



## Case Report

# Splinting - A bridging solution for periodontally endangered esthetics - A case report

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### ABSTRACT

Splinting a novel and a cost effective method to stabilise periodontally compromised teeth. A variety of materials are available for splinting ranging from ligature wire to fiber reinforced composite. The first priority for a patient is replacement of the extracted tooth specially in the aesthetic areas which usually takes time. A 63 year old patient reported to the department of periodontology with periodontally compromised lower anterior teeth, the treatment plan was extraction of the mobile tooth followed by Splinting, with the help of fiber reinforced composite using the crown of the extracted tooth as pontic.

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## 1. Introduction

Periodontitis is a progressive form of periodontal disease which can be characterized as chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease.<sup>1</sup> It causes progressive annihilation of the tissues which support the teeth, i.e. the gingival, the periodontal ligament, cementum, and the alveolar bone, also presents a local microbial burden which triggers inflammatory changes and eventually leads to local tissue destruction.<sup>2,3</sup>

The resultant effect of advanced bone loss in periodontally compromised patients brings out the mobility of teeth which has created concerns amongst dentists since 19<sup>th</sup> century.<sup>4,5</sup>

In cases of tooth loss in the anterior region patients have a traumatic experience because of the aesthetically unpleasant look being the chief concern. Escalation in mobility due to pathological occlusion can be rectified by occlusal adjustment alone. But in some cases if bone loss is severe and tooth mobility can not be resolved even by surgical intervention, extraction of the tooth is the only outcome. In

such cases immediate replacement of the involved tooth is a requisite, and this can be in the form of temporary, semi-permanent or permanent treatment approach. The temporary treatment modalities involve splinting of the crown of the extracted tooth in the form of Maryland bridge.

According to Glossary of Periodontics Term 1986 a splint is “an appliance designed to stabilize a mobile tooth”.<sup>6</sup> According to AAP (1996) a splint has been defined “as an apparatus, appliance, or device employed to prevent motion or displacement of fractured or mobile parts.”

While choosing an abutment tooth for immobilization, one needs to take into account the pericemental area of an abutment tooth. Ante (1926) suggested that “The entire periodontal membrane region of the abutment teeth need to be equal or surpass that of the teeth to be substituted.” Furthermore, The length of the periodontal membrane attachment of an abutment tooth must be at least one-half or two-thirds of that of its standard root attachment.”<sup>7</sup>

Many different alternatives are available for splinting, using the natural tooth as Pontic, some of them include fiber reinforced composite (Ribbond) and Super-Bond C&B. Super-Bond C&B which is a self-curing dental adhesive resin cement based on acrylic resin technology offers a good and effective outcome.

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The aim of this paper is to report about the treatment of a patient with severe periodontitis (Stage IV, Grade C) and Grade III mobility who needed immediate prosthetic rehabilitation.

## 2. Case Report

A 63-year-old female patient was referred to the department of periodontology in Himachal Dental College, Sundernagar with the chief complaint of mobility in the lower mandibular anterior teeth. Clinical examination revealed, mandibular right central incisor had Grade III mobility and tenderness on percussion. After discussion with the patient it was decided that the tooth required extraction because of its poor prognosis. The patient wanted immediate prosthesis so it was decided that after the extraction, the same tooth will be used as prosthesis in the form of a Maryland bridge. The treatment plan was explained to the patient and local anaesthesia was administered with local infiltration over the mucosa of the right central incisors, extraction was carried out atraumatically and the tooth was stored in hank's solution. Patient was recalled after a week to access the healing. (Figure 1) At the second visit the patient under went thorough oral prophylaxis. Occlusal adjustment was done before splinting the teeth. The extracted right central incisor was removed from the hank's solution and dried, entire root of the central incisor was cut till the CEJ with help of taper fissure such that only crown of the central incisors remained. (Figure 2)

Super Bond C&B is self cure resin cement which consists of primer, activator, monomer powder (Figure 3); primer red activator (65 % Phosphoric acid) was applied from lower right canine to left lower canine for 30 seconds, after which it was washed away. The same was done for the extracted right lower central incisor also. The monomer powder was directly mixed with the activator liquid to get the desired consistency and was directly applied on the lingual surfaces of the teeth. Care was taken to ensure the extracted tooth remained in the same occlusion plane. After the cement was set occlusion was verified. (Figure 4)



Fig. 2:



Fig. 3:



Fig. 4:



Fig. 1:

## 3. Discussion

Tooth mobility is a familiar consequence to periodontitis which ultimately leads to loss of the tooth. A wide variety of treatment options are available to patient for prosthetic rehabilitation of the lost tooth from removable to fixed prosthesis to even implant supported prosthesis. But all these options require time and cannot be given immediately. In some cases teeth which are not in a good state periodontally, have poor prognosis and can be retained for an extended period of time by means of splints, till a supplementary treatment is scheduled for the patient. Only if

all the aspects are considered and appropriate maintenance therapy is suggested, splints have become an essential part of periodontal therapy and its maintenance. Nonetheless, it should be taken into consideration, that splinting on its own cannot abolish the source of tooth mobility. They are simply a support system, in steadying the mobile tooth, besides mobility may possibly revert as soon as the splints are removed. Henceforth, splinting is an indispensable and a requisite adjunct, additive to cause-related therapy in the management of mobile teeth.

The outcome of this case report highlights, that for patients with multifaceted periodontal treatment demands, need satisfactory measures as well. Furthermore, the use of contemporary materials and procedures prove to be of great help to solve laborious dental conditions. One such material which was undertaken in this case report is Super-Bond C&B contains "4-META" (4-methacryloxyethyl trimellitate anhydride) as a diffusion promoter and "TBB" (tri- butylborane) as an initiator in polymerization. The 4-META/MMA-TBB adhesive system is now-a-days extensively accepted by dentists all over the world designed for its reliability and high bond strength.

It comprises of linear polymers of MMA deprived of inorganic fillers (excluding the radio-opacifiers in the Radiopaque concentrate). The resin structure offers optimal microhardness also flexural modulus considerably inferior compared to composite resin cements. These exclusive mechanical properties are hidden secret of Super-Bond C&B's astonishing performance.<sup>8</sup> This resilience of superbond C&B proves to be of noteworthy value, over customary resin cements. For the reason that the cement remains somewhat flexible after curing, it generates an additional obstinate union with greater resistance towards occlusal stresses.

Clinically, the cement is considerably adaptable, for instance, it permits immobilizing of loose teeth and "immediate bonded bridges" by means of a resin denture tooth (or else even the crown of an extracted tooth) as the pontic.

The patient should be told to avoid heavy biting pressure on the teeth which are splinted. The eccentric movements should be noted and relieved entirely. Long-term follow-up is important to evaluate the efficacy of the Superbond C&B which is of great assistance in splinting.

#### 4. Conclusion

Loss of tooth-supporting structures contributes to tooth mobility and it's etiology needs to be recognized before planning the treatment. Increased tooth mobility has unfavourable affects on function, aesthetics, and the patient's comfort. Splints are used to compensate such problems. In order to manage periodontally compromised teeth, splinting of mobile teeth to sturdier adjacent teeth is a feasible preference also can be considered as an indispensable part of periodontal treatment for

compromised teeth with advanced mobility. This extends the longevity of compromised teeth with advanced mobility, gives steadiness to the periodontium to reattach further, improving comfort, function and aesthetics of the patient.

The use of a natural tooth pontic is an exceptional, standard treatment of choice for circumstances where anterior teeth need to be removed moreover, the concern for patient's compromised facial esthetics can also be resolved.

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None.

#### 6. Conflict of Interest

The authors declare that there is no conflict of interest.

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