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Corrective Intervention Using Corticobasal® Implants, After Failure of an “All-On-4” Reconstruction

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Abstract

Background: The “All-on-4” has become widespread in the last 10 - 15 years. This technology allows a limited form of immediate functional loading. Due to the shortcomings of this technique, we see an amazing amount of failures for this technology on the market and in our clinics. This article shows how a typical failure case can be corrected and developed into a successful case by an expert for Corticobasal® implants.

Case Presentation: Four years after receiving an “All-on-4” reconstruction in the lower jaw, a 54-year-old healthy patient requested revision of the lower jaw treatment because the bridge had become mobile and recurrent pain and infections were noticed. The old implants and reconstruction were removed and cortically anchored Strategic Implant® were placed in both the upper and lower jaw. During the next 18 months, radiographic controls were performed and a self-reformation of the formerly lost bone became apparent.

Conclusion: Strategic Implant® and the technology of “Osseofixation” are suitable for repairing dental implant cases after conventional osseointegrated implants have failed.

Keywords: Strategic Implant®, corrective intervention, failure of conventional dental implants, immediate functional loading, cortical implantology.

Introduction

The “All-on-4” technology includes placement of four implants in the mandibular interforaminal area or in the area between the maxillary sinuses in the frontal upper jaw. The protocol of this technology includes tilted placement of conventional 2-stage implants, as well as immediate functional splinting of the implants with reduced functional loading. Typically, two bridges are necessary per jaw (!) in order to avoid off-axis forces during the first six months or longer.

The disadvantage of this technology is that the area that has to cope with 90% of the masticatory forces, i.e. the distal aspects of the bridges in both jaws, has no support by implants. This often leads to implant mobilities due to overloading. Hence, overloading of bone and of implant structures (abutments, screws) is one of the main causes of complications.

In this article, we report on the successful repair of a failed “All-on-4” case. The case was rescued and solved with the help of the technology of the Strategic Implant®.

Case Presentation

The male patient was 54 years old and non-smoker at the onset of our treatment. He did not have a medical history.

Clinical Findings: The patient came to the clinic with a mobile, implant-borne bridge in the lower jaw. He complained about recurrent infections with pus flowing out of the mandible. In the upper jaw, he had a few over-elongated front teeth left.

Diagnostic Assessment: The patient was sent (as per our routine) to take a new panoramic picture, a cephalometric picture and a PA x-ray of the skull. We did not ask for any documentation from the previous treatment providers, as it was clear that we had to remove all implants and the bridge in the lower jaw as well as all teeth in the upper jaw.

Therapeutic Intervention: In local anesthesia and light oral sedation, the bridge and all four implants were removed. Only one of the four implants had still been integrated in its apex area, all other implants were just taken out with the fingers. We inserted seven Strategic Implant® into the lower jaw and all implants achieved high stability.

Right after this, the teeth in the upper jaw were removed, the level of the bone in the upper jaw was adjusted, and treatment given with a total of twelve cortically anchored implants (BCS® and TPG® uno).

Follow-up and Outcomes: The healing went well and without complications. The patient's speaking function adjusted quickly to the strongly increased amount of fixed teeth in the oral cavity.

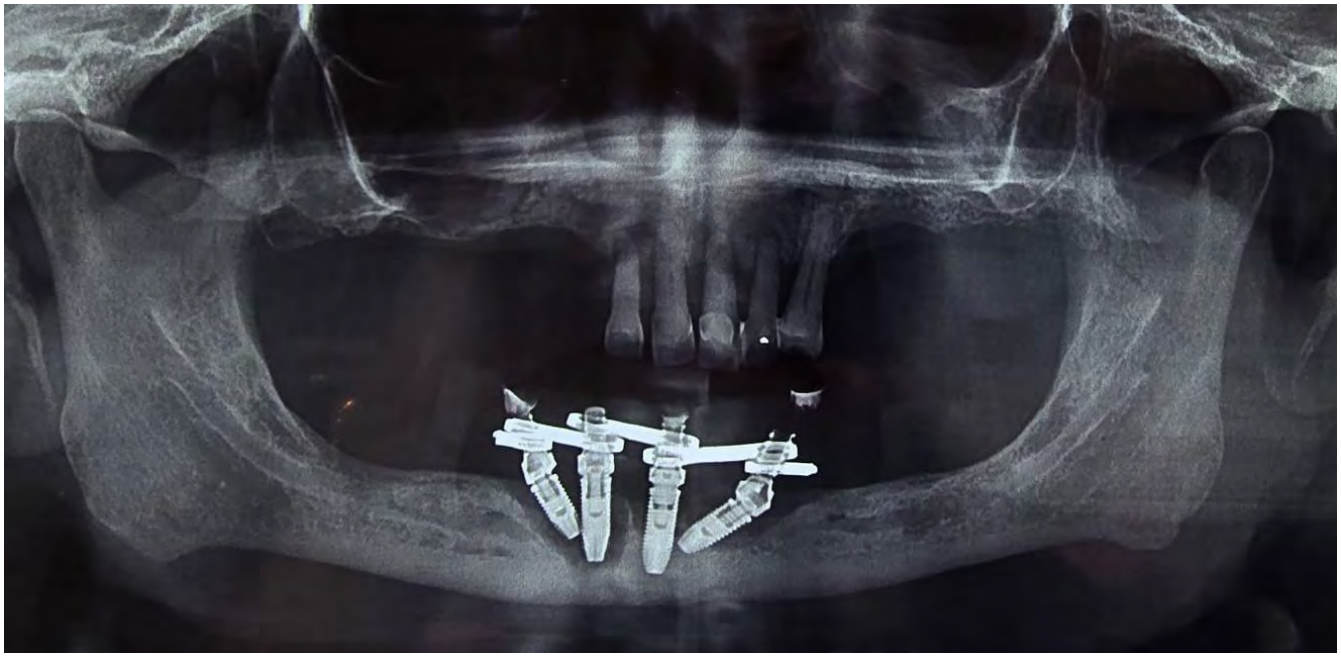

***Fig. 1a**: The pre-operative panoramic overview picture shows failing implants, placed according to the technology of "All-on-4", as well as a partly edentulous upper jaw with five teeth left in.*

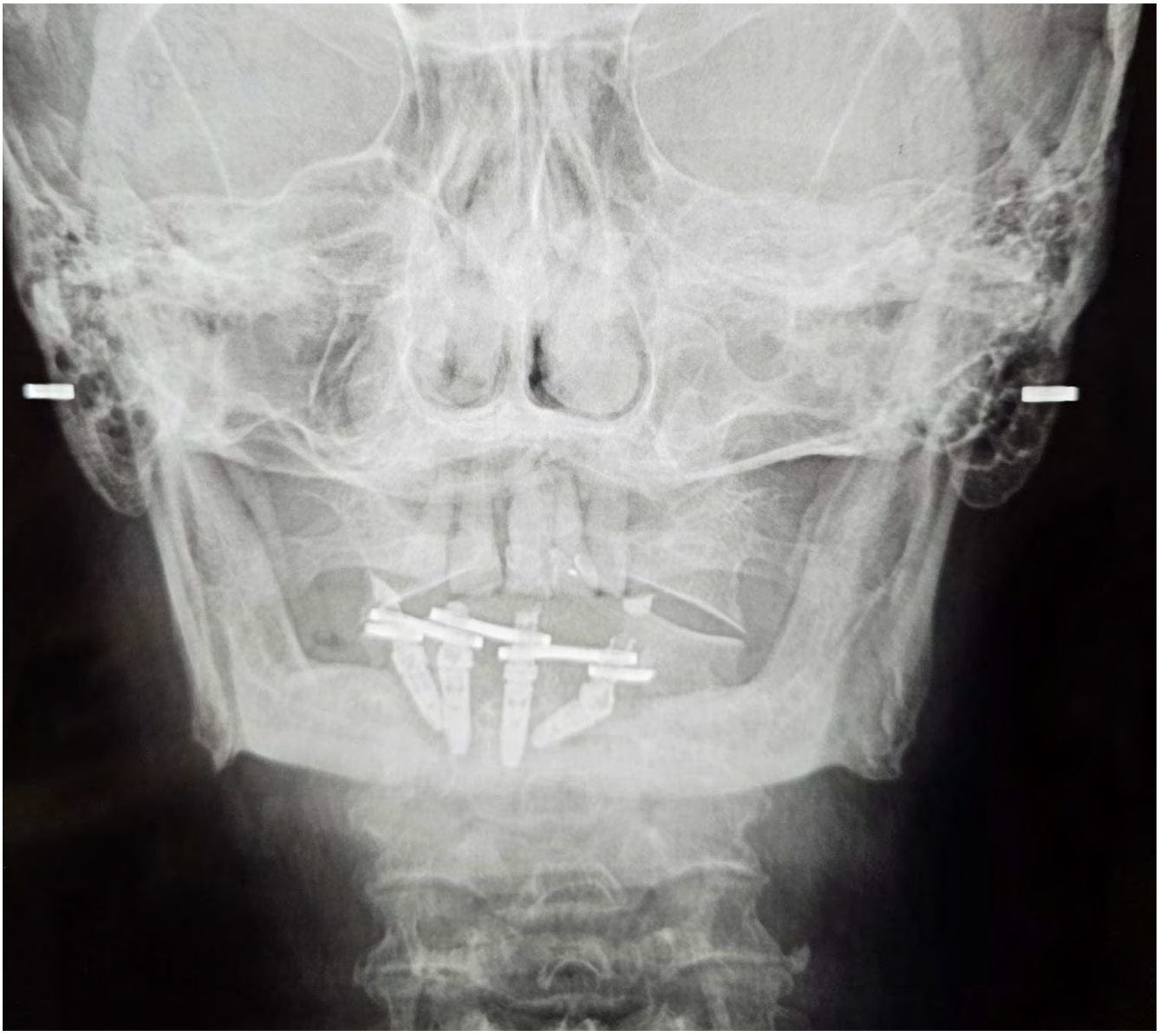

***Fig. 1b**: PA radiograph of the skull of our patient, showing massive bone loss and a reduced vertical dimension.*

***Fig. 2**: Clinical picture before the intervention, showing five upper front teeth with periodontal involvement and signs of chronic infection.*

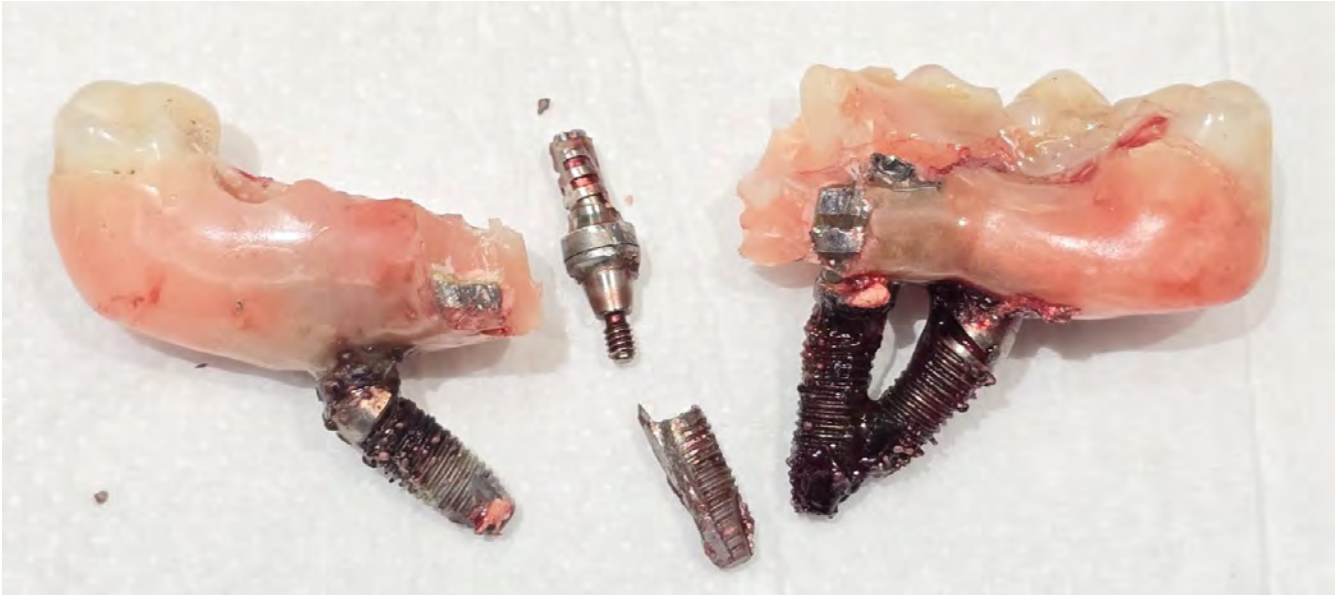

***Fig. 3**: All implants had been removed. The acrylic bridge was cut into two parts and removed.*

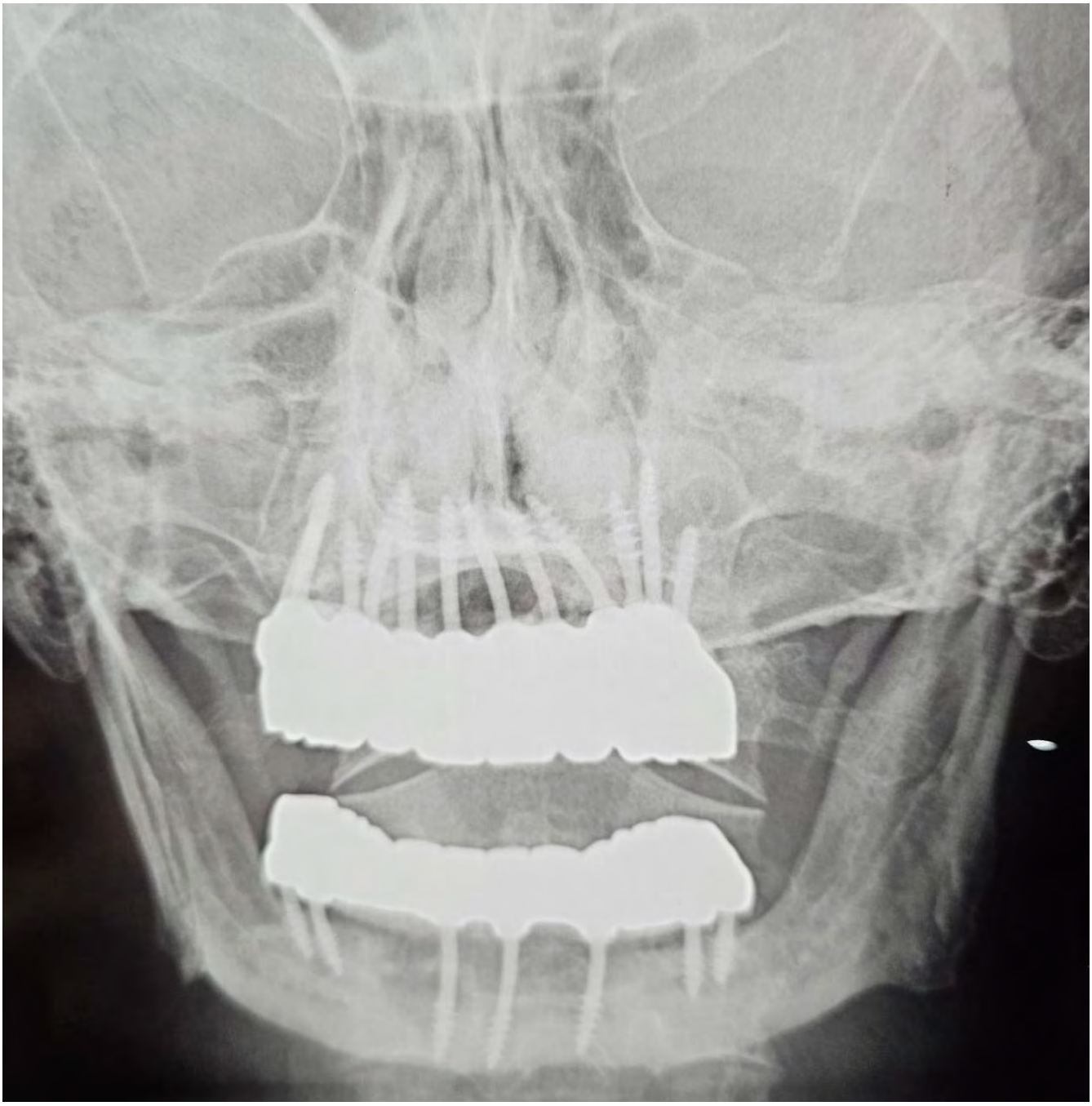

***Fig. 4**: Post-operative PA of the skull shows implant placement, prosthetic equipment of the two jaws, and the well-adjusted vertical dimension.*

***Fig. 5**: Clinical view three months post-operatively. The healing of the gums is uneventful. Contacts are balanced and the patients reports that he can eat everything without any pain.*

***Fig. 6**: Post-operative panoramic picture taken on day 3. Severe defects in the mandible are visible. Three implants in the lower front are anchored in the base of the mandible (2nd cortical); all distal implants are placed in IF Method 5a, in lingual cortical engagement.*

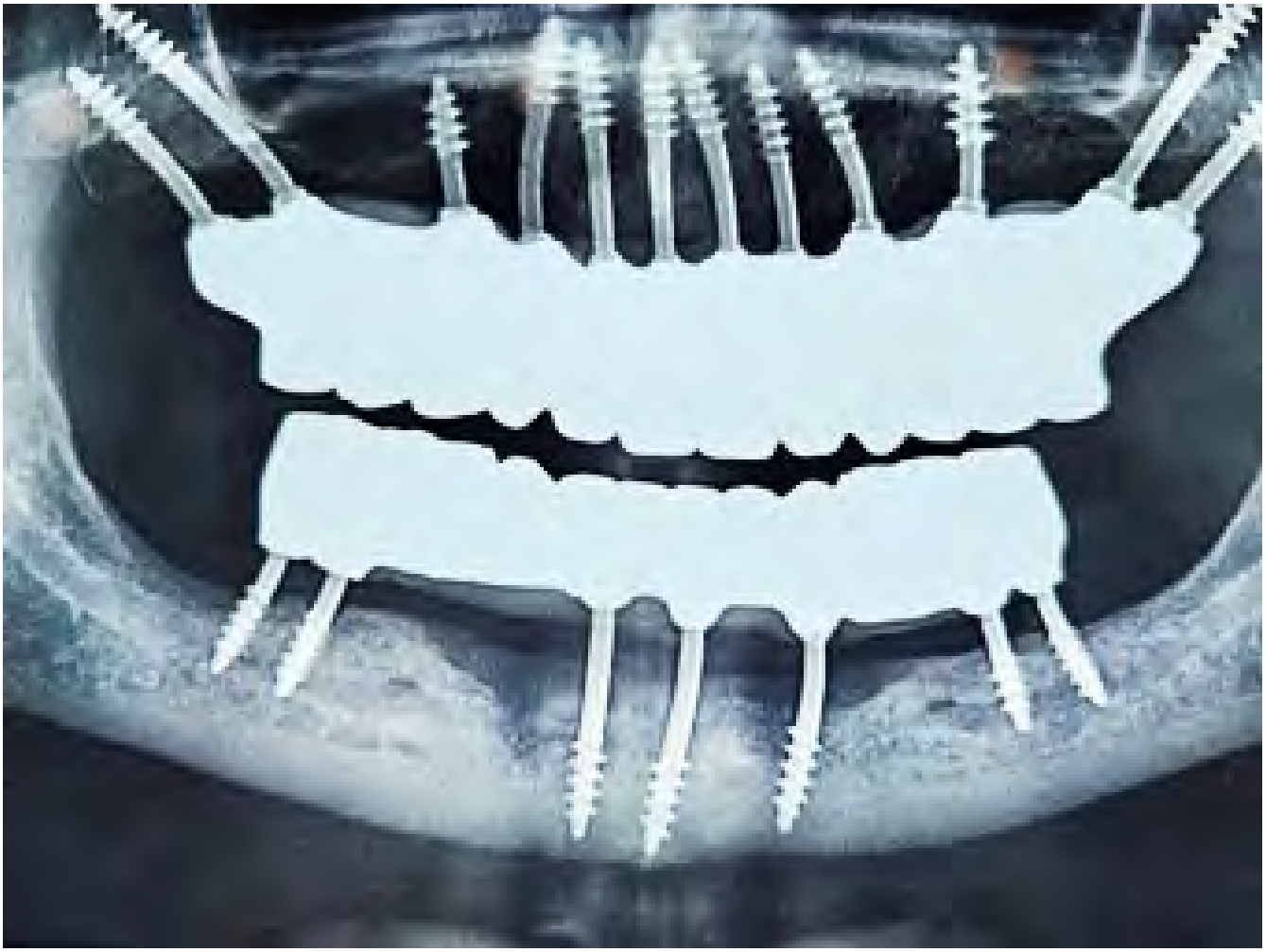

***Fig. 7**: Twelve months post-operatively, the bony defects in the lower jaw have started to self-fill with new bone. The apposition takes place in all areas of the former defect.*

Discussion

Interpreted Findings: This case is in line with current literature, which tells that periimplantitis (as well as technical failures of components) are the main reasons for failing conventional implants, especially if the technology “All-on-4” is used.

This case also shows how strong the desire of the jawbone is to reach an adequate level of the crest after the ailing 2-stage implants have been removed. The removal of these implants alone triggers massive new bone formation by itself.

Bone augmentation is not necessary, as the bone is self-healing after the unsuitable and failing implants have been removed.

Clinical Significance:

1. The Strategic Implant® is the device of the first choice when it comes to replacing failing 2-stage implants, because they utilize the available (reduced) amount of bone, they never require bone augmentation and they work in an immediate loading functional protocol.
2. Removal of the old implants and placement of the new implants are typically done in the same intervention. Right after, the dental lab will start working on the new prosthetic work pieces, which are then cemented onto the abutment heads within 72 hours after the surgical intervention.
3. While the bone level decreases along conventional 2-stage implants, it rises back up to earlier levels of the crest, as soon as the 2-stage implants are removed and replaced by the Strategic Implant®.

Conclusion

Even in cases of severe bone loss around conventional oral implants, a corrective intervention can be done in one single surgical intervention, using the Strategic Implant® technology.

Patient Perspective

Our patient came to our clinic from a distance of 2500 km away, just because he knew that we would be able to help him with the superior implant technology (“Implantology 2.0”) of the Strategic Implant®.

The patient came back well in time for the three-month control and then one year later. The bone and soft tissues appeared stable and clean. Some minor adjustments were done on the masticatory surfaces.

Informed Consent

This article is published with the consent of the patient, who wishes that more dental practitioners would consider to stop treating teeth in order to concentrate on a treatment technology that works without natural teeth and with any remaining amount of jawbone atrophy.

The authors claim that they have no conflict of interest.

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