CASE REPORT

Unconventional prosthodontics for the aesthetic rehabilitation of discoloured rotated maxillary central incisor

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SUMMARY

Orthodontics is always the first choice treatment for aesthetic and functional rehabilitation of malaligned teeth but in some exceptionally rare cases, the unwillingness of the patient for orthodontic correction poses a tough challenge to the dentist. In such cases, the only other option for aesthetic restoration is the change in angulation with custom cast post and core followed by the placement of an aesthetic crown.

CASE PRESENTATION

A 30-year-old male patient reported to our dental centre for the aesthetic restoration of a discoloured and rotated maxillary anterior tooth due to trauma (figures 1 and 2). The patient also expressed his unwillingness for the correction of malaligned tooth by the removable or fixed orthodontic therapy and wanted the correction by any other procedure.

The two possible treatment options presented to the patient for the aesthetic and functional rehabilitation of discoloured malaligned tooth were the correction of the misalignment by orthodontic treatment followed by placement of porcelain laminate veneer, all ceramic or porcelain fused metal (PFM) crown and the second option was to correct the coronal alignment by the fabrication of post-core followed by PFM or Zirconia crown. The patient chose the second option because of his unwillingness for orthodontic treatment.

TREATMENT

The length of the post was determined from the intraoral periapical X-ray taken after chopping half of the coronal tooth structure (figure 3) and after the intentional root canal treatment. A 5 mm portion of the gutta percha was left to maintain the

Figure 2 Incisal view.

apical seal and rest was removed with peeso reamers to prepare the postspace. The remaining tooth structure was prepared with shoulder finish line on labial side and chamfer on the palatal side (figure 4).

An appropriately determined length was marked on the dowel (figure 5) which should extend to the prepared length. If it is thick and not extending to the prepared length, it should be trimmed with a carbide bur until it extends to the marked length. Lubricate the canal, chamber, margin and gums surrounding the tooth with a petroleum jelly (Vaseline). Lubrication of canal prevents the sticking of acrylic resin to the canal and application over the gums minimises a burning sensation caused by exothermic reaction of the self-cure resin.

Two dappen dishes, a painting brush, chemically cured acrylic resin and a syringe were arranged. The polymer was dispensed into one of the dappen dishes and the monomer in the other. The monomer was first applied on the dowel with the brush. The brush was again dipped in the monomer and then in the polymer, and a thin layer of the mixture was applied on the dowel. The

Figure 1 Labial view of discoloured maxillary left central incisor.

Figure 3 Half of the coronal structure removed after randomised controlled trial.

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Figure 4 Preparation of remaining coronal structure.

Figure 5 Acrylic resin dowel.

dowel was immediately placed in the canal and allowed to set for few seconds. The dowel was partially taken out and replaced in the canal. If it is allowed to set in the canal without taking out and replacing it in the canal, it might stick in the canal and break. Post should be snugly fit. It should neither be loose nor tight. If it is loose, add the acrylic resin again. Once postpattern was made, the core was fabricated with same acrylic resin. The core was properly prepared, like a natural tooth (figure 6). Finally the whole acrylic resin post–core pattern was cast (figure 7). The fit of the cast post and core was first assessed and then it was luted with glass ionomer cement (figures 8 and 9). Figures 8 and 9 also show the drastic change in mesiodistal and labiopalatal inclination created by custom cast post and core without orthodontic consideration. Figure 10 shows the aesthetic restoration by placement of PFM crown over the cast core.

OUTCOME AND FOLLOW-UP

The maxillary discoloured central incisor was aesthetically and functionally restored with change in angulation with custom cast post and core followed by cementation of porcelain fused to metal crown. The patient reported no discomfort on 2-year follow-up.

Figure 6 Acrylic resin core pattern.

Figure 7 Cast dowel-core.

Figure 8 Labial view of change in angulation with cast dowel-core.

DISCUSSION

Orthodontic therapy is the first choice treatment for the aesthetic correction of proclined or rotated teeth¹ but in some rare cases where patients are not ready for any orthodontic treatment, the only other option for the satisfactory aesthetic restoration of such teeth is the change in angulation of the coronal portion of the tooth with post and core followed by the placement of the crown.

Custom cast post and core is usually preferred for the change in mesiodistal and labiopalatal angulation of the proclined or rotated teeth as compared with the prefabricated post. Custom cast post and core is a single assembly in which core can be shaped until satisfactory aesthetic is achieved² although the core might not be in the same axis as the post or the root. But in prefabricated post–core system, the core is build around the post after postcementation³ in the prepared canal so that if tooth is rotated or more labially inclined, the post will remain in the direction of the long axis of that tooth. So any change in angulation, performed by shaping of the core around the prefabricated post, usually results in loss of coronal extended post during preparation resulting in unsupported core. The functional loading of the crown might result in fracture of the unsupported core making the treatment complicated. So only the treatment

Figure 9 Incisal view of change in inclination.

Figure 10 Final restoration with porcelain fused metal crown.

option in such cases is the change in angulation with custom cast post and core followed by fabrication of PFM or Zirconia-based crown.

Learning points

- ▶ The aesthetic rehabilitation of the discoloured labial inclined tooth poses tough challenge to the dentist.
- ▶ Orthodontic therapy is the first choice treatment but in some rare cases, due to unwillingness of the patient for orthodontic treatment, the only other option is the correction of alignment with custom cast post and core followed by placement of an aesthetic crown.

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