

## Socket Grafting Large Defects with Delayed Implant Placement

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**Received:** October 23, 2018; **Published:** November 26, 2018

### Abstract

Two case reports are presented here. Both deal with osseous defects caused in one case by a failed endodontic treatment and the other by a severe periodontal infection. In both cases, following extraction, the osseous defects were repaired with bone grafts followed by placement of an endosseous implant and appropriate restorative treatment to replace the missing dentition.

**Keywords:** Dental Implants; Bone Grafting

### Introduction

Dentists often face challenges that were difficult to treat satisfactorily before the advent of dental implants and bone grafting. This is particularly true for bone loss due to failed endodontic procedures [1-3] and bone loss due to periodontal problems [4-6]. Two such cases are presented here.

### Case Report

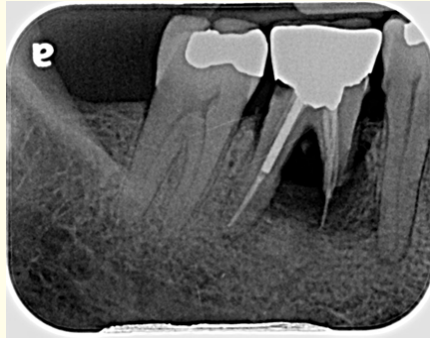
One case was a failed root canal accompanied by root resorption and severe bone loss in the area of the resorbed tooth root. Tooth #30 was clearly unsalvageable and required extraction. Further, the bony defect had to be addressed before any restorative treatment could be started. It was clear that the large amalgam restoration on tooth No. 31 would necessitate careful preparation of the abutment tooth and significant loss of enamel on the tooth distal to the pontic if a three-unit bridge was to be placed to replace the missing tooth. The patient was reluctant to have a bridge constructed and it was decided to place a single implant and prosthesis to replace the missing tooth.

In the second case, a patient presented with pain and suppuration of a heavily restored tooth that had a severe periodontal defect. A periodontal consult affirmed that tooth #19 was not savable and required extraction. It was also noted that the bone surrounding the adjacent tooth #18 was also starting to be compromised. Repair of the periodontal damage followed by placement of an implant was embarked upon.

### Restoring a failed root canal with root loss and bone resorption

A patient presented with a failed endodontically-treated tooth that had also suffered root resorption and severe periodontal bone loss (Figure 1). It was decided that the affected tooth should be extracted and guided bone regeneration was performed. Allograft (mineralized cortical-cancellous blend particulate: Directgen- Implant Direct) was placed to fill the large bone defect with a resorbable membrane (Cytoplast RTM collagen) placed to cover the graft (Figure 2). After allowing healing time of 5 months, a dental implant (Legacy 4 4.7 mm X 10 mm, Implant Direct) was placed and allowed to osseointegrate over a period of 8 weeks (Figure 3). After osseointegration was com-

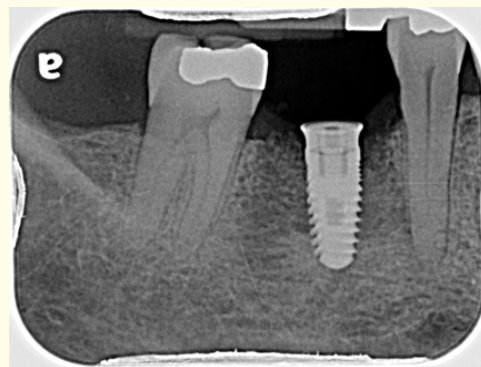
plete, an impression coping was placed (Figure 4) and the lower arch impressed with polyvinyl siloxane impression material. Thereafter, a zirconia screw retained crown was seated on the implant abutment (Figure 5).



**Figure 1:** Failed root canal treatment with root resorption and accompanying bone loss.



**Figure 2:** Bone graft placed.



**Figure 3:** Implant placed in bone at the healed defect area.



Figure 4: Impression coping placed.

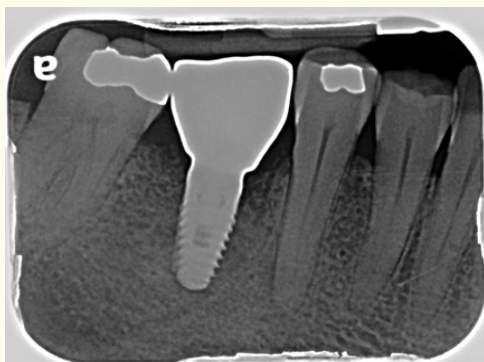


Figure 5: Final restoration seated.

Figure 6 is a 1-year follow-up radiograph of the affected area. It is clear from figures 5 and 6 that the bony defect had been repaired and that the implant had successfully osseointegrated.



Figure 6: 1 year follow-up bitewing radiograph.

**Repair of a severe periodontal defect**

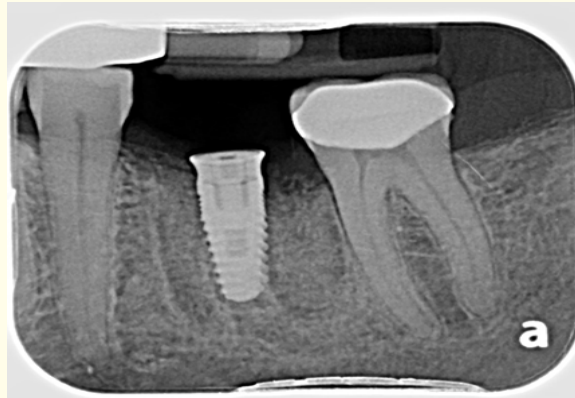
A patient presented with pain and suppuration of tooth no. 19. Radiographic examination (Figure 7) and a periodontal consult indicated periodontal involvement and severe bone loss. The tooth was deemed unsavable and extraction was performed. After thorough curettage and saline irrigation, guided bone regeneration (mineralized cortical-cancellous blend particulate: Directgen-Implant Direct) was performed with a resorbable membrane (Cytoplast RTM collagen) and the affected area was allowed to heal (Figure 8). After healing and bone regeneration had occurred over a 5 month period, an implant was placed, (Legacy 4 4.7 mm X 10 mm, Implant Direct) (Figure 9) and healing with osseointegration was allowed to occur for 2 months. Thereafter the final screw retained zirconia restoration was placed (Figure 10). A 1-year follow-up bitewing (Figure 11) showed that not only had the periodontal defect resolved but that the implant was successfully osseointegrated.



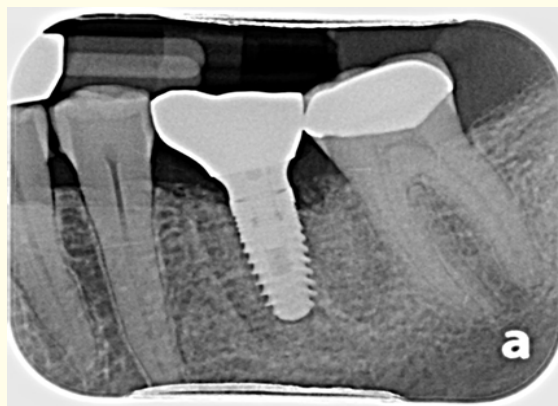
*Figure 7: Severe periodontal defect.*



*Figure 8: Bone graft placed in affected area.*



*Figure 9: Implant placed.*



*Figure 10: Final restoration placed.*



*Figure 11: 1-year follow-up radiograph.*

### Discussion and Conclusions

These two cases are good examples of how severe dental problems can be resolved by means of bone grafting and implants. Further, by replacing a single tooth in both cases, not only was there no need for a 3-unit bridge to be constructed but also loss of enamel in preparing abutment teeth was avoided.

The latter is an important consideration when the teeth adjacent to the affected teeth have large restorations or crowns, both situations presenting problems if these teeth were to be prepared to act as abutments for a bridge. Further, by careful selection and placement of the implants, they could be used as supports for other prostheses should further dental prosthodontic treatment become necessary due to later tooth loss.

### Bibliography

1. Cheung GS. "Endodontic failures--changing the approach". *International Dental Journal* 46.3 (1996): 131-138.
2. Kvist T and Reit C. "Results of endodontic retreatment: a randomized clinical study comparing surgical and nonsurgical procedures". *Journal of Endodontics* 25.12 (1999): 814-817.
3. Kim SG and Solomon C. "Cost-effectiveness of endodontic molar retreatment compared with fixed partial dentures and single-tooth implant alternatives". *Journal of Endodontics* 37.3 (2011): 321-325.
4. Hanes PJ. "Bone replacement grafts for the treatment of periodontal intrabony defects". *Oral and Maxillofacial Surgery Clinics of North America* 19.4 (2007): 499-512.
5. Reynolds MA, et al. "The efficacy of bone replacement grafts in the treatment of periodontal osseous defects. A systematic review". *Annals of Periodontology* 8.1 (2003): 227-265.
6. Reynolds MA, et al. "Regeneration of periodontal tissue: bone replacement grafts". *Dental Clinics of North America* 54.1 (2010): 55-71.

**Volume 17 Issue 12 December 2018**

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