

Initial Report of 42 Consecutive Cases of Immediate Mandibular Replacement

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Introduction

Traditionally, failing mandibular molars are extracted then allowed to heal before implant placement. Considerable loss of alveolus frequently accompanies this. Therapy is lengthy and multi-staged. We wanted to know if might be possible to speed the therapy and reduce the loss of alveolus by placing implants immediately following the extraction.

Aim

To see if immediate implant placement in mandibular molar extraction sites was feasible, to see if the implants osseointegrated and to see the change in form of the alveolus in the region. Also, to measure the time for therapy compared with the conventional protocol. Patient and referring dentists responses to the therapy were also assessed.

Materials and Methods

Over the study period of two years, 48 consecutive cases presented or were referred for implant replacement of mandibular molars. Teeth were generally removed by sectioning the teeth and extracting the roots individually. Efforts were made to preserve the four walls of the socket and the regions were only flapped if a bone wall deficiency was encountered. Six teeth were found not to be suitable for immediate replacement because of the inability to stabilize an implant in the remaining bone volume, or because of the proximity to the mandibular nerve. These cases were treated with Socket Regeneration, and later implant placement.

Procedure

The remaining 42 teeth had immediate implant replacement using Camlog® Promote Plus® implants, generally a 5.0 x 11.0mm. Stabilization for the implant was provided in either the inter-radicular furcal region or in one "uprighted" socket, generally the mesial. Occasionally, the only stabilization region available was in the floor of the socket.

A Camlog® 4.0mm Cylindrical gingivaformer was placed in the implant instead of a cover screw. Bio-Oss Collagen® (Geistlich) was then used to augment the residual root spaces and deficiencies between the residual socket walls and the implant. The augmentation material was bought up and around the Gingivaformer. Generally 250 - 350 mg of this material was required.

A Mucograft® Membrane (Geistlich) was sutured to cover over the implant and the bone graft. Often PeriAcryl™ (Glustich) was placed over the membrane to further stabilize the site and to help control post-procedure bleeding.

The cases were assessed with pre- and post- placement radiographs as well as at four months following the procedure. It generally took four months before the case was referred back to the restorative dentist for the completion of restorative therapy.



Results

1. In all, 42 cases of extraction with immediate implant replacement, the implant osseointegrated and was present at the three month final assessment stage. Most of these have now been restored.
2. From analysis of the master models taken at the time of restoration, it was obvious that retention in height and width of the alveolus was impressive.
3. Instead of four surgical exposures [Extraction, Socket Regeneration, Implant Placement, Implant Exposure] treatment was accomplished in a single surgical visit. Overall treatment costs were greatly reduced.
4. No difference in survival was found between the cases with "Loss of Supporting Bone" as opposed to those "With restorative issues". However, in those cases with restorative issues the teeth were generally more difficult and time consuming to remove, even when using ultrasonic periostomes. Teeth with endodontic therapy were a particular problem because they tended to have a much higher incidence of fracture.
5. Patient and referring dentist appreciation of the accelerated protocol was extremely gratifying.

Discussion

Molar failures can generally be grouped into two different types, one where the breakdown situation involved **loss of supporting bone**. These would include endodontic issues and periodontal breakdown. The other category would be those cases **with restorative issues** such as inadequate tooth structure to retain a crown, advanced root caries etc.

A case with loss of supporting bone would seem more likely to present a problem for implant replacement because of infections deep within the bone, reduced bone volume and difficulties in obtaining stability for the implant replacement.

Conclusions

Aside from eliminating several surgical procedures, it was found that this immediate replacement protocol better preserved the alveolar supporting complex than the traditional two- or three-stage protocol [extraction, implant placement, implant uncovering]. Both patients and referring dentists greatly appreciated the faster, less invasive, single-stage protocol.

All the implants survived so there is no need to differentiate cases with loss of supporting bone from those with restorative issues.