

# Dental implant in the upper front of a professional clarinettist- problems and result

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Topic: Implant therapy outcomes, surgical aspects

## Background and Aim

There exists a complex interplay between the tension of the lip muscles, the pressure on the frontal teeth by the mouthpiece and the regulation of the air flow to produce a tone out of **woodwind** instruments. The loss of frontal upper teeth fundamentally hampers this interplay.

In 1975 the dentist and clarinettist Horst Beckert<sup>1</sup> analysed the resulting consequences in his Thesis.

Nowadays the loss of frontal teeth in such cases can be compensated by a dental bridge or by an implant.

However problems result by professional clarinettists due to the **extreme and eccentric strain on teeth, bridge or implants** by the mouthpiece of the instrument.



from BECKERT<sup>1</sup> (1975)

## Case report

A 34-year old professional clarinettist lost the tooth 21 as the result of an assault.

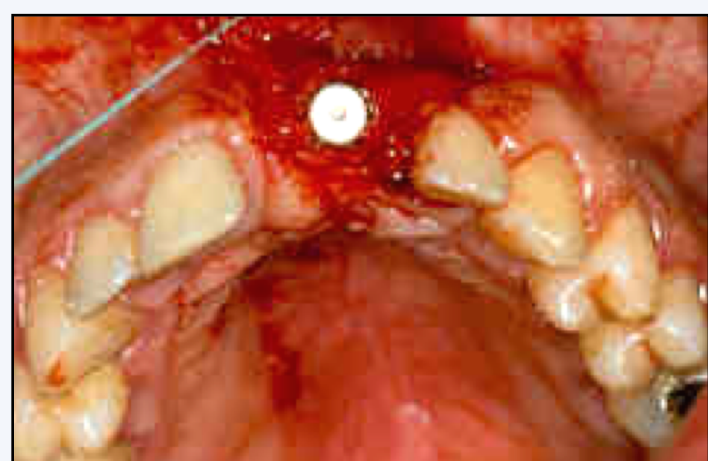
The situation was complicated due to a wide diasthema- maybe as a result of the longtime eccentric strain by the mouthpiece of the clarinet: Whereas the average distance between the upper frontal teeth amounted to 7mm the distance from tooth 22 to 11 was 12 mm! With respect to the esthetic outcome it was unacceptable to incorporate a teeth-borne bridge.



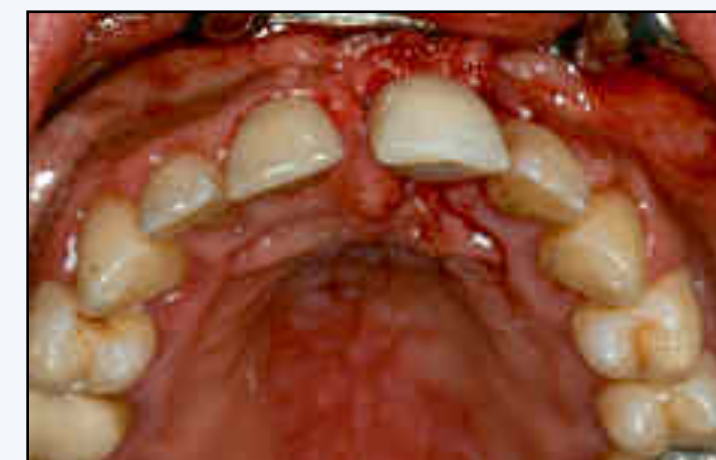
After complete information about the risk of the long-time professional eccentric strain to the implant we inserted a single implant in 2000 3 month after the loss of the tooth

(BRANEMARK TIUNIT MK III RP 15mm with 30 Ncm).

The insertion was exactly guided in the axis of the alveolar bone (planning by transversal tomography) with a minor horizontal augmentation with autogenous bone chips.



The patient wore a temporary removable prosthesis for 9 month. By the opening operation we inserted an individually constructed (PROCERA) titanium abutment with 32 Ncm and a provisional crown.



2 month later the prosthodontist began the treatment by a permanent crown. In many experiments the strain of the music instrument on the crown was optimised.

## Result

### Control 30 month after implant insertion:

After a transitional period the professional musician is now in the situation to perform tones on the formerly high level.

### Subjective defects:

In the beginning problems with the high notes due to the lack of position control of the clarinet as the result of missing tacity of the implant in comparison to the natural tooth. This problem was reduced by training. There was also a feeling of pressure to the lateral nasal wall after long-time play.

### Clinical:

Optimal stability of the implant, the abutment and the crown.

Traces of the implant- borne crown on the mouthpiece due to the difference from the elastic fixation of the teeth to the rigid ancytotic fixation of the implant in the bone.

The experiment to eliminate the problem by an infraocclusion of the implant-borne crown had an inverse result: The mouthpiece was rotating around the lower situated crown, so that the strain stayed the same, but the tone production was uncontrollable.



Up to now the functional results have been good

## Conclusions

Due to the specific way of playing the clarinet or similar the saxophone a loss of upper frontal teeth can cause serious limitations or even **loss of the ability to work** as a **professional** musician.

The case demonstrates the complete rehabilitation of the musician after implant insertion in spite of additional wide diasthema.

### But 3 problems remain:

1. The **long treatment period** and the long-time inability to work.
2. The **eccentric strain** on the frontal teeth due to the pressure of the mouthpiece especially by playing high tones. In the long run this strain maybe can overload the implant bed, the implant-abutment connection or the implant material .
3. The **reduced tactile control** of the exact regulation of instrument position. It is important for high class professional clarinettists only.

Sometimes it can be compensated by long-time training.

## References

1. BECKERT, Horst.: Die Korrelation von Mundorgan und Klarinette unter besonderer Berücksichtigung anatomischer Voraussetzungen und präventivmedizinischen Aspekten. Med. Diss. Halle 1975 al Article, Name of Journal