicine. This phenomenon, known as osseointegration, paved the way for the development of titanium-based dental implants, which have since become the gold standard due to their reliability and long-term performance. Brånemark also realized that minimizing movement at the implant site during the initial healing phase was crucial. Even microscopic shifts could disrupt the integration process, so ensuring stability in those early weeks was essential for success. The physical design of the implant played a key role here. Early versions featured a threaded structure, which enhanced grip and encouraged a more secure anchoring within the bone. He emphasized that implants should not be immediately subjected to mechanical stress. Instead, he advocated for a dedicated healing period, allowing the bone sufficient time to bond fully with the implant surface. This approach contributed significantly to the long-term stability of the restoration. Surgical technique was another critical element in Brånemark's approach. He prioritized preserving the surrounding tissue and ensuring precise placement of the implant, both of which were vital for encouraging proper integration and preventing complications. Beyond the surgery itself, Brånemark recognized the importance of long-term clinical follow-up. Regular monitoring allowed practitioners to assess how well the implant was performing over time and helped define the standards by which implant success would come to be measured. His comprehensive approach laid the foundation for the reliable and widely used dental implant systems we have today.

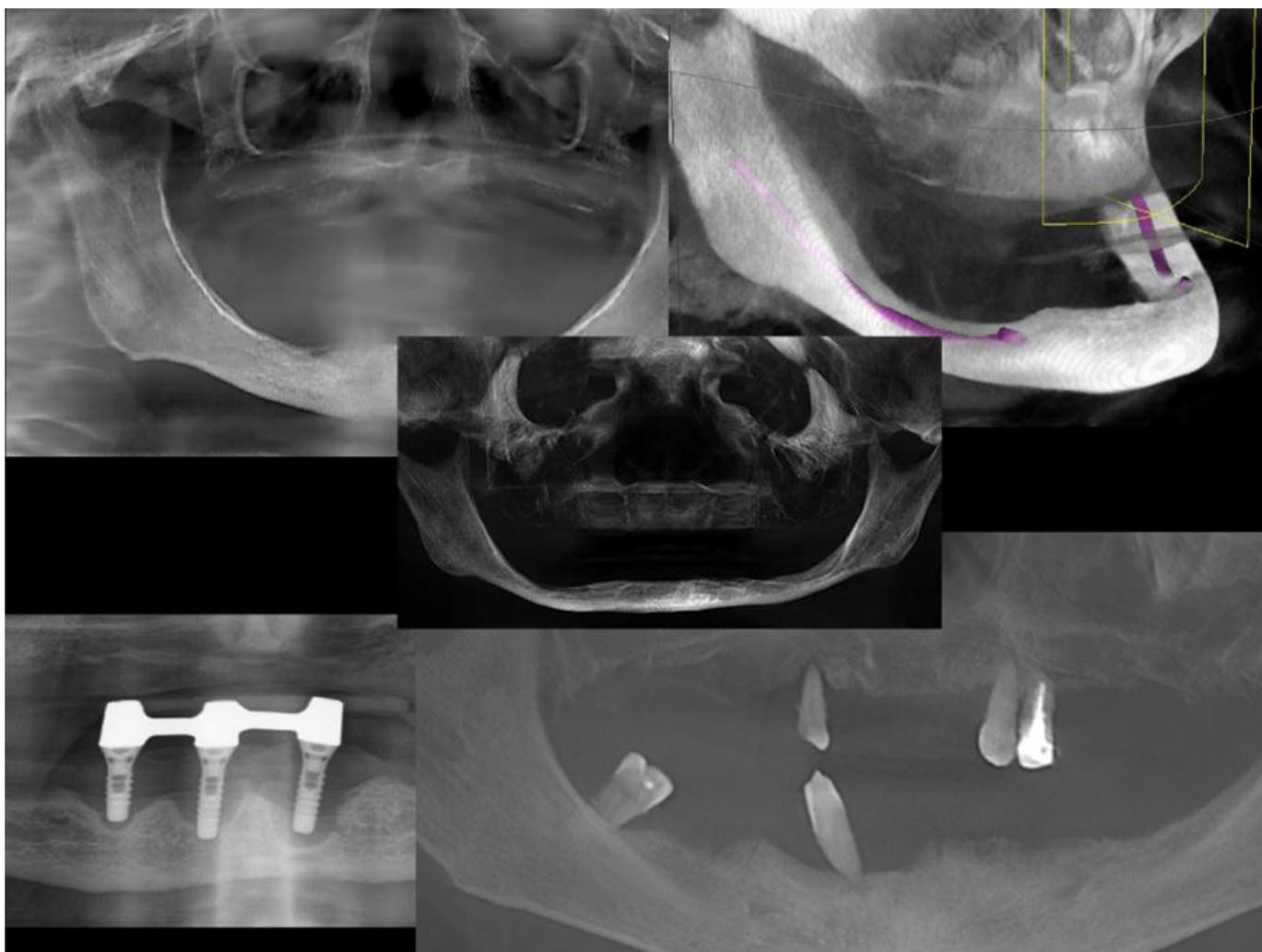


Figure 1: Examples of severe atrophy of alveolar bone.

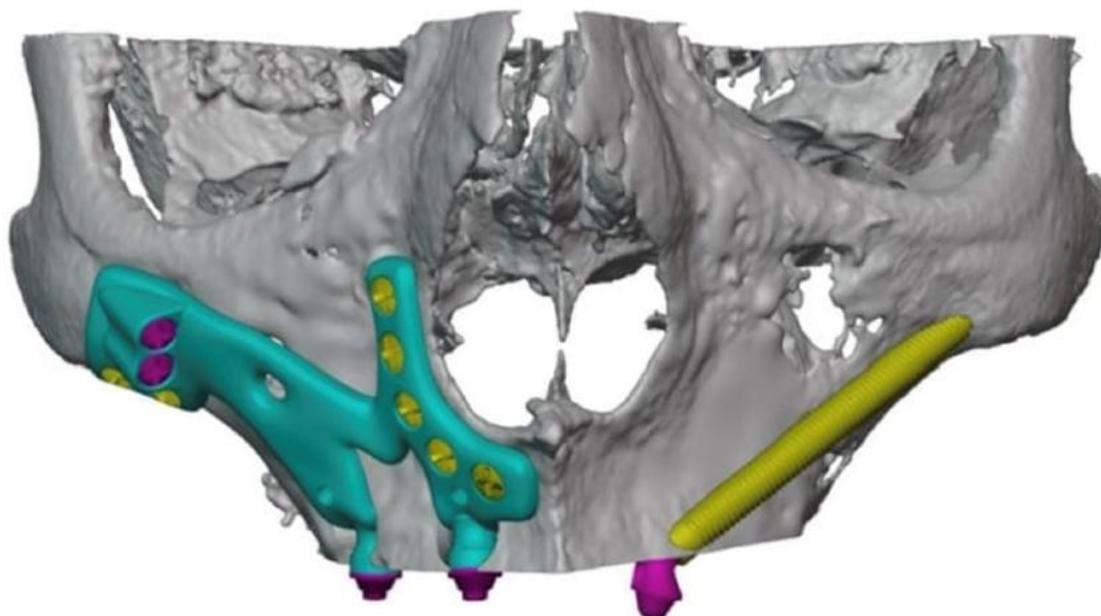


Figure 2: Comparison between Zygoma and PSI.

Ledermann, a Swiss implantologist, played a pivotal role in advancing dental implantology through his pioneering work on immediate loading techniques. In the late 1970s, he introduced a method where dental implants could be functionally loaded immediately after placement, a significant departure from the traditional delayed loading protocols of the time. Specifically, in 1979, Ledermann demonstrated that immediate loading in the anterior mandible yielded success rates comparable to conventional methods, challenging existing paradigms in implant dentistry. Collaborating with the Straumann Institute, Ledermann developed a one-piece, self-tapping screw implant with a titanium plasma-sprayed surface. This design facilitated immediate loading and was particularly effective for edentulous lower jaws. His approach involved placing four interforaminal implants connected by a bar, allowing for the immediate attachment of a prosthesis. Ledermann's innovations laid the groundwork for modern immediate loading protocols like All-on-4, influencing subsequent developments in implant design and surgical techniques. His contributions have been instrumental in enhancing patient outcomes and expanding the possibilities within dental implantology.

The work of Branemark and Ledermann is the basis of today Full-Arch-Treatments, but in cases with severe bone resorption conventional implants are not an option. In such cases, zygoma implants have been mainly used in recent years. Through the advancement of insertion techniques and modification of zygoma implants, the risk of failure has been reduced. However, the micromobility of zygoma implants remains, as they are only anchored apically and have an extremely unfavorable load-to-lever ratio.

The development of advanced 3D X-ray techniques and 3D manufacturing processes for titanium (laser sintering) now enables the precise adaptation of the implant body directly to the patient's bony structure. Due to the rigid anchorage using osteosynthesis screws, PIS achieve a mobility that is far below that of zygoma implants, as finite element studies show. Although the surgical procedure is demanding, the bony structures are preserved except for minimal adjustments for the transverse connectors.

Fig. 3,4, PIS cannot be compared to the subperiosteal implants of previous decades, which is often done. Due to the special surface treatment, which involves sand-blasting, etching, and anodizing procedures equivalent to that of conventional implants, and especially due to the maximum immobility on the bony substructure of 0.017mm, PSI such as Implantize Compact from BoneEasy show even osseointegration, making them a fully viable alternative for severely atrophied maxillae and mandibles. This case report shows the first three cases treated with Implantize Compact in Switzerland.



Figure 3: Implantize compact upper jaw.



Figure 4: Implantize compact lower jaw.

Case Presentation 1

Patient Information

E.H, 74, female, healthy, light smoker

Clinical Findings

Patient is suffering from severe atrophy of alveolar bone in mandible and maxilla. She is wearing full dentures in both jaws, of which the lower prosthesis is not at all in function.

CBCT showed a Cawood Class V-VI in both jaws, 3D preplanning with Sirona Galileos Software confirmed that conventional implants are no option (Fig. 5,6).

Diagnosis

Upper and lower edentulism, Cawood Class V-VI, insufficient complete dentures upper and lower

Treatment Plan

First treatment option for an edentulous jaw is always a conventional denture. Because the patient is already suffering from insufficient hold of the dentures, implants to stabilize the position of the dentures in function are discussed. Conventional implants need a minimum of about 1.5 mm around the implants and as well enough height of the alveolar bone to support short

implants. After this was not given, various kinds of augmentations were taken into consideration.

All augmentations needed several surgeries and several months of healing time, which the patient refused. So, the final options were Zygoma Implants in the upper jaw and PSI in the mandible. Patient accepted the approach with the PSI, but only wanted the treatment in the mandible, of which she was suffering most.



Figure 5: Patient 1 preop CBCT.



Figure 6: Patient 1 preop clinical.

Treatment Procedure

After the first CBCT was sent to BoneEasy the usual manufacturing procedure was started. It includes the steps which can be seen in Fig. 7. A very important part of the manufacturing is the doctor's quality analysis of 8 points of the planned PSI. Fig. 8,9.

Dentist	BoneEasy
Upload CBCT	
Payment	
Doctor quality analysis (8points)	Case study inclusive internal quality
Special request/Production authorization	
	Surgical guide design
	Model printing and Laser sintering
	Polishing
	MD inspection
	Device quality analysis
	Sand blasting, Label printing
	SLA Treatment, decontamination, packaging
	Implantize strilization
	Shipping to dentist

Figure 7: Manufacturing procedure.

#7 Implant design - Doctor quality analysis

Status: Completed

Responsible: 

Duration: 72 h

Tasks:

- 1. Check connection position
- 2. Check alignment to the maxillary/mandibular arch
- 3. Check screw location
- 4. Check intersections with anatomical structures
- 5. Check overall mesh shape
- 6. Confirm order data (patient's name, shipping and billing informations, etc)
- 7. Area to restore (PARTIAL/ TOTAL; UPPER/ LOWER) : total lower

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Figure 8: Doctor's quality analysis.

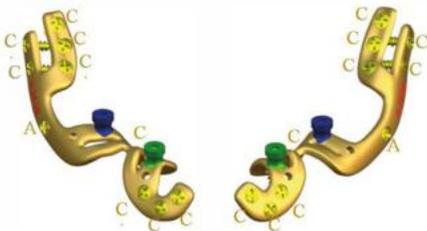
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Figure 9: Patient 1 surgery plan.

The surgery was performed in ambulant general anesthesia in our office following the usual rules of surgical treatments in ambulant general anesthesia. After introducing the general anesthesia a local anesthesia was applied (alveolar nerve block and local vestibular infiltrations). Creating a muco-periosteal flap from the ramus ascendens to the front on each side followed, with a vertical incision in the midline and a more linguallly placed incision on the horizontal part of the mandible because of the occlusal position of the mental foramen.

Extended opening of the flap, showing the entire bony mandible, adapting the surgical guide, fixation with pins of the surgery kit from BoneEasy. Then the alveolar ridge experienced some modifications for the proper placement of the transversal connectors of the implants. Therefore, special BoneEasy burs were used. After taking off the surgical guide the implants were tried in. Minimal corrections of the muco-periosteal flap in the distal area were performed, then the Implants were safely fixed with 2mm screws on the vestibular and lingual side.

Stretching of the Muco-periosteal flap before suturing by a blunt raspatorium eliminates the stretch of the flap and prevents dehiscencies. Suturing with 4-0 Glycolon self-dissolving material.

On top of the 4 connectors which penetrated the gingiva multi-unit abutments were screwed at 25 Ncm. 4 Nobel Biocare Temporary copings were screwed on the Multi-Unit Abutments and closed with pieces of Teflon band. The old lower denture which meanwhile was prepared by the technician was put over the temporary copings and put in the final bite position according to the upper denture. Temporary copings and lower denture were glued together by MDIhard resin. After selfcuring of the resin,

the denture and temporary copings were unscrewed and finalized in the in-house laboratory.

After completion of the lab work, means modification of the lower denture from a total prosthesis to an implant bridge it was screwed in the patient's mouth. Control of occlusion and articulation and the patient could leave the office after a certain waiting time, supplied with all necessary medicaments for the upcoming 14 days. She was allowed to immediately eat, except hard food like nuts, almonds to give the soft tissue time to heal (Fig. 10).

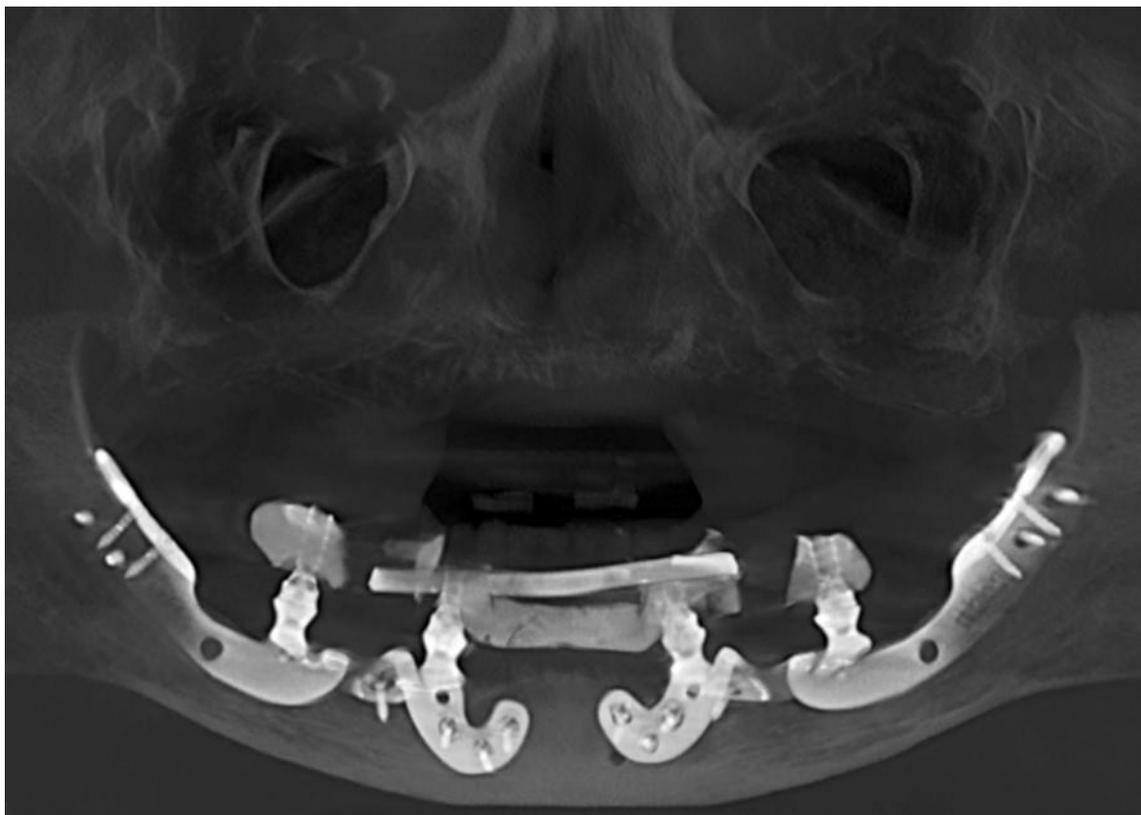


Figure 10: Patient 1 postop rx.

Intense rinsing with Chlorhexidine 02% for at least 4 weeks was prescribed as well as 2g Amoxicillin per day for 6 days and Ibuprofen/Metamizol for as long as needed. Additionally the application of cold packs for up to 2-4 days was suggested. The patient was handed a silicone splint as night guard to prevent overloading of the resin temporary bridge by a potential bruxism. Alternatively she was suggested to take the upper denture out during the night.

Outcomes and Follow-Up

After surgery checks were performed after 2, 4, 6, 8 weeks and showed no special problems. The patient was very satisfied from the first moment and enjoyed to be able to eat normal food again after a long period without. After the dissolving of the sutures the Chlorhexidine rinsing was stopped and a proper instruction of oral home care was given. After 8 months of follow up a slight sign of mucosal dehiscence around the passage points of the implants can be detected, but no sign of inflammation. The patient is instructed to clean well and to observe the situation intensely (Fig. 11).



Figure 11: Patient 1 7 months postop.

Case Presentation 2

Patient Information

L.K., 72, female, healthy, light smoker.

Clinical Findings

Patient showed up in the office with insufficient upper and lower partial dentures, as well as loose teeth in both jaws.

The CBCT showed the possibility to perform an all-on-4 like treatment in the lower, but not in the upper jaw. After checking for treatment options like described in the case before, we decided to plan a PSI, but the patient preferred a treatment jaw by jaw not simultaneously (Fig. 12,13).



Figure 12: Patient 2 preop clinical.



Figure 13: Patient 2 preop rx.

Diagnosis

Edentulous maxilla with insufficient denture, advanced periodontitis in the mandible, insufficient partial lower denture.

Treatment Plan

According to the topic of this article only the upper jaw will be described. The treatment plan was developed like described in the case above. First treatment option for an edentulous jaw is always a conventional denture.

Because the patient is already suffering from insufficient hold of her upper denture, implants to stabilize its position in function are discussed. Conventional implants need a minimum of about 1.5mm around the implants and as well enough height of the alveolar bone to support short implants. After this was not given, various kinds of augmentations were taken into consideration. All augmentations needed several surgeries and several months of healing time, which the patient refused. As final options Zygoma Implants in the upper jaw or PSI were identified. Patient accepted the approach with the PSI, but wanted the treatment in separate surgeries, not simultaneously with the mandible.

Treatment Procedure

As described above, after the first CBCT was sent to BoneEasy the usual manufacturing procedure was started. The surgery was performed in ambulant general anesthesia in our office following the usual rules of surgical treatments in ambulant general anesthesia. After introducing the general anesthesia a local anesthesia was applied (local vestibular infiltrations in the upper jaw). Creating a muco-periosteal flap from tuberositas to tuberositas followed, with a vertical incision in the midline and a more palatal placed incision on the alveolar crest. Extended opening of the flap, showing the entire bony maxilla, adapting the surgical guide, fixation with pins of the surgery kit from BoneEasy. Then the alveolar ridge experienced some modifications for the proper placement of the transversal connectors of the implants. Therefore special BoneEasy burs were used. After taking off the surgical guide the implants were tried in. Minimal corrections of the muco-periosteal flap in the zygomatic area were performed, then the Implants were safely fixed with 2 mm screws on the facial side and the palate, as well as by 2.3 cm long double implants in the zygoma on both sides. On top of the 4 connectors of the implants multi-unit abutments were screwed at 25 Ncm (Fig. 14-17).



Figure 14: Patient 2 surgical guide.

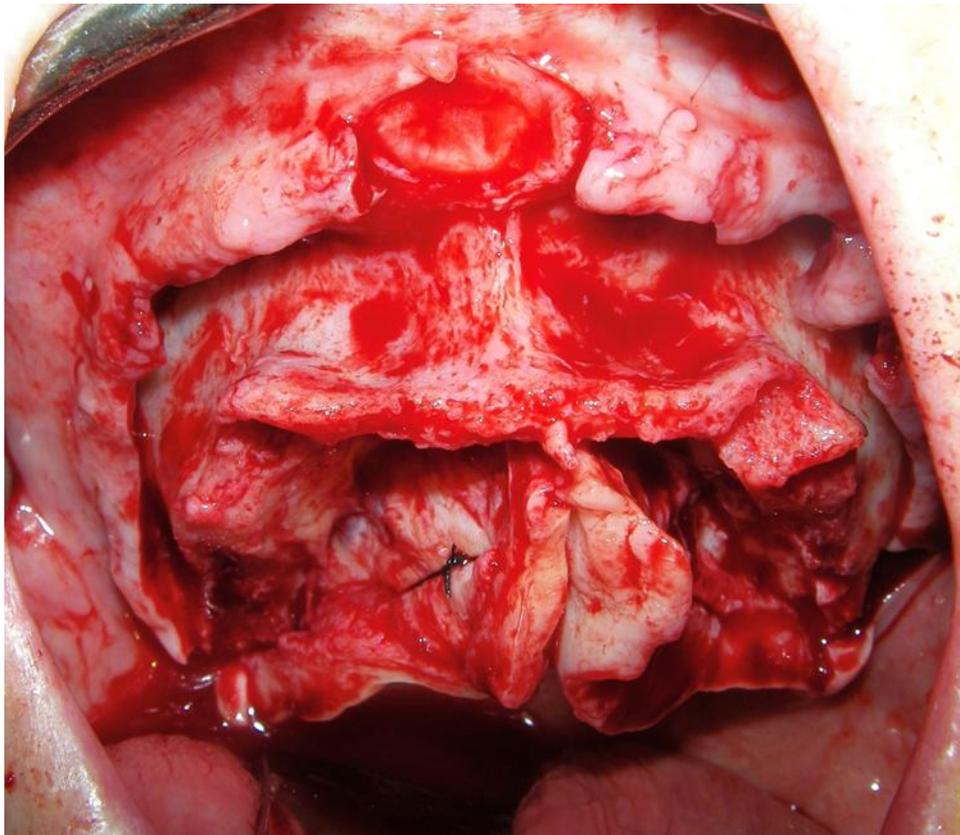


Figure 15: Patient 2 extended flap upper jaw.

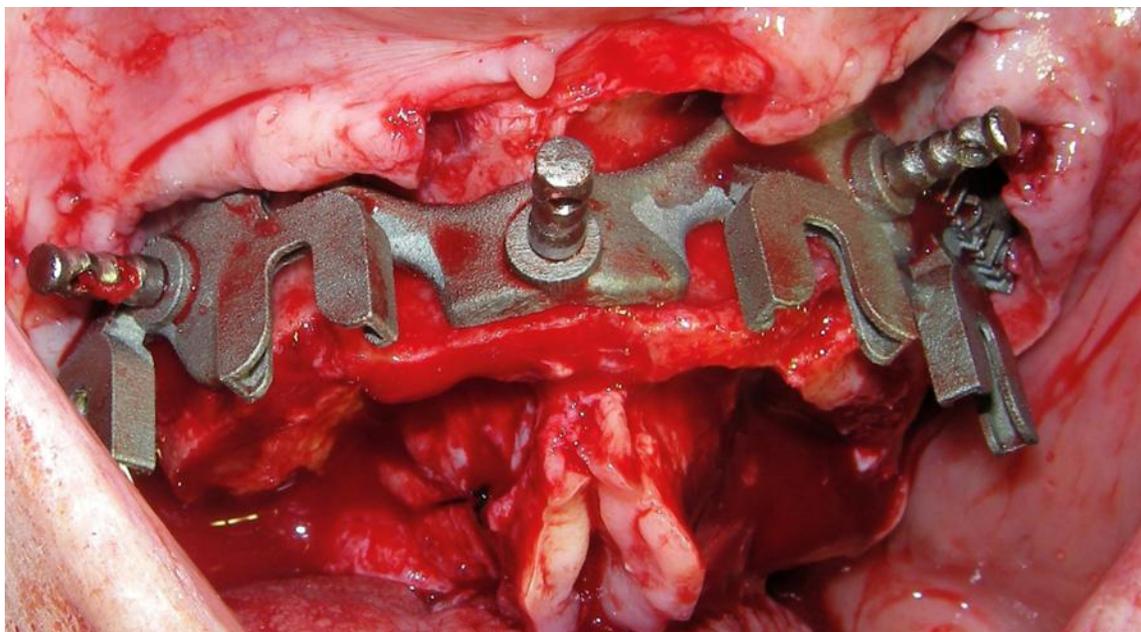


Figure 16: Patient 2 surgical guide *in-situ*.

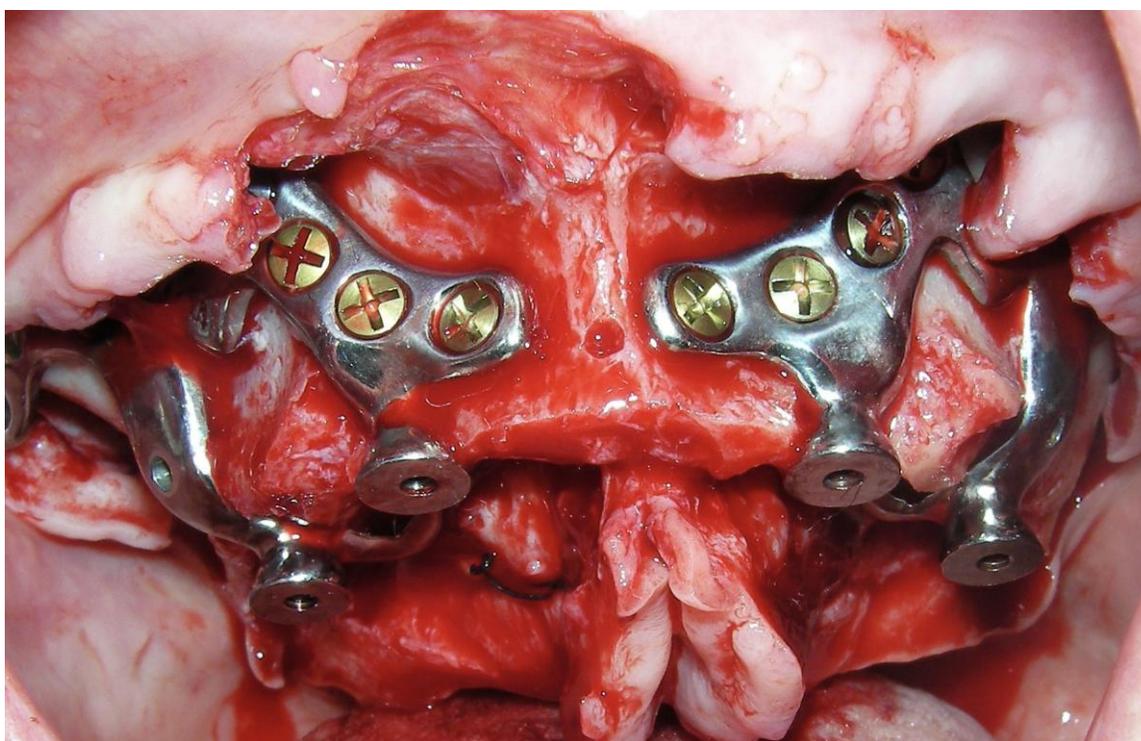


Figure 17: Patient 2 implants *in-situ*.

Stretching of the Muco-periosteal flap before suturing by a blunt raspatorium eliminates the stretch of the flap and prevents dehiscencies. In this case we performed an additional step to prevent dehiscence, which is the most common reason for implant failure. Before suturing with 4-0 Glycolon self-dissolving material we applied on each side a FibroGide with the measurements of 15x20x6 mm over the screwed multi-unit abutments.

“Geistlich Fibro-Gide is a resorbable, volume-stable collagen matrix of porcine origin and was specifically developed for soft tissue regeneration. The collagen matrix consists of reconstituted collagen and has been gently chemically cross-linked to improve the product's volume stability. At the same time, the matrix retains its good biocompatibility. The porous matrix network promotes and supports angiogenesis, the formation of new connective tissue, and provides stability to the collagen

network during submerged healing. In vivo animal studies have demonstrated good integration of Geistlich Fibro-Gide® into the surrounding soft tissue while maintaining stability. Geistlich Fibro-Gide® represents the alternative to autologous connective Tissue Grafts (BGT), which are currently considered the gold standard in regenerative soft tissue surgery. When using Geistlich Fibro-Gide, an additional donor site is avoided, thus reducing patient morbidity.” (Cited from the Website of the manufacturer) Before suturing, the Fibro-Gides were biologized by some S-PRF, liquid PRF, which is soaking the collagen and enriching it with patient`s own stem cell like leucocytes, platelets and plasma (Fig. 18,19).

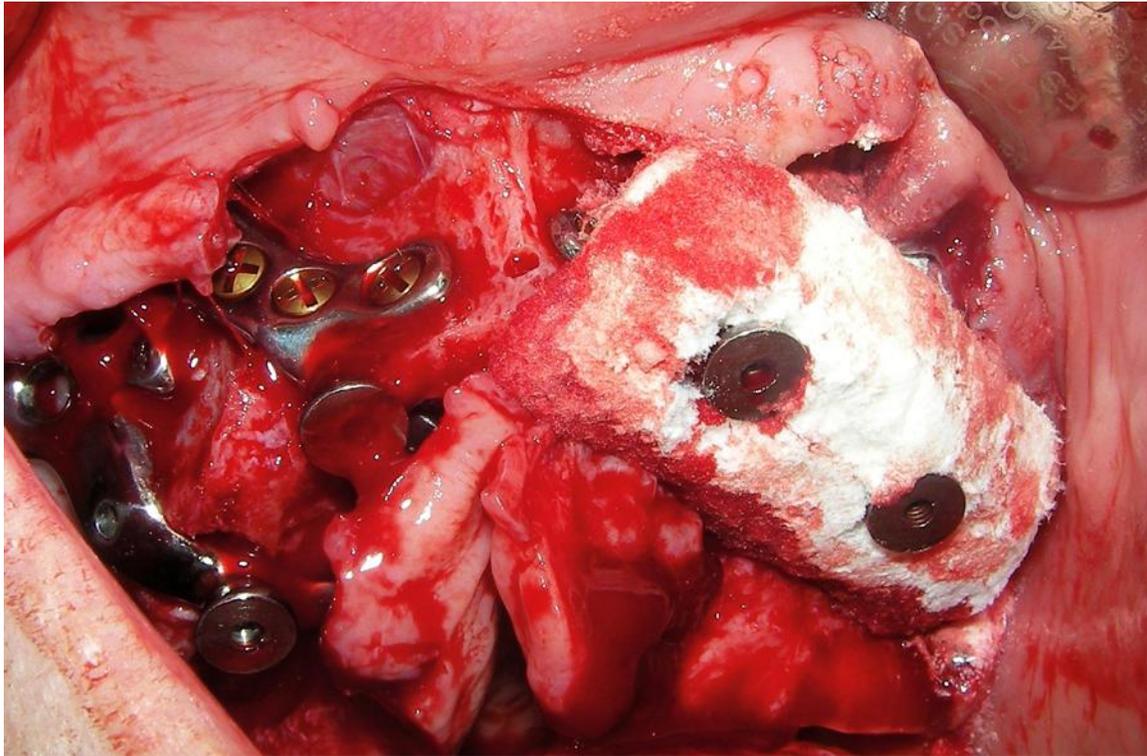


Figure 18: Patient 2 fibroguide *in-situ*.

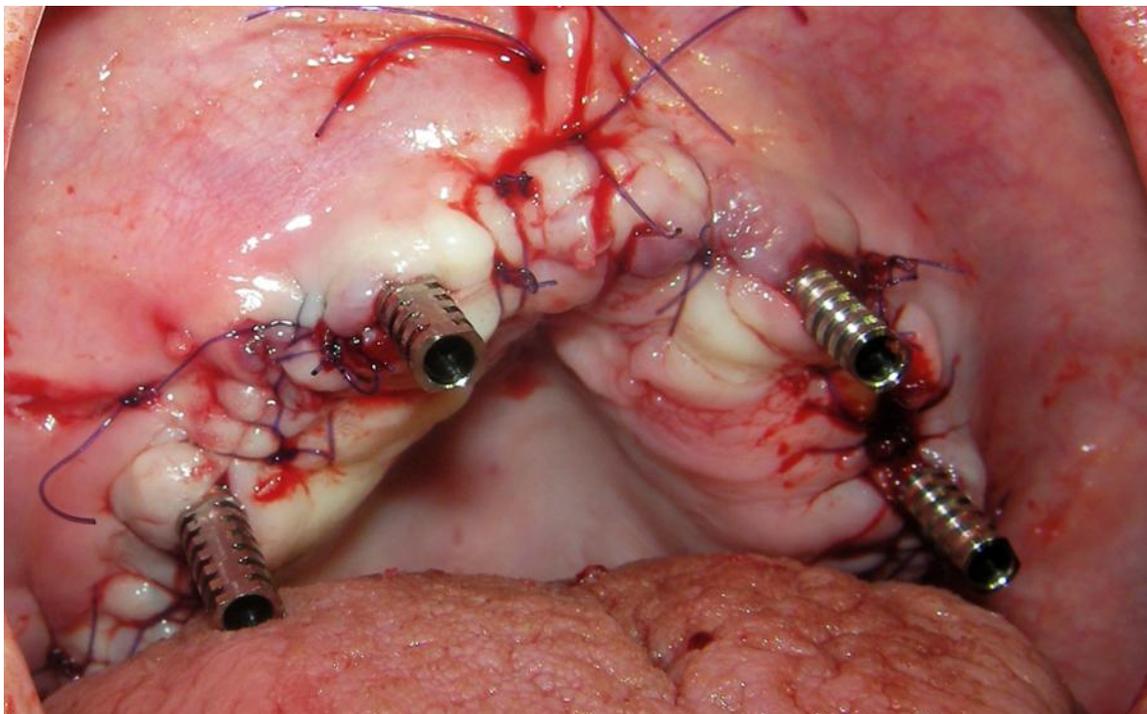


Figure 19: Patient 2 wound closed.

4 Nobel Biocare Temporary copings were screwed on the Multi-Unit Abutments and closed with pieces of Teflon band. The old upper denture which meanwhile was prepared by the technician was put over the temporary copings and put in the final bite position according to the lower implant supported bridge. Temporary copings and upper denture were glued together by MDIhard resin. After selfcuring of the resin, the denture and temporary copings were unscrewed and finalized in the in-house laboratory.

After completion of the lab work, means modification of the upper denture from a total prosthesis to an implant bridge it was screwed in the patient's mouth. Control of occlusion and articulation and the patient could leave the office after a certain waiting time, supplied with all necessary medicaments for the upcoming 14 days. She was allowed to immediately eat, except hard food like nuts, almonds to give the soft tissue time to heal (Fig. 20).



Figure 20: Patient 2 postop rx.

Intense rinsing with Chlorhexidine 02% for at least 4 weeks was prescribed as well as 2g Amoxicillin per day for 6 days and Ibuprofen/Metamizol for as long as needed. Additionally the application of cold packs for up to 2-4 days was suggested. The patient was handed a silicone splint as night guard to prevent overloading of the resin temporary bridge by a potential bruxism.

Outcomes and Follow-Up

After surgery checks were performed after 2, 4, 6, 8 weeks and showed no special problems. The patient was very satisfied from the first moment and enjoyed to eat normal food again after a long period without. After the dissolving of the sutures the Chlorhexidine rinsing was stopped and a proper instruction of oral home care was given.

After 4 months of follow up no sign of mucosal dehiscence around the passage points of the implants can be detected, but an increased thickness of the soft tissue around the implants was noted. The patient is instructed to clean well and to observe the situation intensely (Fig. 21).



Figure 21: Patient 2 4 months postop clinical.

Case Presentation 3

Patient Information

M.S., 48, male, non-smoker, Morbus Krohn since years, intense cortisol therapy

Clinical Findings

Patient showed up in the office with an insufficient upper total and moving lower partial denture, as well as loose teeth from 34-43 in the lower front.

The CBCT showed the possibility to perform an all-on-4 like treatment in the lower, but not in the upper jaw. After checking for treatment options like described in the case before, we decided to plan a PSI in the upper jaw and all-on-4 in the lower jaw, performed simultaneously (Fig. 22,23).

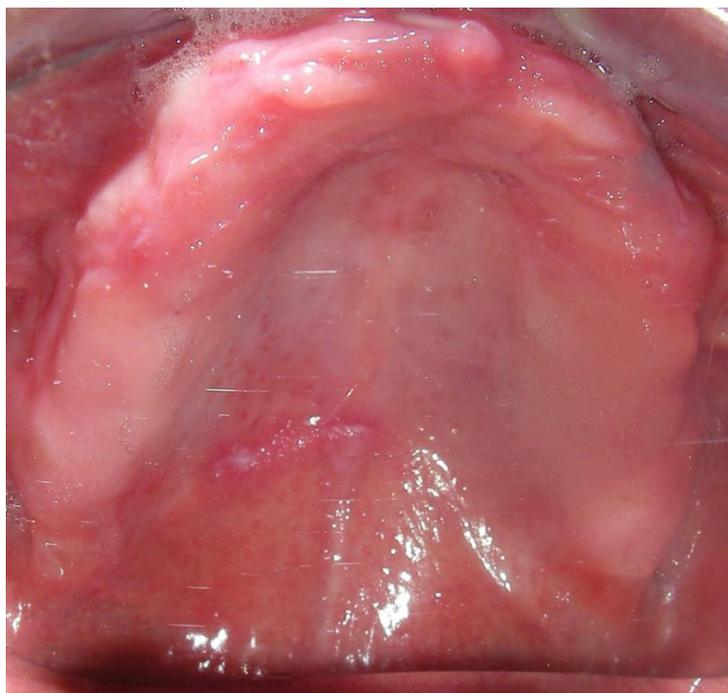


Figure 22: Patient 3 pre op clinical.



Figure 23: Patient 3 pre op rx.

Diagnosis

Morbus Krohn, Cortisone-induced bone loss, advanced periodontitis.

Treatment Plan

According to the topic of this article only the upper jaw will be described. The treatment plan was developed like described in the cases above. First treatment option for an edentulous jaw is always a conventional denture. Because the patient is already suffering from insufficient hold of his partial dentures, implants to stabilize the position of prostheses are discussed. Conventional implants need a minimum of about 1.5mm around the implants and as well enough height of the alveolar bone to support short implants. After this was not given in the upper jaw, various kinds of augmentations were taken into consideration. All augmentations needed several surgeries and several months of healing time, which the patient refused and which might be a risk because of the performed Cortisone therapy. As final options Zygoma Implants in the upper jaw or PSI were identified. Patient accepted the approach with the PSI in the upper and all-on-4 in the lower jaw, and wanted the treatment in both jaws simultaneously.

Treatment Procedure

As described above, after the first CBCT was sent to BoneEasy the usual manufacturing procedure was started. The surgery was performed in ambulant general anesthesia in our office following the usual rules of surgical treatments in ambulant general anesthesia. After introducing the general anesthesia a local anesthesia was applied (local vestibular infiltrations in the upper jaw). Creating a muco-periosteal flap from tuberositas to tuberositas followed, with a vertical incision in the midline and a more palatal placed incision on the alveolar crest. Extended opening of the flap, showing the entire bony maxilla, adapting the surgical guide, fixation with pins of the surgery kit from BoneEasy. Then the alveolar ridge experienced some modifications for the proper placement of the transversal connectors of the implants. Therefore, special BoneEasy burs were used. After taking off the surgical guide the implants were tried in. Minimal corrections of the muco-periosteal flap in the zygomatic area were performed, then the Implants were safely fixed with 2 mm screws on the facial side and the palate, as well as by 2.3 cm long double implants in the zygoma on both sides. On top of the 4 connectors of the implants multi-unit abutments were screwed at 25 Ncm (Fig. 24-26).

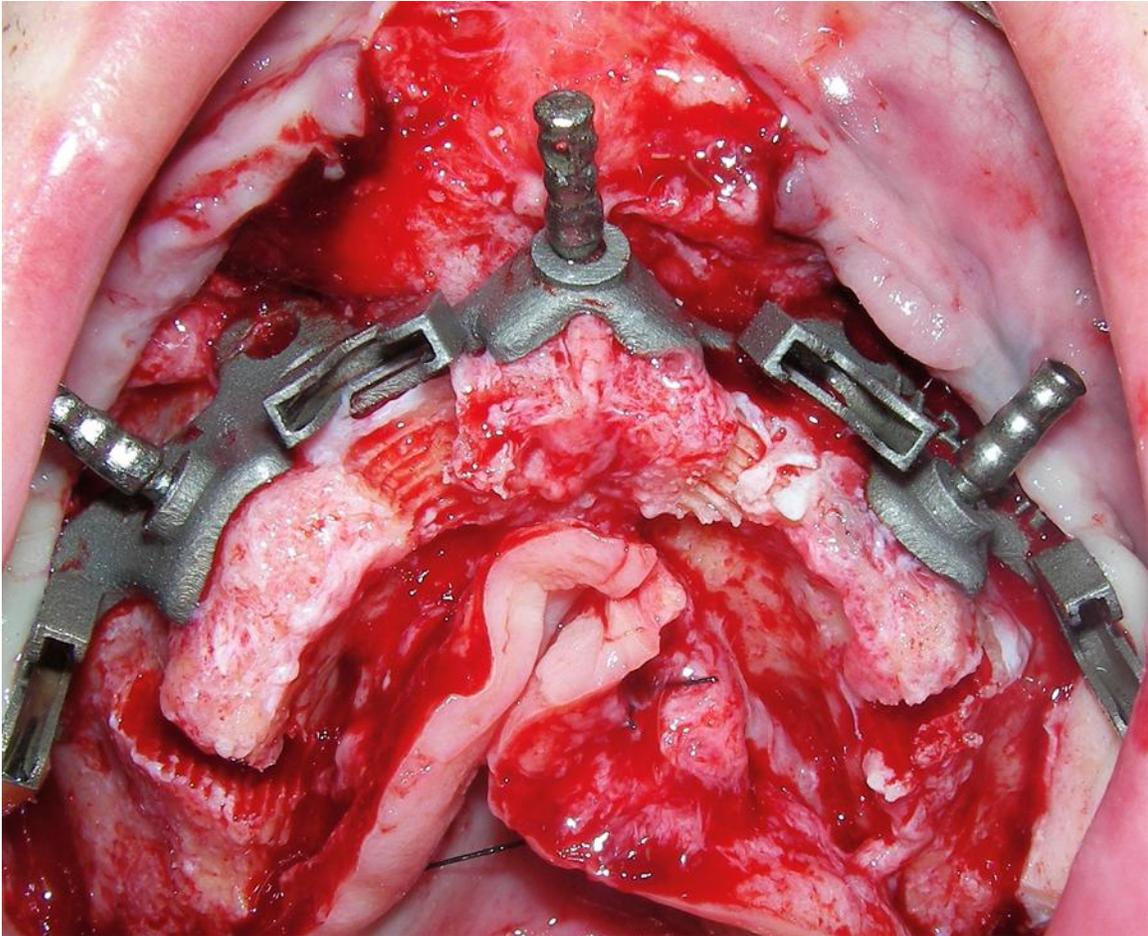


Figure 24: Patient 3 intra op surgicalguide.

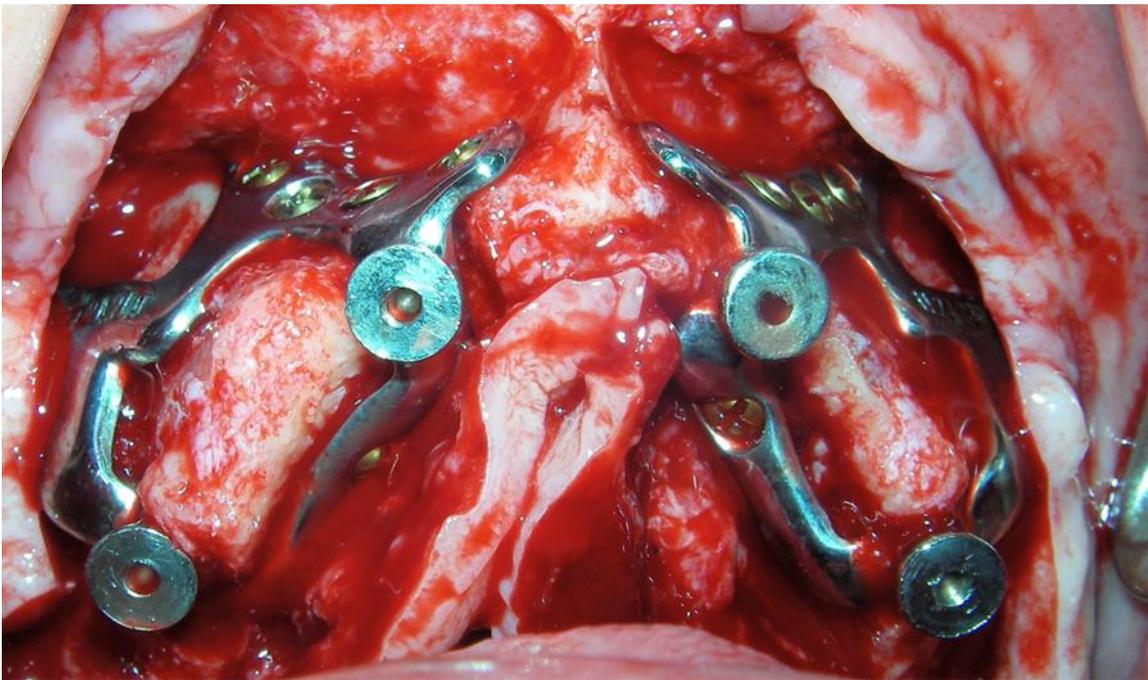


Figure 25: Patient 3 intra op implants in place.

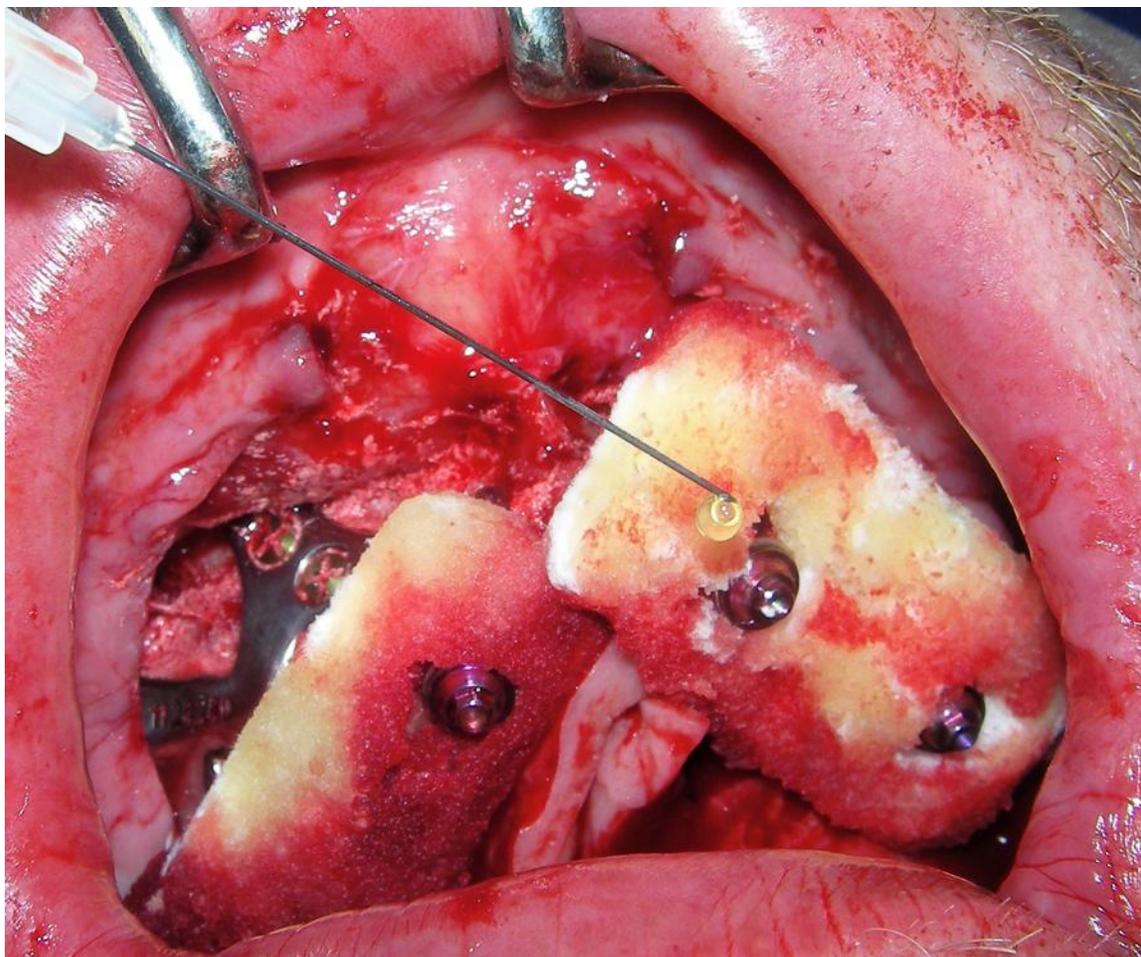


Figure 26: Patient 3 intra op FibroGide in place, soaked with S-PRF.

Stretching of the Muco-periosteal flap before suturing by a blunt raspatorium eliminates the stretch of the flap and prevents dehiscencies. Also, in this case we performed the additional step of soft tissue thickening to prevent dehiscence, which is the most common reason for implant failure. Before suturing with 4-0 Glycolon self-dissolving material we applied on each side a FibroGide with the measurements of 15x20x6mm over the screwed Multi-Unit abutments. Before suturing, the Fibro-Gides were biologized by some S-PRF, liquid PRF, which is soaking the collagen and enriching it with patient's own stem cell like leucocytes, platelets and plasma.

4 Nobel Biocare Temporary copings were screwed on the Multi-Unit Abutments and closed with pieces of Teflon band. A new upper denture which meanwhile was prepared by the technician was put over the temporary copings and put in the final bite position according to the lower partial denture. Temporary copings and upper denture were glued together by MDIhard resin. After selfcuring of the resin, the denture and temporary copings were unscrewed and finalized in the in-house laboratory. After completion of the lab work, means modification of the upper denture from a total prosthesis to an implant bridge it was screwed in the patient's mouth. Control of occlusion and articulation with the old partial denture. Then the surgery in the lower jaw was performed following the all-on-4 concept. After completion the patient could leave the office after a certain waiting time, supplied with all necessary medicaments for the upcoming 14 days. He was allowed to immediately eat, except hard food like nuts, almonds to give the soft tissue time to heal (Fig. 27,28).

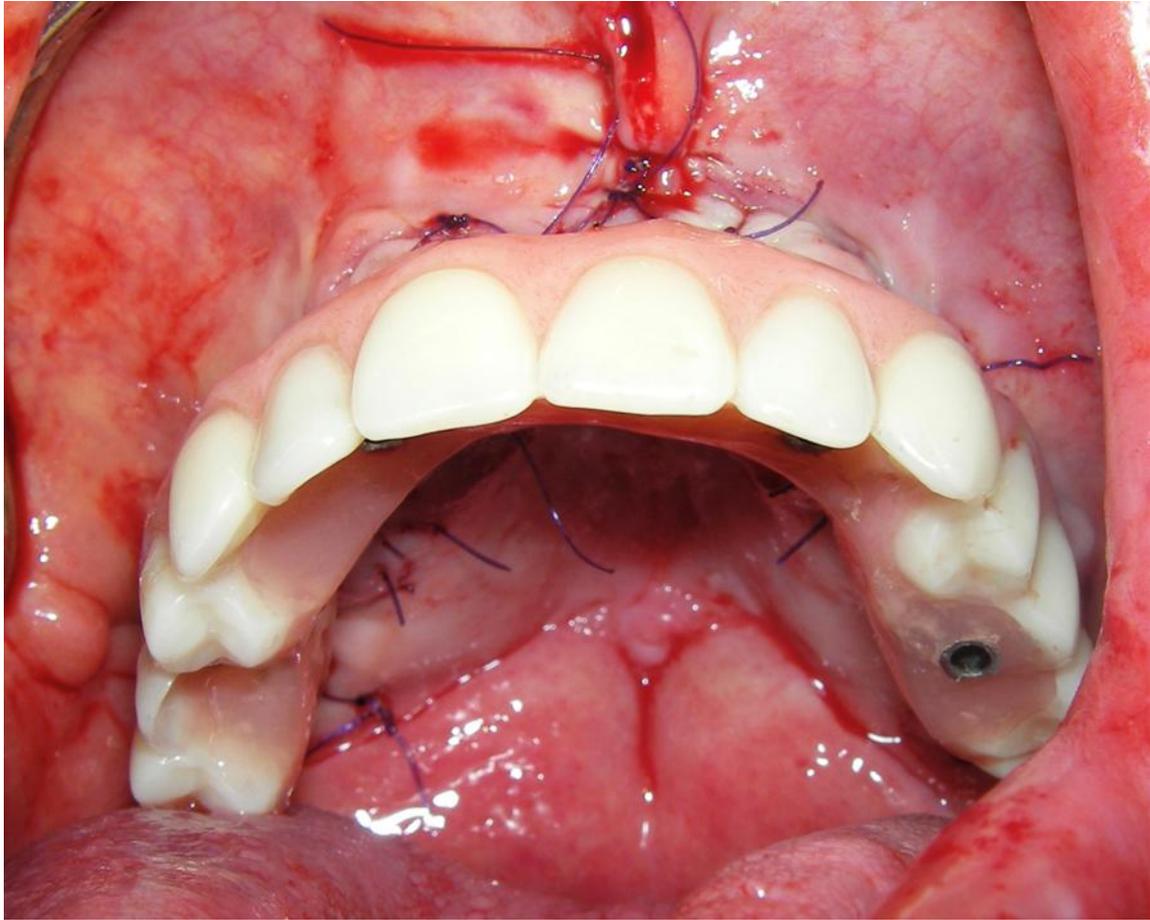


Figure 27: Patient 3 final situation intraoral.

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Sidexis 4
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Figure 28: Patient 3 post op rx.

Intense rinsing with Chlorhexidine 02% for at least 4 weeks was prescribed as well as 2g Amoxicillin per day for 6 days and Ibuprofen/Metamizol for as long as needed. Additionally the application of cold packs for up to 2-4 days was suggested. The patient was handed a silicone splint as night guard to prevent overloading of the resin temporary bridge by a potential bruxism.

Outcomes and Follow-Up

After surgery checks were performed after 2, 4, 6, 8 weeks and showed no special problems. The patient was very satisfied from the first moment and enjoyed to eat normal food again after a long period without with special regards to his general limitation by Morbus Krohn. After the dissolving of the sutures the Chlorhexidine rinsing was stopped and a proper instruction of oral home care was given.

About 10 weeks after the surgery the patient showed up with a broken lower bridge between implants 34 and 32. The bridge was taken out and repaired in the lab. The patient was instructed again to wear the night guard every night. After 4 months of follow up no sign of mucosal dehiscence around the passage points of the implants could be detected, but an increased thickness of the soft tissue around the implants was noted. The permanent bridges were manufactured and inserted. The patient was again instructed to clean well and to observe the situation intensely (Fig. 29).



Figure 29: Patient 3, 3 months post op rx.

Discussion

In all three described cases the clinical outcome was like expected and the patients were very happy with it. All three confirmed the treatment as life changing procedure which gave them back features and opportunities which they have lost long ago. Not only the comfort of being able to eat normal food, also the improved taste and above all the loss of nervousness and insecurity while in society are the positive aspects. The post surgery side effects were described as acceptable, nobody asked for more or more intense pain killers, au contrary, each patient confirmed that the post op pain and swelling were less than expected.

Conclusion

The surgery is regarding the bone destruction minimally invasive, but the muco-periosteal flap is far more extended as for normal implant insertions or other oral surgeries, so it should be performed by experienced surgeons only. The insertion of the implants

can be performed following the surgical guide provided by the manufacturer, manual changes of the bone reduction for a better fit of the implants is possible. The use of collagen membranes for the thickening of the soft-tissue as prevention of dehiscencies should depend on the phenotype of the patient. Both cases in which we performed it show at least a significant thickening of the periimplant gingiva. Longterm observations should be performed. Patient-specific implants are a valuable and sometimes the last treatment option for patients suffering from severe alveolar bone atrophy. They can be performed in a single surgery, are available also for partial bone loss and should be considered as an option to prevent augmentations and healing periods of several months, which saves also money for the patient.

Conflict of Interest

The authors declare that they have no conflicts of interest with the contents of the article.

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