

# *Dental Follicle*

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## Scientific Editorial - Biofunctional Dentures - A New Way to Rehabilitate Edentulous Ridges

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### Abstract:

This clinical report describes the prosthodontic rehabilitation of an edentulous patient with a complete denture using the biofunctional prosthetic system. The standard procedure in the making of the complete dentures are used in the case presented in this article.

**Keywords:** BPS Denture , Biofunctional Prosthetic System , Complete Denture Prosthodontics.

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### Introduction

BPS or Biofunctional Prosthetic System has been a major advancement in the complete denture technology. The system uses a comprehensive technique for impressions, record taking, tooth placement, fabrication and processing. The advantage of this technique is to provide patients with optimal form, function, and aesthetics in complete dentures .BPS system uses a controlled heat/pressure polymerization procedure during which time the exact amount of material flows into the flask to compensate for shrinkage, which ensures a

perfect fit. This pressure also optimizes the physical properties of the denture. BPS denture meets the esthetic demand of patients with its unique Ivoclar teeth, which replicate anatomy of the natural tooth Ivoclar teeth are made up of 3 layers of cross-linked acrylic resins that contribute to a life-like appearance and resistance to wearing. The functional impression technique and simulation of the jaw movements by the Stratos 200 articulator in BPS ensure that BPS denture meets most exacting requirements.<sup>[1]</sup>

### Case Report:

A 63 year old female patient walked presented with few maxillary and mandibular grade III mobile teeth .

anaesthesia and the patient was recalled after two months for replacement of the edentulous arches with complete dentures.

She had no significant medical history. The teeth were extracted under local



Standard procedure for conventional denture were performed. Maxillary and mandible impressions were made with irreversible hydrocolloid impression material and stone casts were prepared. Maxillary and Mandibular special trays were fabricated with Self cure acrylic and secondary impression was made with a Aquasil™ Ultra Impression Material. The jaw relations were made and finally after teeth setting a wax trial was done .



After getting the denture processed at the BPS supporting lab, the denture was delivered to the patient.



### Conclusion:



BPS denture offer excellent long term results . Although the price compared to the normal denture is substantially high , it still is in the affordable range for the middle class population. The BPS dentures come in with the brand Logo which also add the credibility of the dentures.

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## Hemisection: An alternative treatment for the vertically fractured mandibular molar

Dr.Gregori M. Kurtzman

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### Abstract:

Hemisection of mandibular molars may be a viable treatment option when vertical root fracture has occurred and the other root is healthy. A case will be presented discussing the techniques involved in hemisection and restoration of the remaining tooth.

**Key-words:** Hemisection, vertical root fracture, post and core.

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### Introduction:

The treatment of severe furcal bone loss may require the removal of a portion of the anatomic crown and its associated root or resection of only one root from a multirooted tooth.<sup>1</sup> This resection type of surgical therapy is a definitive treatment because it predictably enables clinicians to better access the remaining tooth structure for periodontal and subsequent prosthetic therapy. The morphology of the necessary tooth preparation for root resection, in this case hemisection, periodontal therapy is paramount to facilitate the patient's ability to accomplish optimal long term maintenance of this affected area.<sup>2</sup>

Prosthetic therapy and restorative sequencing is often complicated when periodontal attachment loss, caries or tooth fracture involves the furcation area of the multirooted molar. Although such involvement invariably diminishes the long-term prognosis of the affected teeth,

extraction is not necessarily an option. Hemisection periodontal therapy, which involves removal of the involved root and its associated crown portion, is one of several treatment modalities that can be used in such cases.

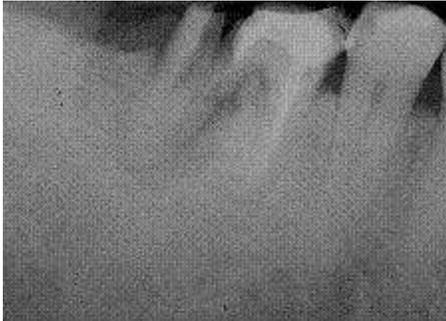
Therefore, it is important for dentists to know the necessary indications/contraindications, surgical techniques, and prosthetic management for successful hemisection periodontal therapy. This predicative treatment modality has a high degree of success if some basic considerations are followed. 3, 4 For example in the case presented, fracture of the root of a mandibular molar may not doom the remaining unaffected portion of the tooth to extraction. For instance when the health of the other root is sound it may be utilized to provide a premolar shaped restoration.

### Case Presentaion:

A 40 year old male presented with the complaint of a rough area on the lower right first molar. Examination revealed a vertical fracture of the distal root. The tooth had undergone prior Endodontic therapy

and was asymptomatic. Radiographically, it was evident that the distal root had a fracture separating the root into two independent portions. (Figure 1) A radiolucent lesion was noted extending

from the apical tip coronally to the furcation. Surprisingly, neither tooth portion demonstrated any mobility. (Figure 2) The mesial root lacked pathology and tested negative for percussion. The only other mandibular teeth missing were the right second molar and third molars bilaterally. Periodontal health was normal and no other restorations or decay was present on the remaining teeth.



Treatment options were discussed and due to financial considerations it was decided to save and restore the mesial root of tooth 30. Future treatment when finances allow will include placement of an implant distal to the restored mesial root and restoration with a fixed single crown.

The patient returned eight months after the initial consultation to initiate treatment as finances had improved and he now had insurance benefits. Clinically and

radiographically no changes had occurred and the patient indicated the area remained symptom free.



Local anesthetic was applied via a mental block and PDL injection with 4% Septocaine with 1:100,000 epinephrine (Septodont, New Castle, DE). A course tapered diamond was utilized in a highspeed handpiece with water to place a cut from the buccal to the lingual thru the furcation. (Figure 3) Periotomes (Zoll Dental, Chicago, IL) were used to luxate the most distal root fragment by gently apical directed force into the periodontal ligament space. The segment was then removed with a rongeur. The periotomes were then introduced into the cut placed at the furcation, the remaining root moved distally and removed with the rongeur. (Figure 4 & 5) The diamond was utilized to remove the lip at the furcation on the mesial root and eliminate any undercut that might trap plaque. The old composite core was removed and the orifices for the mesial buccal and mesial

lingual canals identified. A Bident bipolar (Bident, Philadelphia, PA) unit was used to trough the sulcus around the remaining root to expose more root structure and improve the ferrule affect for the future crown. Bleeding on the mesial papilla was additionally controlled with the Bident unit. (Figure 6)



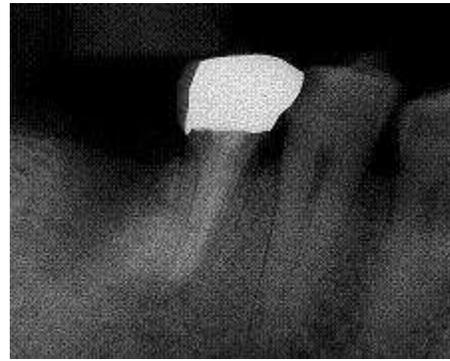
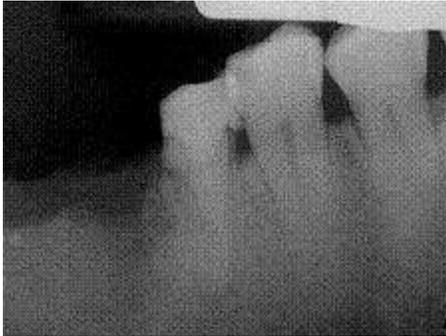
Peeso burs were used to prepare a post space in both canals to a diameter of 1.25mm and a depth of 10mm. An adhesive (Bond1, Pentron Clinical Technologies, Wallingsford, CT) was applied into each post preparation and all exposed dentin. Excess adhesive was removed with paper points. Cement-it Universal C&B (Pentron Clinical Technologies, Wallingsford, CT) was injected into the post spaces and a Fibrekor post (Pentron Clinical Technologies, Wallingsford, CT) was inserted to length. Excess luting agent was removed from around the posts by application of air with the air/water syringe. A contrasting color dual cure resin core material (Build-it FR,

Pentron Clinical Technologies, Wallingsford, CT) was injected around the posts and built up coronally. (Figure 7) Following set of the materials, the excess length of fiber post was reduced and the core shaped keeping the restoration out of occlusion. (Figure 8 & 9)



The patient returned after four weeks post surgical healing. The soft tissue had healed at the distal root and the mesial root remained asymptomatic. Preparation of the mesial root was made to accept a porcelain fused to metal crown. The contrasting color of the core material assisted in ensuring adequate ferrule in the preparation. Retrac (Centrix, Shelton, CT) was injected into the sulcus and a cotton Comprecap (Coltène/Whaledent Inc., Cuyahoga Falls, OH) placed over the preparation. The patient was instructed to bite into the Comprecap and occlusion was maintained for 5 minutes to provide better capture of the margins. A light body polyvinyl siloxane was subsequently injected around the

preparation and a full arch impression tray filled with medium body polyvinyl siloxane (Correct Quick, Pentron Clinical Technologies, Wallingford, CT) was inserted. An opposing full arch impression and bite were taken. A temporary crown was fabricated using Revotec (GC America, Alsip, IL) and temporarily luted with Tempcem (Pentron Clinical Technologies, Wallingford, CT).



The patient returned several weeks later for completion of treatment on tooth 30. The temporary crown was removed and the final restoration tried in. Occlusion was checked and the porcelain fused to metal crown luted with Cement-it Universal C&B. (figure 10 & 11)

## Discussion

In situations when resection periodontal therapy can be predicted, Initiation of conventional endodontic treatment before therapy simplifies the surgical procedure. This is often the case because tooth preparation can invade the pulp chamber and jeopardize control of the coronal seal of the endodontic access opening, thereby complicating the completion of endodontic therapy.

Consideration when choosing to perform a hemisection procedure should be given to the morphology, clinical length and shape

of the roots of a multirooted tooth. The divergence of the roots is indeed an important indication. Those affected teeth with roots spread apart facilitate the clinician's ability to perform a root resection, whereas teeth with closely approximated or fused roots should not receive hemisection therapy.

Conversely the contraindications to performing hemisection periodontal therapy include a "non-physiologic" post surgical architecture that would preclude good home care, or an inadequate amount

of alveolar bone remaining to support the existing root structure. Also, if pulp cannot be treated adequately in the canal system of the roots to be retained or this segment of the tooth is nonrestorable.<sup>5</sup>

Following resection therapy is the post resection restorative rehabilitation. The present prosthetic guidelines for rehabilitation include a confluence of the root and the prosthetic crown contours. In

### Summary:

The removal of a root and the overlaying anatomic crown is referred to as a hemisection. Hemisection of either a maxillary or mandibular molar is often a means of retaining teeth needed for

addition, the axial tooth contours of the restored resected teeth should have a physiologic contour, which implies that the restoration emerges from the root with a zero degree emergence profile. These transgingival areas should therefore exhibit a flat prosthetic contour at the gingival margin, producing a more hygienic, less plaque retentive region when compared to a tooth restored with a cervical bulge at the gingival portion of the prosthesis.<sup>6</sup>

restorative abutments or occlusal support. This treatment can produce predictable results as long as proper diagnostic, endodontic, surgical and prosthetic procedures are performed.

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