

Vertical Distraction Osteogenesis of the Mandible For Shaping the Dental Implant Site



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Introduction

The distraction osteogenesis (DO) is a minimal invasive, tissue conservative intervention technique for skeletal malformation and improvement of the subsequent implant site.

The main principle of the DO is well known from orthopedic surgery, where it is used for bone elongation. McCarthy has transferred this technique to craniofacial surgery [Lit.].

Case

Male patient, 51 years, bilateral free space since 12 years, vertical atrophy of 5,5-12 mm

14.06.2007: bilateral segmental osteotomy of the lower jaw, insertion of 2 distractors (Medartis AG) region 37-35/44-48, distraction-period: 16 weeks

09.11.2007: distractor-explantation, simultaneously insertion of 5 CAMLOG® Screw-Line-Dental-Implants (caliber 3,8 and 4,3 mm, length 11 and 13 mm)

15.04.2008: exposing and insertion of the gingiva-shaper; 2 weeks after plastic impression, insertion of the prosthetic at **25.06.2008**

Surgical procedere

After conservative osteotomy of the jaw, subsequent bone distraction in designated dimension follows using a specially engineered apparatuses intraorally operable. Healing of bone is initiated after a latency period (1 week) and leads to bone consolidation. The resulting bone area (1mm per day) can be used subsequently for implant setting.

The case presented allows gain of bone limited to 15-20 mm for use of subsequent five dental implants (System CAMLOG®).

Discussion

Advantage of Distraction Osteogenesis

- Rapid bone-buildup (12-16 weeks)
- Predictable effect (prosthetic situation)
- Earlier point of time for implantation
- Lower risk for resorption of the law
- Lower risk of dehiscence because soft tissue would be expanded simultaneous

Disadvantage of Distraction Osteogenesis

- Segment dimension is limited
- Frequently development oft granulation-tissue around the distractor
- Complex practice, narcotic supply required

Conclusion

Distraction Osteogenesis is beneficial for dentoalveolar surgery, because of the rapid and predictable bone grafting/augmentation with subsequent use as improved implant site.

Distraction Osteogenesis can be stated as an interesting and promising alternative to conventional bone grafting techniques in pre-implant surgery.



Literature

McCarthy JG. The role of distraction osteogenesis in the reconstruction of the mandible in unilateral craniofacial microsomia. Clin Plast Surg., 21(4): 625-31, 1994

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