



LET'S BREAK THAT STRESS; USING NON RIGID CONNECTOR IN FIXED PARTIAL DENTURE, A CASE REPORT

Dentistry

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ABSTRACT

Rigid connectors might become problematic in the practise of fixed prosthodontics in scenarios like pier abutments and slanted abutments. Due to physiologic tooth movement, the position of the abutment relative to the arch, and the retention power of the retainers, the pier abutment will serve as a fulcrum if rigid connections are utilised in this condition.

KEYWORDS

Non rigid connector, Pier abutment

INTRODUCTION

A rigid connector may not be the best option in pier abutment FPDs because of variations in physiological tooth movement of different teeth. Due to the arch's curvature, the anterior tooth's faciolingual movement happens at a significant angle to the molar tooth's faciolingual movement. These movements could put stress on the long-span prosthesis' abutments. To lessen this risk, it has been advised to utilise nonrigid connectors. The use of a non rigid connector to lessen stresses on the single standing abutment and produce a stress-breaking effect is described in this case study.

Case Report

A 30-year-old female patient presented to the Department of Prosthodontics with a chief complaint of missing teeth, thereby having problems in mastication and aesthetics. Past medical history was insignificant, and previous dental records showed that the patient had undergone extraction of the very carious teeth. Intra oral examination revealed clinically missing maxillary first premolar and first molar, maxillary second premolar leaving as pier abutment (fig. 1). We opted to use a non-rigid connector to rehabilitate the patient after discussing our numerous treatment choices with the patient. This connector will act as a stress reliever between the retainer and pontic.



Fig.1

Clinical Procedure

The following clinical step by step procedure was carried out for her oral rehabilitation, Tooth preparation was done (Fig.2) with equigingival margins and shoulder finish line.



Fig.2

The gingival retraction was carried out with gingival retraction cord. Final impression was made using elastomeric impression material with two step putty wash technique (fig.3).



Fig.3

An interocclusal record was made using bite registration material. Provisional restorations were fabricated with a tooth colour auto polymerising acrylic resin and cemented with eugenol temporary cement (fig.4).



Fig.4

The impression was poured in die stone. Master cast was retrieved and die cutting was done (fig.5).



Fig.5

Master cast were mounted on an articulator using interocclusal record. For the maxillary right canine, first premolar, and second premolar, a wax pattern was created. The recess for the female was then carved in

accordance with the wax pattern to match the prefabricated plastic dovetail on the distal edge of the pier abutment. Metal try-in of the individual units was done to verify proper seating (fig.6)



Fig.6

Then ceramic was added. Anterior segment with female portion and posterior segment with male portion were assembled together (Fig.7)



Fig.7

Anterior three unit segment with keyway was cemented first followed by cementation of posterior two unit segment with key using glass ionomer cement (Fig.8)



Fig.8

The patient was instructed to maintain proper oral hygiene.

DISCUSSION

The component of a fixed partial denture (FPD) that joins the retainers and pontics is called a connector. Connectors may be rigid and non rigid. Rigid connectors between retainers and pontics are the preferred way of fabricating most FPD. They are not indicated in all situations like an edentulous space on either side of pier abutment.

Teeth in various arch segments move in various directions. Due to the curvature of the arch, the facio-lingual movement of an anterior tooth happens at a significant angle to that of a molar.^[1] These motions can cause strains in a long-span prosthesis that are passed to the retainers and the teeth that serve as their respective abutments, and these movements of detectable magnitude in opposite directions. Size, shape, and kind of connector have an impact on FPD's effectiveness. Overload, leverage, torque, and flexing are a few examples of factors that cause excessive stress concentration in FPD. Failure of the long-span FPD may result from these aberrant stresses in the connector area and in the cervical dentine area close to the edentulous ridge. Non-rigid connectors have the advantage of transferring shear stresses to the supporting bone rather than concentrating them in the connectors themselves. It lessens the abutments' mesiodistal torquing and allows

them to move freely. The four types of non-rigid connectors are the dovetail key-keyway or Tenon-Mortise type connectors, cross-pin and wing type connector, split type connector, loop type connector.

CONCLUSION

Non-rigid connectors reduce the tension placed on the abutments while yet allowing for normal tooth movement. Therefore, the success of a long span fixed partial denture depends on the design and passive fit of non-rigid connectors.

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