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CLINICAL REPORT

Putty Index: An Important Aid for the Direct Fabrication of Fiber Reinforced Composite Resin FPD

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Abstract Fiber reinforced composite resin fixed partial dentures (FRCFPD) with composite resin, PFM or all ceramic pontic can be used as a short term or long term alternative to conventional fixed partial dentures or implant supported crown in young patients where conventional FPD is contraindicated (large pulp chambers) or in patient's unwilling to invasive implant placement surgical procedure and those who do not want to allow preparation of natural sound abutments for placement of retainers for FPD. FRCFPD can be successfully used for replacing missing anterior tooth (Turker and Sener, J Prosthet Dent 100:254–258, 2008), in conditions which allows minimum occlusal loading of pontic, over jet and overbite not greater than 3 mm (Ricketts, Provocations and perceptions in craniofacial orthopedics: dental science and facial art/parts 1 and 2. Rocky Mountain Orthodontics, Denver, p 7023, 1990) and structurally sound and intact abutments for the fiber reinforced matrix (Rose et al., Quintessence Int 33:579–583, 2002). The successful esthetic and functional rehabilitation of missing tooth with fiber reinforced composite resin FPD depends on accurate positioning of pontic in patient's mouth. It is difficult to hold the pontic in proper position with instrument or fingers while direct fabrication in mouth. For accurate positioning, stabilization of pontic is very important which can be achieved with *putty index*. Putty index maintain pontic in accurate mesiodistal, labiolingual and cervicoincisal position while fabricating FRCFPD directly.

Keywords Putty index · Fiber reinforced bridge · Pontic · Elastomer

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Procedure for Fabrication of Putty Index

A preliminary maxillary impression was made with putty of polyvinyl siloxane elastomer (Aquasil soft putty/regular set, Dentsply, Germany) after oral prophylaxis (Fig. 1). The impression was poured with type IV die material (Ultrarock, Kalabhai Karson Pvt. ltd., Mumbai, India). The shade selection was done in natural light by using Vitapan classical shade guide. After shade selection, cast was sent to the dental laboratory for the fabrication of a modified ridge lap metal–ceramic pontic (ceramco 3, Dentsply, Germany) with a palatal groove on the middle of palatal surface of the pontic of dimensions about 3 mm width and 1.5 mm depth.

The esthetic appearance and relationship of pontic with edentulous ridge and adjacent teeth were properly evaluated at the trial appointment. After evaluation in patient's mouth, pontic was properly stabilized on the cast with wax from the palatal side (Fig. 2). After stabilization of the pontic, putty index was fabricated by adapting homogenous mix of the putty (Aquasil soft putty/regular set, Dentsply, Germany) on the cast (Fig. 2) The index should cover the labial surfaces of all anterior teeth and pontic including the incisal edges. The putty index can extend from canine to canine or from first premolar to first premolar. The matrix was removed from the cast and its fit was evaluated in the patient's mouth.

Fig. 1 Missing maxillary right central incisors

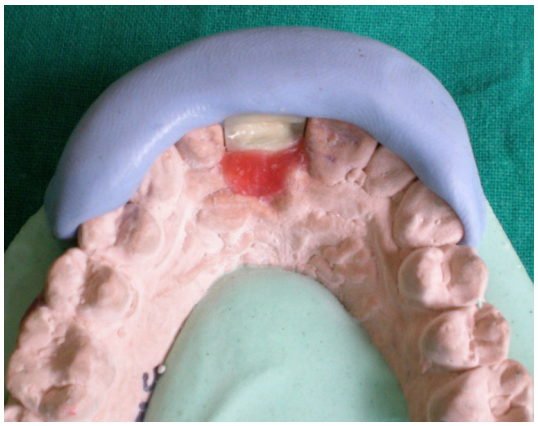

Fig. 2 Putty index fabricated on cast after stabilization of pontic with wax

Palatal slots were prepared on the middle of palatal surface of the abutments. The palatal slots on pontic and abutment should be at the same level. The depth of slots was approximately 1.5 mm and width was 3 mm which depends on the width of ribbon of fiber reinforced composite resin. The distance between the slots was measured and the fiber ribbon of required length was cut.

After etching of palatal slots and application of bonding agent (Prime and Bond NT, Dentsply, Germany), the pontic was placed in the patient's mouth and stabilized with putty index (Fig. 3). The composite resin (Ceram x^{TM} Duo, Dentsply, Germany) of selected shade was placed in the palatal slots but do not light cure it. The cut piece of ribbond was taken and it was properly embedded into the palatal slots and then light cured for 60 s per tooth. The putty index was removed and flowable composite (tetric flow, ivoclar vivadent) was placed on the palatal side to make it smooth and glossy (Fig. 4).

The putty index is essential for accurate positioning of pontic in patient's mouth while direct fabrication of FRCFPD. The index stabilizes and prevents any movement

Fig. 3 Putty index used for stabilization of pontic in patients mouth

Fig. 4 Palatal view of definitive prosthesis

of the pontic and also helps in maintaining passive contact

Fig. 5 Labial view of definitive prosthesis

of pontic with underlying tissue in edentulous area. Figure 5 shows successful esthetic and functional rehabilitation of missing right maxillary central incisor with fiber reinforced composite resin FPD by using putty index for stabilization of the pontic.

Conclusion

Fiber reinforced composite resin FPD is a short or long term treatment alternative to implant supported crown, conventional FPD or resin bonded FPD in certain clinical

situations. Rehabilitation of missing tooth with FRCFPD depends on accurate positioning of pontic in patient's mouth which can be achieved with putty index. Putty index stabilize and prevent any movement of pontic while fabrication of FRCFPD. This article described successful replacement of missing anterior tooth by a simple, innovative and conservative approach.

References

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