

Replacement Of A Single Central Incisor Using Forced Eruption, Immediate Replacement And Immediate Abutment Connection: A Case Report



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One of the most difficult challenges in implant dentistry is the replacement of a single central incisor in the high lip-line, thin biotype patient. Not only must the restoration enjoy long-term integration and function but it must also assume perfect aesthetic integration whereby the crown is an exact reproduction of the adjacent natural teeth in both shape and shade and the gingival tissues maintain a form and colour that is in harmony with the surrounding tissues.¹

The concept of using orthodontic forced eruption to enhance bone volume prior to extraction of teeth is not new and procedures to create additional bone volume in anterior^{2,3} and posterior regions for subsequent implant placement have been described.⁴

More specifically, the procedure has also been recommended to enhance or preserve the interproximal papilla prior to implant replacement of single teeth.⁵⁻⁹

The problem faced by the clinician is that when a tooth is removed, there will be some loss of alveolar bone and gingival tissue in the surgical site. The quantum of this loss will vary from patient to patient and will depend on many factors which are beyond the scope of this case report. However, the principle remains that the edentulous site will experience bone resorption and gingival recession subsequent to tooth extraction and also subsequent to implant placement.^{10,11} Given that there is some evidence to suggest that the volume of bone, fullness of gingival tissues and

the presence of papillae in the future implant site may be improved by pre-extraction procedures, then pre-extraction orthodontics warrants consideration.

In the case presented, the patient was a female in her late forties with an endodontically failing maxillary left central incisor (21). The 21 displayed gingival recession from the existing crown margin and a gingival margin height that was approximately 0.5mm higher than the adjacent 11. The papillae were also slightly deficient, more notably at the midline. The patient displayed this tooth and the adjacent soft tissues in full during broad smile.

Therefore, due to the cosmetic sensitivity of this case, a multidisciplinary approach to the management was undertaken. Forced eruption of the 21 was first performed to increase the available soft and hard tissue volumes in the site, followed by extraction of the 21 and immediate replacement with a dental implant, definitive abutment and provisional crown. Six months after the implant surgery, the definitive crown was then placed.

Whilst this case demonstrates a favourable cosmetic outcome, it cannot be assumed that the protocol followed by the author would ensure similar results in all other patients treated in this manner. The dental literature contains many individual case reports demonstrating success utilising this technique but as yet there are no prospective, controlled clinical studies. Whilst the success observed in the present case may be attributed to the techniques employed, it is not possible to be certain that a similar result would not have been achieved with a more conventional approach.



Fig. 1 The pre-treatment situation. Note the midline papilla and gingival margin deficiencies.



Fig. 2 After approx 3-months of forced eruption, there is an excess of gingival tissue.

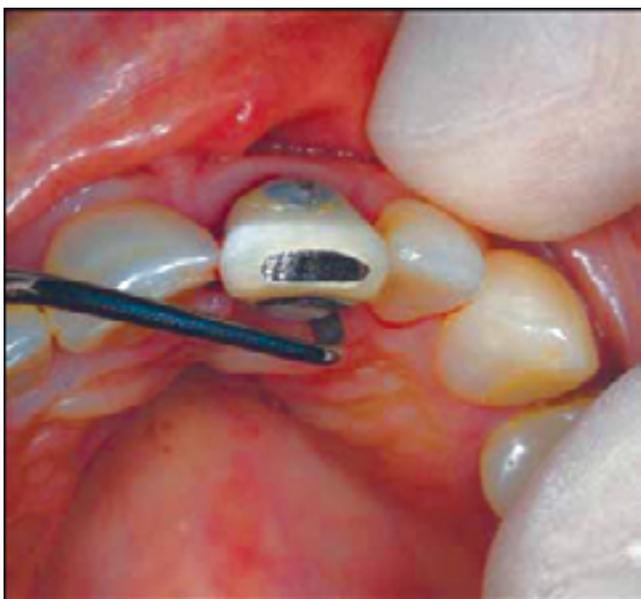


Fig. 3-5. Following a palatal elevation protocol, the 21 was extracted and a Nobel Biocare Replace Tapered Groovy (RP, 13mm) implant was placed into the extraction socket.



Fig. 6 & 7. A definitive, customised zirconia abutment was placed on the implant and torqued to 35Ncm. A provisional crown was then cemented over the abutment.



Fig. 8 The clinical situation at the 1-week post surgery review.



Fig. 9 The clinical situation 6-months post surgery.



Fig. 10 - 12. The case as it presently appears, 7-months following the refinement of the zirconia abutment in-situ and then cementation of the definitive crown.

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“This article is a case report of a technique that the Author has used with good clinical success. It is not a specifically peer-reviewed technique and readers should consider the scientific and biological merits before proceeding to use this treatment approach”

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