

Implants are not always the only option

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In terms of restorations, for me an implant is the crowning achievement. Actually, that is not quite true, in the strictest sense that would be the crown or other superstructure placed on top. With the term 'crowning achievement' I mean the best tooth restoration possible; after all tooth preservation is the ultimate goal for everybody. Yet this is sometimes not possible. For example if endodontic treatment aimed at tooth conservation fails despite expert dental care. You are all aware of the 'normal' failure rates associated with root canal treatments. These can be minimised by using state-of-the-art methods and instruments such as the surgical microscope. This allows the three canals to be visualised on a first lower jaw premolar, to prepare these with rotating or oscillating nickel-titanium instruments and fill using a precise obturation technique in a stress-free manner.

Stress-free

With stress-free I am not referring to the well-being of either the patient or practitioner but, instead, to the avoidance of stress and tension in the tooth. The fact that the tooth chose not to 'cooperate' in this case of a 66-year-old male patient who suffered from severe bruxism has to be seen as fate. This was not even evident in the X-ray image and only became apparent after removing the crown which revealed a longitudinal fracture in the abutment which was then extracted. What next? The patient wasn't annoyed about the loss of his tooth since he had been informed about the risk of possible treatment failure. Nevertheless, he still wanted the gap which had been unavoidably created to be restored. His financial situation would have certainly enabled me to have an implant fitted. So what made me (or more precisely us, i.e. the patient and myself after a detailed consultation) opt for another solution?

No implant

The osteolysis caused by the longitudinal fracture had led to the complete loss of the vestibular bone. For an implant it would have been firstly necessary to restore or augment this bone. There was also the question of the provisional restoration since the patient did not want to live with this gap for the (extended) period of bone reorganisation following augmentation and also during the healing period following implantation. Fine, I hear you say, a provisional adhesive bridge is the answer to this problem. And you would be right if you disregarded the issue of retention to the ceramic of the abutment tooth. But another solution altogether was available.

Extension bridge

Teeth 35 and 36 had crowns. Despite the fact that the patient suffered from severe bruxism, the periodontal state of these teeth was good. Thus it was not a problem to fit these two teeth with new crowns and a free-end pontic. However, the patient had not been satisfied with the appearance of tooth 33 for some time. You probably wouldn't have been satisfied either even though the dentist and dental technician had undoubtedly demonstrated a high level of skill with this inlay to restore a vestibular defect. Or should the inlay be removed and the tooth restored using a composite? I once read that the most reliable way to devitalise a (small, narrow) lower jaw anterior tooth is to grind it for a crown. But surely, with sensible preparation, we wouldn't rob this tooth of its vitality. Thus we slowly narrowed our options down to a conventional bridge. But the problem of having no vestibular bundle bone still remained.

Bundle bone

If we had allowed for 'normal' healing following extraction, this undoubtedly would have been accompanied with the collapse of the lateral dimension of the lower jaw

bone in this area. This would have led to an aesthetically unsatisfactory result. It was our goal to ensure that the emergence profile of the pontic was similar to that of a natural tooth. Read on and take a look at the images to see how we achieved this goal.

“Preextraction”

My spell check certainly doesn't recognise this word. But as a dentist you are no doubt aware of what this stands for: Preparation, extraction and impression (for the permanent restoration) in one sitting. But why? No, not to save time or to avoid leaving a gap following extraction. This approach serves to form the pontic bearing. The prerequisites for the success of such an undertaking are a good master dental technician, good wound healing conditions and a suitable material for the provisional restoration. With Structur 3 (VOCO), the composite-based material for provisional crowns and bridges, an aesthetic and reliable interim solution could be created safely and quickly. Given the comprehensive nature of such a procedure, I am sure you can understand why I have not referred to this as a temporary, 'makeshift' solution.

Care

The course of the dental and technical work can be seen from the images. Alternatively, a long-term provisional restoration could have been used to form the pontic bearing, however my experience over very many years with the technique described here has always been positive. It is also important to provide the patient with instructions on how to care for such a bridge properly (both the provisional and final bridge). Superfloss should certainly be used here. My patient was satisfied with this solution. As was I! As you can see, an implant is not always the only option.

Author



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1976 Granting of license to practise dentistry and award of doctorate degree from the Westfälische Wilhelms-Universität Münster

1978 Private practice in Marl

1999 Joint practice with Dr Peter Stickel

Areas of specialisation: General dentistry in an area of high unemployment, treatment of patients with social problems, preventive dentistry for children, treatment under general anaesthetic of patients with disabilities, multimorbid children, dental phobia patients etc.

Author of numerous publications and publisher of the book “Unternehmen Zahnarztpraxis” which provides guidance on setting up and running a dental practice

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Figures



Fig. 1: It is not clear from the first image that ...



Fig. 2: ... the original root canal treatment which was performed with great expertise under extremely difficult conditions ...

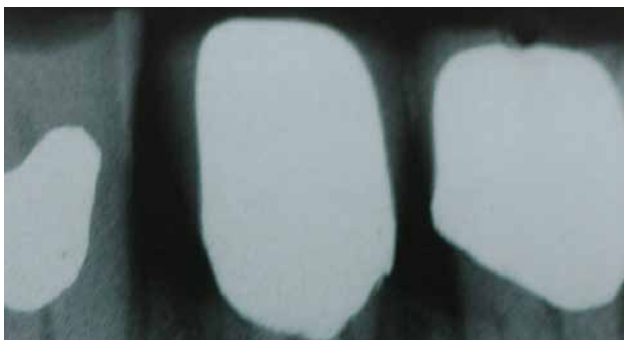


Fig. 3: ... would look like this just a few months later in the X-ray image



Fig. 4: Extraction was performed atraumatically using special forceps (Loser)



Fig. 5: The longitudinal fracture only became visible when viewed with a magnifying glass



Fig. 6: Site of the preparation following extraction and prior to production of the provisional bridge for formation of the emergence profile



Fig. 7: Production of the provisional bridge made of Structur 3 from VOCO which is particularly suited to this purpose using a moulded part



Fig. 8: The pontic serves to form the bridge member in order to achieve an emergence profile which corresponds to that of a natural tooth despite the complete loss of vestibular bone



Fig. 9: The provisional bridge is almost identical to a permanent restoration. In this case Structur 3 is again characterised (this patient suffers from severe bruxism) by its great strength.



Fig. 10: The site of the alveolus one week after extraction



Fig. 11: The final, fully veneered VMK bridge on the master model from vestibular ...



Fig. 12: ... lingual ...



Fig. 13: ... and fitted