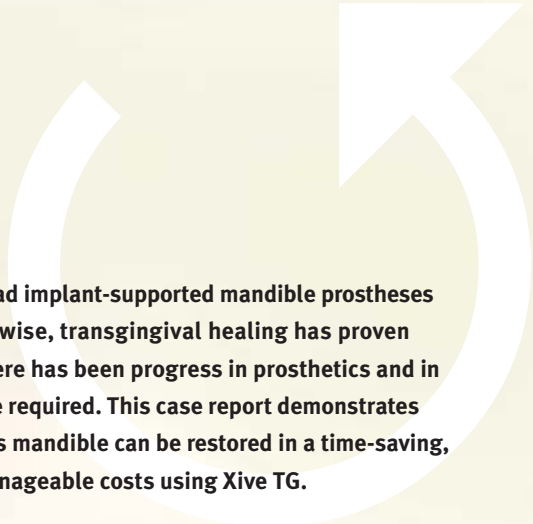




fixed restoration – fast and gentle

Immediate restoration with Xive TG in the edentulous mandible

| Dr Thomas Hanser

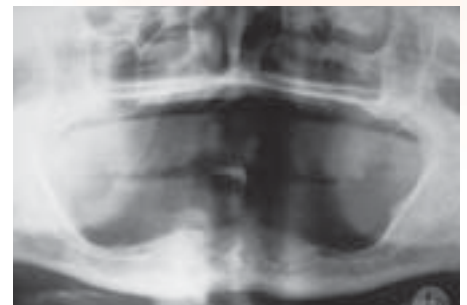


It is possible to load implant-supported mandible prostheses immediately. Likewise, transgingival healing has proven successful and there has been progress in prosthetics and in the treatment time required. This case report demonstrates how an edentulous mandible can be restored in a time-saving, solid way with manageable costs using Xive TG.

Given an edentulous mandible with sufficient bone availability and consequently not requiring augmentation, the question arises whether submerged or open healing is more favorable. Following the analysis of the findings, this question can often be answered in the planning phase in favor of a transgingival solution. The most important prerequisite is adequate primary stability of the implants. The peri-implant soft tissue must also be healthy and a sealed suture closure possible.



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THE PATIENT'S WISHES, FINDINGS AND DIAGNOSIS

A 73-year-old male patient in good general health and constitution presented with edentulous maxilla and mandible. The fixation of the old, gingiva-supported mandibular prosthesis was poor. This impairs phonetics and food intake accordingly. Hence the patient wished for a securely fixed prosthesis. He placed importance on a clearly defined period of treatment and few surgical procedures.

The examination and the panorex indicated moderate resorption of the mandible with sufficient vertical and horizontal bone availability for implantation (Fig. 1 and 2). Palpation of the alveolar ridge is always part of the examination in such cases. The lower alveolar ridge was sharply tapered in some regions; however, no retractions or defects could be palpated basally. The far x-ray confirmed the finding of an average interforaminal body volume without any need for augmentation (Fig. 3). The angulation of the mandibular body and the lingual bone concavities can be identified preoperatively in order to avoid perforations when preparing the implant site.

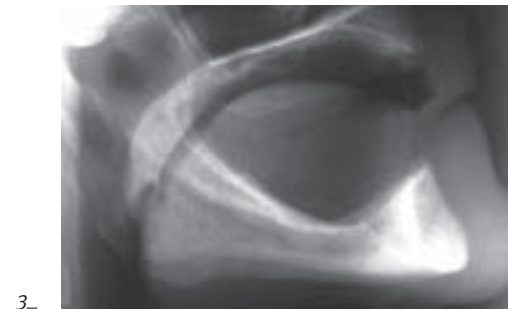
THERAPY OPTIONS

On the basis of the examination results and the patient's wishes, we decided for an immediately loadable full denture supported on four transgingival implants (Xive TG). Alternatively, two interforaminal implants in the regions 33 and 43 on ball or Locator attachments would have been possible. Although this removable solution is somewhat less expensive, it still requires a healing phase of two to three months and a second operative procedure for exposure. Finally, the occurrence of tilting movements of the prosthesis over the anterior axis must be anticipated in the case of two implants.

THERAPY PLAN

A permanent removable restoration on just one day was planned (Figs. 4 to 14). As a result of the prefabricated components of the Xive TG system, the superstructure to support the prosthesis can be fabricated in the lab within two hours. The patient leaves the practice on the same day with a fully completed prosthesis. The detailed treatment procedure can be followed from Table 1 and the photographic documentation.

- 1_ A typical finding – a vertically and horizontally moderately resorbed edentulous mandible
- 2_ The panorex also reveals resorption, especially in the posterior region, but there is still sufficient vertical bone availability in the interforaminal region
- 3_ An average mandibular body volume is identifiable from the far X-ray
- 4_ The incision to present the alveolar ridge is crestal, preserving the keratinized gingiva
- 5_ The mental nerve is presented. The alveolar peaks are removed with the aid of a fine diamond disc (Frios MicroSaw acc. to Professor Khoury)
- 6_ The doubled mandibular prosthesis serves as a drilling template
- 7_ Insertion of the implants.





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The positions and separations of the implants were selected such that the interforaminal distribution of the implants achieved is as uniform as possible. This allows optimal design and dimensioning of the superstructure in the sense of prosthetically-oriented implant placement. Four Xive TG implants were inserted (diameter 3.8 mm, length 15 mm). The necessary primary stability of at least 30 Ncm was achieved easily thanks to Xive's condensing thread. In order to prevent nerve damage to the recurrent laryngeal nerve, the distal implant is kept at least 5 mm away from the mental foramen.



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The bar is lasered in the lab from prefabricated parts in less than two hours and is screwed into the patient's mouth the same day. The tension-free fit of the bar is



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Therapy step	Time / Duration	Comments
Opening and leveling the alveolar ridge	Day 1	Minimal bone preparation, prosthesis as drilling template
Integration of the transfer copings, suture closure, splinting the transfer copings, open impression	Day 1	-
Fabrication of the bar construction in the lab	Day 1, working time < 2 hours	Prefabricated components, lasering or soldering
Integration of the bar and working in the bar attachment	Day 1	Cold-curing resin, polishing
Linings	6 to 12 weeks post-operative as necessary	-

Table 1_ Therapy program for an immediately loaded mandible full denture with Xive TG



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8_ All four Xive TG implants are in situ
 9_ In order to ensure reliable positioning under visual control, the transfer copings for the impression with open tray are screwed in prior to suturing
 10_ After suturing, the transfer copings are splinted with plastic. This approach ensures a precise pick-up impression and sources of error are minimized
 11_ Impression with polyether in a prefabricated tray. The interforaminal area was previously ground out and blocked out with wax
 12_ The finished bar

checked by firstly only fixing it with one screw (usually distal). If the panorex reveals a gap between the implant shoulder and the bar for one of the implants, it has to be separated and rejoined again. This method, known as the Sheffield test, helps prevent many problems. After tightening the bar construction, the bar attachment is worked into the prosthesis. Areas beneath each other are covered and the bar attachment is polymerized with cold-curing resin into the base of the prosthesis. Finishing and polishing is then performed.

Optimal positioning of the implants and gapless fitting of the bar on the implant shoulder are the most important factors for the state of the crestal bone to remain stable over a long period. Fig. 16 shows the situation after three years.

RESULT AND CONCLUSIONS

Transgingival healing and immediately loadable implants obviate a second surgical procedure. This approach is far more pleasant for the patient. Osseointegration of the immediately loadable implants proceeded without problems. The bone level and soft tissue remained stable for years (Fig. 15). Esthetics, phonetics and function were successfully restored within a short space of time. The patient was satisfied (Fig. 16). With the aid of the easily adjustable retaining forces, the patient can handle his prosthesis without difficulty. ■

Literature available on request from the author

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13_ It was possible to re-use the existing mandibular prosthesis for the implant-supported restoration

14_ The bar attachment integrated in the prosthesis

15_ After checking the perfect fit and correct function, the patient can be discharged with his permanent prosthesis

16_ Three years on, the post-operative state is still stable