



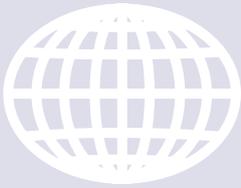
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MORPHOLOGICAL CHANGES IN THE DISTAL MANDIBLE INFLUENCE BASAL IMPLANT SURVIVAL

CASE REPORT:

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## Case Report

### Morphological changes in the distal mandible influence basal implant survival.

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#### Abstract

Vertical bone apposition along the polished implant shafts of lateral basal implants have been observed and proven by scientific investigations. So far no reports of this kind have been published for screwable basal implants.

In this case report we report on a case where vertical bone growth along a screwable basal implant (BCS brand) reached an extent where (self-)cleaning of the implant site failed and a chronic infection developed. The implant had to be removed.

Conclusion: Also around screwable basal implants vertical bone growth must be expected in the distal mandible. It is recommended to utilize implant lengths which allow the positioning of the implant head as much as possible away from the mucosal penetration area. Another useful precaution might lie in utilizing the

vestibular cortical of the mandible as 2nd cortical instead of using the lingual cortical. When using the vestibular cortical a more favourable position of the implant's head (after bending) becomes possible.

**Keywords:** Bone morphology, Strategic Implant<sup>®</sup>, vertical bone apposition, basal implant survival.

#### 1. Introduction

In crestal implantology the level of the bone around the crest of the implant typically decreases. This involution is known to be inevitable. As long as no infection is associated to this, such a decrease in bone level is not noticed. If signs of an infection become visible, a «peri-implantitis» is diagnosed. This disease is widely accepted to be «inevitable» by our profession, but not so much by the patients. Peri-implantitis occurs only if endosseous implant surfaces are rough and the implant's diameter is large.

«Peri-implantitis» is not found in the Strategic Implant<sup>®</sup> 1,2,3. The main differences between conventional (2-stage) implants and modern Strategic Implants are:

- Strategic Implants feature a thin and polished implant surface as well as a minimal mucosal penetration diameter
- Load transmission takes place far away from the point of potential bacterial attack.
- Load transmission takes place directly into corticals.
- The implant can be placed immediately after tooth extraction as long as a permanent cortical («2nd» or «3rd» cortical) can be reached by the implant's load transmitting surface<sup>4</sup>.

This all leads to a situation where the crestal bone level at the implant is of no importance except for achieving aesthetics. In extraction zones receiving implants immediately the bone- and soft tissue level is prone to dropping and this often creates the cause for a 2nd prosthetic workpiece after 6 -18 months.

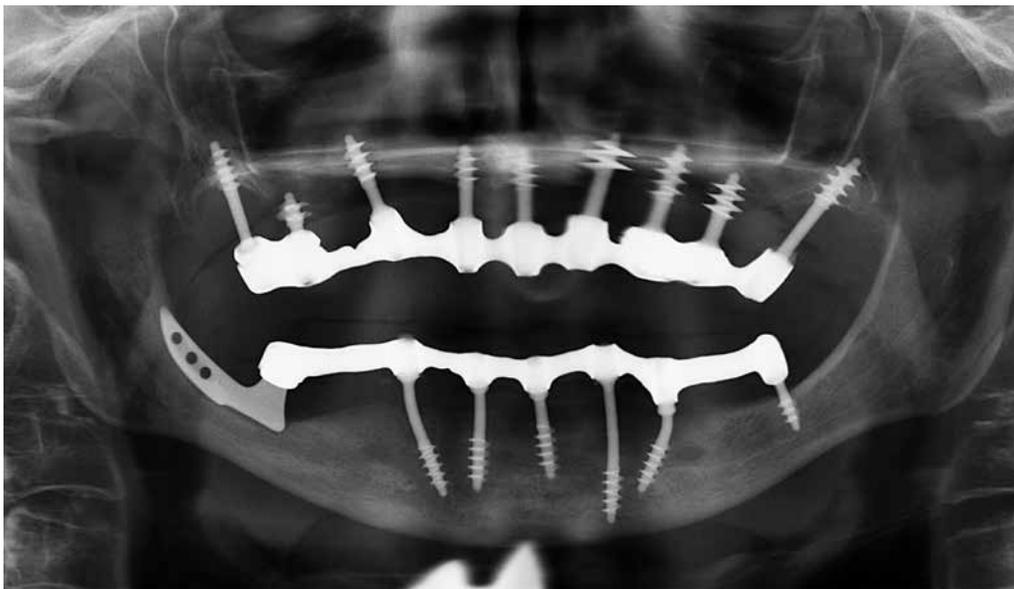
It has been described however, that the level of the bone may unexpectedly lift during the first 18 months after implant placement, right in the vicinity of lateral basal implants (i.e. Diskimplants, BOI, TOI). These implants have been in use since about 1988. Dramatic vertical apposition has been observed and reported for the distal mandible<sup>5</sup>. Reports of this kind for screwable basal implants are missing however.

## 2. Material and Method

A 60 -year old female patient, a healthy non-smoker, had received screwable basal implants in the mandible after conventional 2-stage screw implants had failed. The new prosthetic construction included a large blade implant, which was only partly osseo-integrated but remained without symptoms (Fig. 1).

## 3. Results

40 months after implant placement in the mandible the patient reported pain and swelling around the implant in the lower left & distal mandible. In order to rescue the implant we performed local surgery on the soft tissue around the implant.



**Fig. 1:** Panoramic overview-picture showing two circular bridges on 9 implant in the upper jaw and 7 implant in the lower jaw. The implant in the left distal mandible is engaged in the lingual cortical and has a total length of 10 mm, with about 6 mm being positioned within the bone.



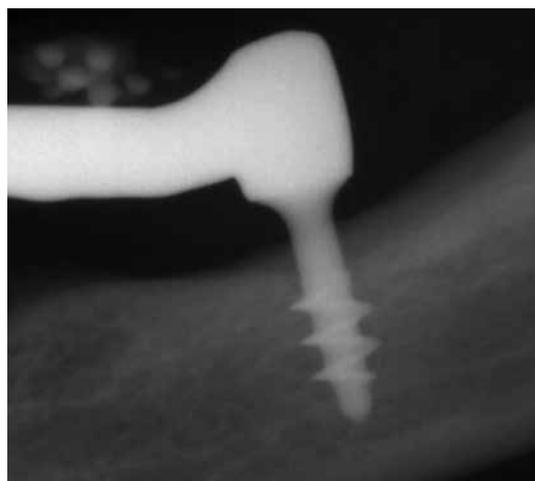
**Fig. 2:** Close up view of the implant in the distal mandible after 8 months. Compared to Fig. 1 no changes in the bone level are visible.



**Fig. 3b:** Clinical view of the lower distal jaw, after the soft tissue was revised with an electro-cauter. A stable, non-infected result could not be reached however: after some weeks the situation resembled again Fig. 3a.

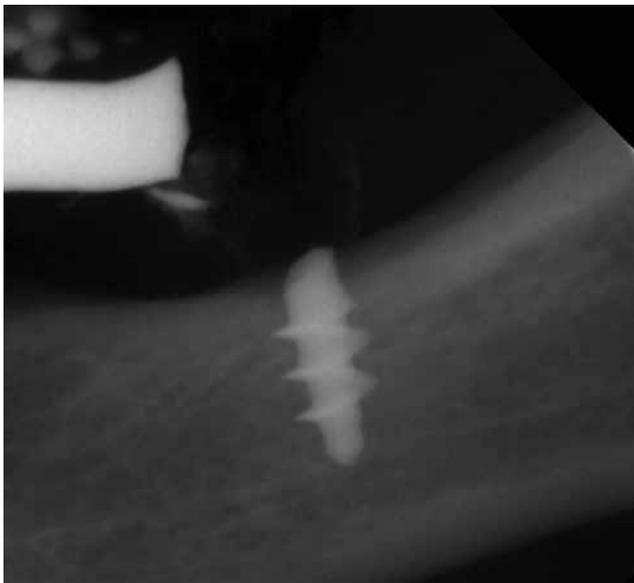


**Fig. 3a:** Soft tissue is overgrowing the technical abutment and the area became impossible to clean. The QOL of the patient decreased due to this event.



**Fig. 4:** The crestal level of bone had risen approximately 2-3 mm compared to the baseline situation shown in Fig. 2. The implant is well integrated and the cemented prosthetics fit. The distance between the abutment head and the cementing connection and the crestal level of the bone had become too small. (Self-)cleaning was not possible any more and a recurrent infection appeared.

Since it was impossible to remove the well integrated implant completely, the distal extension of the bridge including the technical abutment was cut off the bridge and the abutment head was cut off from the thread-part of the implant at the level of the bone.



**Fig. 5:** After cutting off the abutment at bone level the signs of infection disappeared instantly.

The site healed without complications within one day and the bridge thereafter remained stable on the remaining six implants, with a cantilever portion on the left side.

## 2. Discussion

Scientific evidence on a series of consecutive cases has shown that the vertical bone level around lateral basal implants can increase. The increase is more pronounced, if the difference in total bone height in the left and right mandible is large. If the distal mandible shows strong atrophy on both sides, no such bone apposition

is found. In the case shown here, no such large differences between the vertical bone on the left and right side of the distal mandible were given.

The «conservative» treatment consisting of a radical excision of soft tissue around the implant did not lead to the desired result. As an alternative, vertical reduction of bone directly around the implant was not tried: such a treatment step would probably not have been successful either, (1) because the bone would have been growing again, and (2) there would have been the risk of creating roughness (e.g. scratches) on the highly polished vertical implant surface. This by itself would have been supporting a chronic infection of the «peri-implantitis»-type.

In this case the upper jaw and the lower jaw were not treated together, the upper jaw had been treated first. Hence the vertical dimension of the lower bridge could not be changed significantly. If both jaws had been treated together (just as we recommended) the distribution of vertical space between the upper and the lower bridge could have been changed without changing the aesthetic or functional result noticeably. This way an implant with a longer intra-oral shaft could have been used.

## 4. Conclusions

Also around screwable basal implants vertical bone growth must be expected in the distal mandible. It is recommended to utilize implant lengths which allow the positioning of the implant head as much as possible away from the mucosal penetration area. Another useful precaution might be to utilize the vestibular cortical of the mandible as 2nd cortical instead of using the lingual cortical. When using the vestibular

cortical a more favourable position of the implant`s head (after bending) becomes possible.

The possibilities in tearing such a soft-tissue overgrowth as a result of vertical bone growth are small.

Raising the bite might to some extent allow placing longer implants in the distal mandible. This may lead to a situation where the abutment head right from the beginning can be placed in a larger (more safe) distance to the crest of the bone.

## References

1. Ihde S. (Edt.) Principles of BOI, 2004; Springer Verlag, Heidelberg, ISBN 3-540-21665-0
2. Scortecchi, Misch, Benner: Implants and Restorative Dentistry; Verlag Dunitz, London, 2001, S. 428, ISBN 1-85317-703-2
3. Donsimoni J.-M., Gabrieleff, P. Bernot, D. Dohan: Les implants maxillofaciaux à plateaux d`assise; Concepts et technologies orthopediques, rehabilitations maxillomandibulaires, reconstructions maxillo-faciales, rehabilitations dentaires partielles, techniques de reintervention, meta-analyse. 6e partie: une meta-analyse? Implantodontie 13 (2004) 217-228
4. Ihde S., Ihde A. Introduction into the work with a Strategic Implant®  
International Implant Foundation Publishing, Munich, 2015, ISBN 978-3-945889-01-5
5. Ihde S. Adaptation fonctionelles de la hauteur de l`os peri-implantaire apres implantation de BOI dans la mandibule; Implantodontie 12(2003) 23-33

