

Combination of scalpel and laser-aided, **second-stage surgery** in the atrophic edentulous mandibula

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In this case report the sensible combination of a conventional surgical second-stage approach with the use of a Diodeum Laser is shown.

_case 1



Fig. 12

Fig. 1 Situation before second-stage surgery. Massive bone loss with shift of the muco-gingival line and lift of the sublingual area.

Fig. 2 Revealed implants after split flap preparation and fixture of the attached gingiva to the labial and lingual aspect with interrupted sutures.

Fig. 3 Conditioning and modelling of the soft tissues with a Diodeum Laser (Oralia). Simultaneous coagulation of the submucosal tissue is an accompanying effect.

Fig. 4 A clear operation site after soft tissue conditioning with the Diodeum Laser.

_The severely atrophic edentulous mandibula is predestined to be treated with implants in the symphyseal region. Often this is the only way to achieve patient satisfaction and to give a higher level of live quality back as well as function by this relatively simple treatment. The quality and quantity of bone in this region often allows an easy surgical protocol.

Due to a long period of missing teeth, the vertical decrease of bone is combined with a negative effect on the soft tissue. The loss of vertical height of the alveolar ridge is connected with

an elevation of the sublingual area and the transfer of the muco-gingival line upwards. A permanent stable and healthy peri-implant mucosa can only be achieved by a broad margin of keratinized attached gingival.

The patient should be enabled to keep up a perfect oral hygiene especially in the area of implants and the meso-structures. But reality often shows us different things. Plaque and stains on the oral retaining components are not that rare, and this is the reason why professional care four times a year by a DH is mandatory for all of our implant patients.

The peri-implant soft tissues should be conditioned at second-stage surgery. Missing attached gingiva can be enhanced by the use of CTG's (connected tissue grafts) from the palatum. Thus, a second operation field is necessary and sometimes refused by older patients. This case report shows how the soft tissue situation can be improved with second-stage surgery around four interforaminal implants in the mandibula.

_Case Report

A 72-year old female with a good health situation in



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 11

Fig. 5_ Situation one-week postop. An improved peri-implant soft tissue situation and good wound healing are visible.

Fig. 6_ Two weeks postop the increase of the soft tissue is visible as well as a stabilization of the gingiva.

Fig. 7_ Soft tissue situation before impression with an individual tray.

Fig. 8_ Impression copings in situ.

Fig. 9_ Individually milled Gold Bar fixed with a torque of 32 Ncm.

Fig. 10_ Basal view of the prosthesis with a galvano retention element.

Fig. 11_ Prosthesis in situ.

Fig. 12_ Lip profile of a satisfied and happy patient.

2006 was operated alio loco and received four interforaminal implants (3i implant innovations, external hex). After 4-months of normal osseointegration, I planned and performed second-stage surgery.

The intraoral clinical situation revealed massive atrophy of the mandibula with a cranial lift of the sublingual tissues exceeding the height of the alveolar ridge. The thin layer of mucosa let the implants shine through. Figure 1 shows the situation just before surgery.

Before scalpel incision, the evaluation of the attached gingiva propria is mandatory. One main target should be to move the fit-to-use tissue equally around the revealed implants. In the described case, more attached gingiva was visible in the labial aspect and, due to the sublingual lift, less in the oral aspect. Thus, the crestal incision was transferred a bit more to the vestibulum to transfer in a second step this tissue to the lingual part of the peri-implant region. It is important to preserve a gingival bridge between the medial implants to avoid an unin-

tended shift of the flap parts after mobilization, and to keep up a stabile "anchor-area" for suture procedures.

After infiltration (UDS Forte, Novartis) a split flap preparation followed with a transfer of the flap parts, as described above, to the buco-lingual extension around the healing abutments (3i) with suturing (Supramid 5/0, Stoma). The parts between the mobilized flaps will cure per secundam. Figure 2 shows the fixed flap parts and the cover screws of the four interforaminal implants.

After shifting the gingiva around the implants and fixture, a soft tissue modelling, coagulation and conditioning was achieved by the use of a Diodeum Laser (Oralia). The soft tissue treatment was done in program PPR 2 with a frequency of 10,000 Hz and a power of 20 Watts and 2.5 Joules (Fig. 3).

Figure 4 shows the situation after laser soft-tissue conditioning. Due to the hemostatic effect of the laser, the operation area is clear and the patient's postoperative complaints can be reduced efficiently. After the operation procedure the healing screws are inserted and hand-tighten in place. The patient's prosthesis was left with space for the abutments and lined with a soft-lining material.

The patient was asked to rinse for a period of 5 days with chlorhexidine twice a day. The postop control the next day showed a complaint-free patient that only needed one analgetic pill. A layer of fibrin covered the wound and showed a satisfying healing process. The removal of the sutures followed after 7 days, and at this point an improvement of the soft tissue situation around the implants was visible (Fig. 5).

Two weeks post-op a stabile gingival situation was visible around the implants (Fig. 6) with an increase of the ker-



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10

