



# Single tooth implant in combination with orthodontics

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## Introduction

When left untreated, gaps in the dental arch often result in tipping of the adjacent teeth. To resolve this situation, proper alignment of the teeth concerned has to be achieved before implantological and prosthetic treatment is started. The use of micro-implants in orthodontics may facilitate treatment when the periodontical situation is impaired.

## Material and Methods

A 40 year old female was referred for a missing tooth 36 by her periodontologist. The tooth 37 was anteriorly tipped. The tooth 35 had a short root and was not deemed fit for a conventional bridge. The tooth 38 as well as the opposing tooth 28 were planned for extraction by the referring dentist for periodontical reasons.



Fig. 1: The initial X-ray:  
36 is missing,  
37 is tipped anteriorly into the gap



Fig. 2: Lateral view  
before therapy was started

A fixed orthodontic appliance was introduced. To lessen the strain on the tooth 35, anchorage was secured by a micro implant (DualTop<sup>®</sup>, length 8mm, diameter 2mm). It was inserted buccally into the alveolar ridge, at the site of the missing molar 36.

The tooth 37 was uprighted gradually. At that time the tooth 38 had already been extracted which made it easier to distalise the crown of the tooth 37. Due to occlusal interference, however, it took 8 months until it was completely upright.



Fig. 3: X-ray during orthodontic  
treatment, before the insertion of a  
Xive implant. A 5 mm steel ball for  
calibration can be seen.  
The DualTop micro implant is visible.



Fig. 4: Lateral view during  
orthodontic therapy - the DualTop  
micro implant is fixed to the tooth 35.

After orthodontic treatment, a Xive<sup>®</sup> implant (length 13mm, diameter 3.8mm) was inserted to replace the tooth 36. The micro implant was removed simultaneously. After a healing-time of 3 months, an EstheticBase<sup>®</sup> abutment was fixed to the Xive<sup>®</sup> implant onto which a crown was cemented (Dental laboratory: Zahnlabor Dieter Ribarich, Baden bei Wien).

The patient was referred back to her dentist and periodontologist for further management.

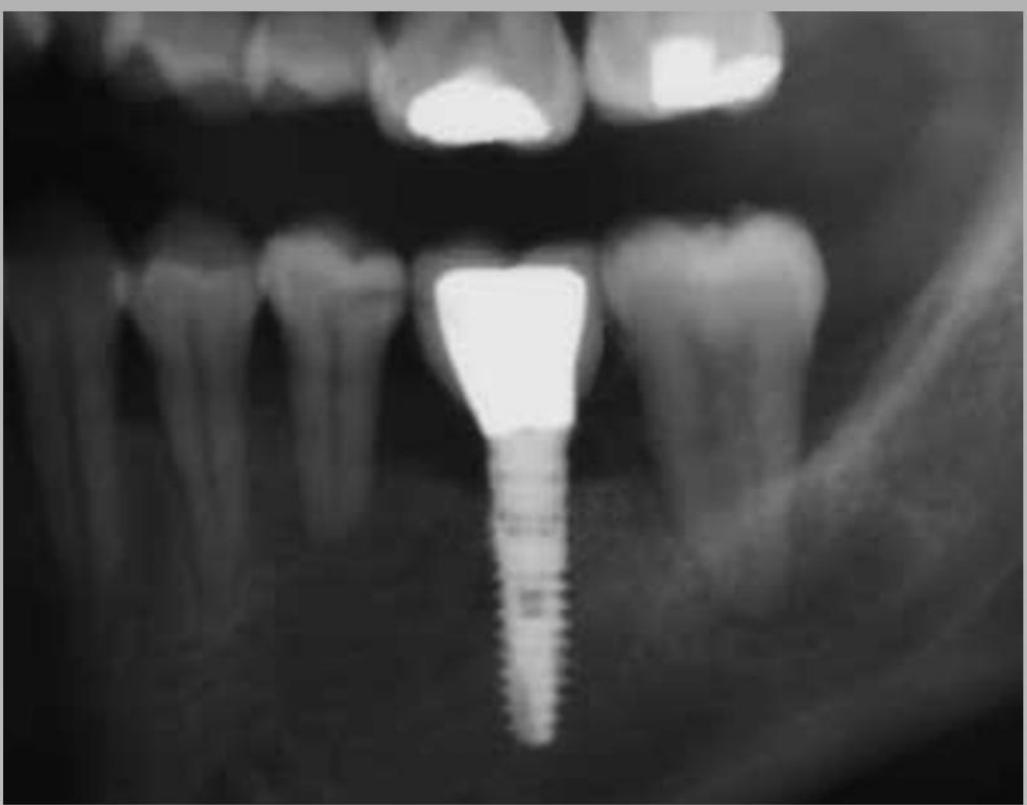


Fig. 5: X-ray at the end of treatment -  
a Xive implant is replacing the tooth 36.



Fig. 6: Lateral view at the end of  
treatment - a crown cemented on a  
Xive implant is replacing the tooth 36

## Conclusion

A good result was achieved. It would have been easier to upright the molar 37, if the microimplant would have been inserted distal to the tooth. However that was not possible because of the very mobile gingiva in that area. Therefore a block was formed between the microimplant and the tooth 35, against which the tooth 37 was tipped backwards and uprighted. As expected, no problems were encountered when the Xive implant was inserted at the same region where the microimplant had been. The tooth 35, with its short root had not increased its mobility.



Fig. 7: Occlusal view before  
therapy was started



Fig. 8: Occlusal view during  
orthodontic therapy



Fig. 9: Occlusal view at the end  
of therapy

## Literature

1. Wehr CP, Fritz UB, Diedrich PR. Aufrichten eines gekippten unteren zweiten Molaren mit Hilfe von Microschrauben-Verankerung. Schweiz Monatsschr Zahnmed. 2006;116(2):173-9.
2. Rose TP, Jivraj S, Chee W. The role of orthodontics in implant dentistry. Br Dent J. 2006;201(12):753-64