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CLINICIAN CORNER - DENTISTRY

Removal Of Provisionally Cemented Ceramic Crown- An Innovative Method

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ABSTRACT

One of the most frustrating experiences in fixed prosthodontics is the fracture of the ceramic margin during removal of provisionally cemented crown. Although there are many techniques and crown removers available for the removal of crowns, but a technique hereby is described for an easy and atraumatic removal of such crowns.

Key Words: Crown, provisional cementation, crown remover.

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Introduction

On many occasions it is advisable to cement a restoration provisionally so that the patient and the dentist have a chance to assess its appearance and function over a longer time than can be provided in a single visit. Often a bridge must be cemented temporarily to allow adjustments in fit, occlusion and aesthetics. In such cases, ZOE, zinc oxide non eugenol or temporary resin cements are used because of their low strength and good handling characteristics. However, caution is advised in managing these trial cementations. It may be difficult to remove the restoration for definitive cementation even when temporary ZOE cement is used[1,2]. Most of us experience a clinical situation wherein the margin fractures or chips off in the process of removal of provisionally cemented ceramic crown. The frequency is more with hand instruments and or particularly with crown remover. To overcome this problem, an innovative procedure using a quadrant disposable tray[3] and an elastomeric impression material[4] along with a tray adhesive[5] is hereby described which allows easy removal of ceramic crown with least damage.

Procedure:

1. Apply the vinyl polysiloxane adhesive [Universal Tray Adhesive: Herraeus Kulzer,Germany] on buccal/labial and lingual/palatal, occlusal surfaces of the provisionally cemented ceramic crown, and let it dry for 4 to 5 minutes.[6][Table/Fig 1]
2. Load the quadrant disposable tray with the impression material and insert into the mouth [Aquasil Soft putty/regular set : Dentsply De Trey GmbH Germany] [Table/Fig 2]
3. Let the impression material set and remove the tray. The crown which has adhered to the impression is safely removed.[Table/Fig 3]

[Table/Fig 1]. Patient with provisionally cemented crown[21].

[Table/Fig 2] Impression material, tray adhesive and quadrant disposable tray

[Table/Fig 3] The crown which has been adhered to the impression tray.

Discussion

Final restorations which are temporarily cemented, can also be safely removed with the adhesive crown remover system [Richwill, Almore International corp.,Portland,Ore.].But when the opposing teeth have large direct restorations or cemented indirect restorations, the manufacturer warns that these may be loosened if this adhesive system is used in conventional manner. The Prem Gripper forcep can be used to grasp and remove the temporarily cemented fixed restorations. Again, tape should be used to protect the external surface of final restorations from damage during removal[7]. Several ultrasonic tips have been developed to aid in removing cemented restorations. But the use of vibration is considered an advantageous adjunct to other cast restoration removal devices[8]. Mechanical impact devices are the most commonly used, but it is unusual for the metal ceramic crown to be removed without fracture of porcelain with most of the above mentioned devices. As the porcelain is thinnest in the cervical margin, the fracture resistance is least in this area[9].This method reduces the pressure applied in cervical area. Instead the stress is generated along the long axis during the crown removal. Due to this, the chances of marginal fracture are greatly diminished. This innovative method is of great value in removal of crowns with thin ceramic margins. Although it is not an economical method yet it has an advantage that it is atraumatic whereas removal with instrument invariably leads to gingival trauma.

Moreover it is also important to remember to protect the patients airway at all times during the removal of bridges, crowns and inlays, especially during removal with most of the above mentioned devices. Sometimes it is helpful to alter the position of the chair and have the patient sitting upright. By this innovated method since the removed crown gets adhered with the impression material, the chances of aspiration of the crown during removal are almost negligible.

Conclusion

Considering the fact that the patient has to undergo a lot of pain, mental trauma, gingival damage and danger of aspiration with currently available conventional methods of crown removal, this technique is found to be simple, easy ,safe and

almost atraumatic ,and is likely to become an indispensible adjunct in the busy prosthodontic practice.

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