Laser Supported Treatment of Periimplantitis on a Strategically Important Individual Tooth Implant in the Superior Maxilla

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Due to improved operating technique, finer surgical instruments, modified implant surfaces, oral implantations are safe and have become standard therapy. Early complications that were feared in the initial phase of oral implantology have become rare thanks to sophisticated operating techniques and improved implant surfaces.

_However, since the number of incorporated implants has strongly increased in the meantime, late sequelae that generally result in the loss of the artifical abutment have also become more numerous.

These late sequelea are mainly of an inflammatory nature and increase due to a lack of recall and a patient's poor oral hygiene. This paper presents such a case of periimplantitis and describes the therapy.

_The Patient

In 1991, the 43-year-old female patient had an ITI implant incorporated alio loco regio 13 (Fig. 1). Exept for the remaining tooth 23, the superior maxilla is edentulous. After the healing-in process of the implant, a telescopic crown was placed onto the implant and the remaining tooth 23, onto which a telescopic prosthesis is fastened (Figs. 3, 4). After completion of the prosthetic phase, no recall took place because the patient moved away. Upon the recommendation of an acquaintance, the patient came back to our office in 1994 when she detected that brushing implant abutment 13 resulted in profuse bleeding. The clinical findings verified this observation. Probing with a pressure-calibrated plastic PA probe, BOP could be found and also there was a circular probing depth of 6 mm.

_Periimplantitis Therapy

After extensive information from the patient and application of local anesthesia, a mucoperiostal flap was opened up at the implant (Fig. 2). The granulation tissue was thoroughly removed by means of plastic curettes, and the edges of the flap were thinned out. The overall extent of bone loss attachment then became evident as the bone crater typical for periimplantitis was found.

_Decontamination with Diode Laser Light

The now exposed parts of the implant surface were treated with laser light with an output of 1.0 watts

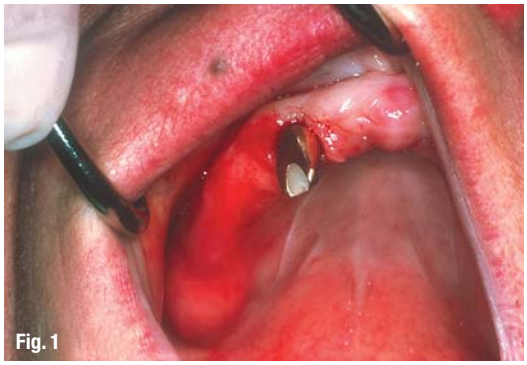
Fig. 1

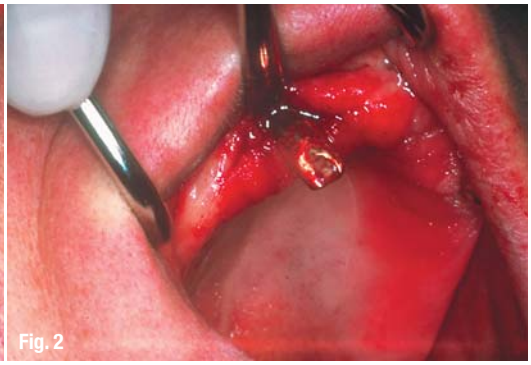
Fig. 2

Fig. 1_Regio 13, an ITI implant has been incorporated onto which a primary crown was mounted. A mucositis manifested itself that could already be clinically diagnosed.
Fig. 2_Formation of a mucoperiost flap at the implant.

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Fig. 3_Six-months postoperative check; please note the irritation-free wound condition.

Fig. 4_Thanks to the laser supported periimplantitis treatment, the baseless designed superior maxilla prosthesis could be left in situ.

Fig. 5_More than ten years after the completion of the surgical resective phase, both abutments are still in the superior maxilla.

Fig. 6_The individual implant regio 13 is in an irritation-free environment.

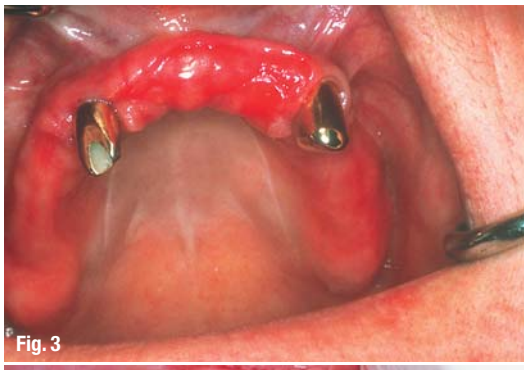


Fig. 3

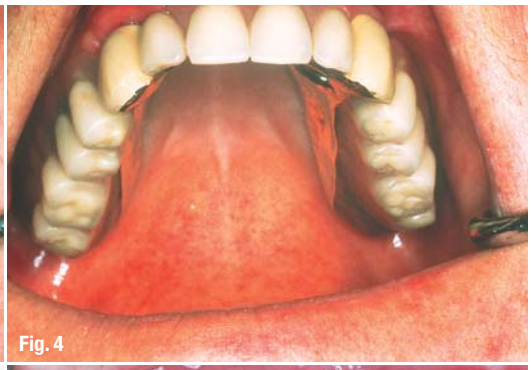
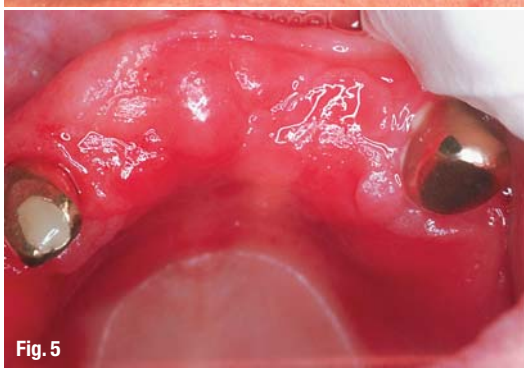


Fig. 4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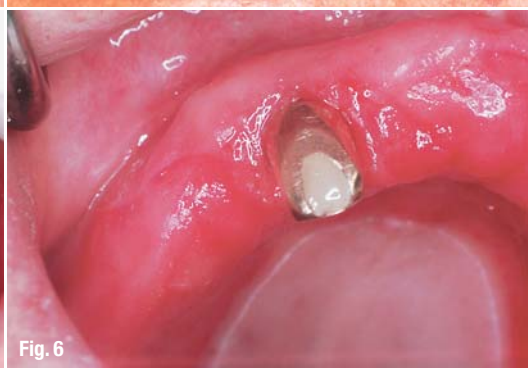
Fig. 6

over a period of 20 seconds. These parameters were sufficient to damage the gram negative anaerobe germ spectrum of the germs causing the periimplantitis while at the same time thermal or mechanical damages of the implant surface and the periimplantary tissue (bones, mucous membranes) could be ruled out (see Krekeler, G., Bach, G.: Our first experiences with a diode laser—A study; Universität Freiburg i. Br. [1994] and Bach, G., Krekeler, G.: Laser supported therapy of periimplantitis—A 5-year study, Philip-Journal [2000]). The laser light decontamination was repeated after healing of the soft tissue after 6 and 12 weeks.

_Additional Therapeutical Steps

After completion of the decontamination, the lost bone capacities were reconstructed by means of periimplantory augmentative measures with bone material from the patient's chin. By means of intraoral sutures the wound flews were approached to each other in a flushing manner to ensure healing per primam intentionem. The suture material was removed after one week. Further recall sittings took place after 6 weeks and 3 months. At the final inspection of the surgical resective phase after 6 months, the former surgical area was without irritation (Fig. 5). No probing depth could be measured. The telescopic superior maxilla prosthesis is in situ without irritation (Fig. 6).

Since that time, the patient takes part in a 6-month recall program and thoroughly follows this schedule.

Now, more than ten years after the surgical treatment of the periimplantary lesion, the prosthetic situation in the superior maxilla is unchanged. The telescopic bridge is still in place on 13 (supported by the implant) and 23 (natural tooth) (Fig. 5). The ITI implant regio 13 is located in a healthy environment without irritation, and, even after removal of the secondary crown, healthy periimplantary conditions are found (Fig. 7).

Fig. 7_Even after removal of the secondary crown, healthy periimplantary conditions are found.
Fig. 8_X-ray (OPT) 1994.

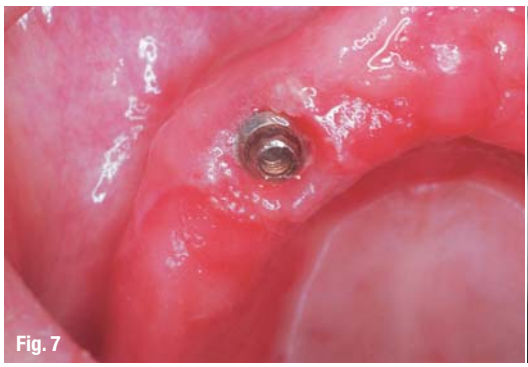
Fig. 7

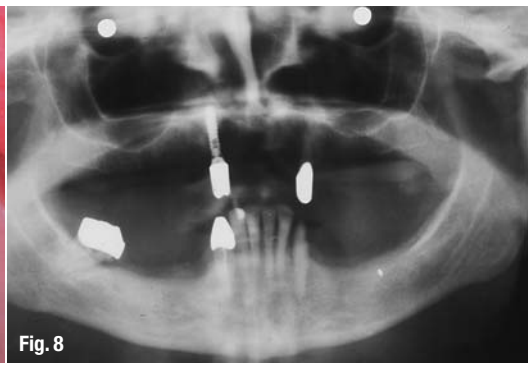
Fig. 8


Fig. 9

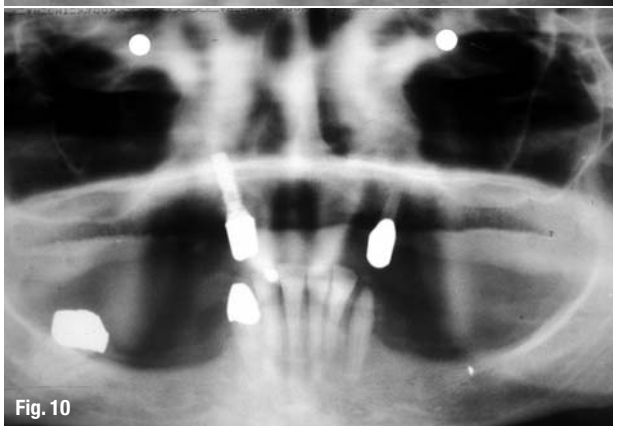
Fig. 10

Fig. 9_Detail from X-ray 1994: Typical bone lesion, cause by periimplantitis.
Fig. 10_No progressive bone loss ath the implant (regio 13) can be seen.

_Conclusion

Without treatment, the periimplantary inflammation would have resulted in the loss of the implant. Without any doubt, this loss of artifical abutment would have had serious consequences for the patient. The patient wanted a baseless solution that did not cover the gum. This would not have been possible after modification of the prosthesis, and the prognosis for the remaining tooth 23 as unique supporting abutment would also have been unfavorable. Thanks to laser supported periimplantitis treatment, not only could the inflammation be stopped, but also a restition ad integrum could be achieved. The original philosophy of rehabilitation of the maxilla, the value of which is not being judged here, can now be continued._

_contact laser

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