

# A Case Report

## Prosthetic Management of Pier Abutment Through Digitally Fabricated Non-Rigid Connector: A Case Report

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### 1) Introduction

An intermediate abutment also known as a lone standing abutment or pier abutment is defined as a natural tooth or implant abutment that is located between terminal abutments that serve to support a fixed or removable dental prosthesis.

If a rigid connector is used and occlusal load is applied on the abutment teeth at one end of fixed partial denture (FPD), it will tend to lift the other end like a Class I lever causing stress on the terminal abutments and ultimately failure of the FPD. Therefore, non-rigid connector is

employed to diminish the forces instead of the usual rigid connector. This case report describes the prosthetic rehabilitation of missing maxillary first premolar and first molar using a five unit fixed dental prosthesis with a digitally designed and fabricated non-rigid connector.

### 2. a) Pre-rehabilitative maxillary and mandibular occlusal view

Intraoral examination revealed missing left maxillary first premolar and first molar, left mandibular second premolar and first molar and retained roots of right maxillary first and second premolars and second molar.



### 2. b) Tooth Preparation

Tooth preparation of the abutments for a porcelain fused to metal crown was done. Impressions of both arches

were made after achieving gingival retraction using elastomeric addition silicone.



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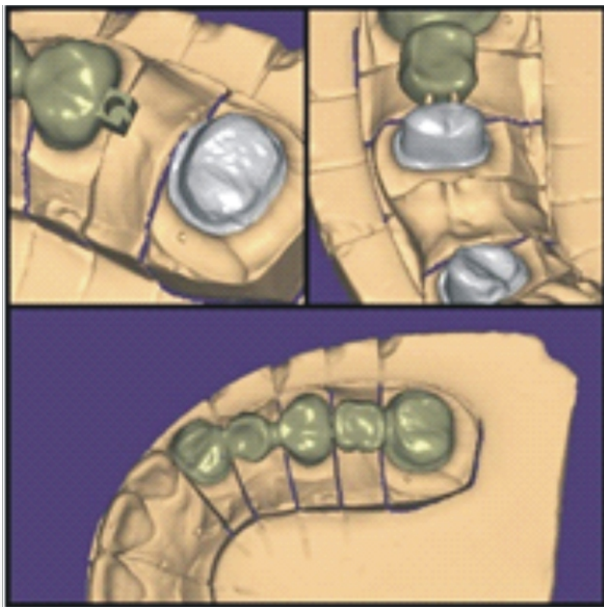
### 2. c) Scanning of impression to prepare a virtual model

A scan of the definitive impression was made using SMART desktop scanner.



### 2. d) Designing and fabrication of metal framework

Computer Aided Designing (CAD) of five-unit FDP with key and keyway non-rigid connector [keyway in the distal aspect of pier abutment (left maxillary second premolar) and key in the mesial aspect of distal pontic (left maxillary first molar)] was designed using EXOCAD software. The design of the prosthesis was imported and a .STL file was generated and transferred to the DMLS unit to fabricate the metal framework of the restoration separately for anterior and posterior segments.



### 2. e) Trial insertion of framework

A trial insertion of the metal framework was carried out for evaluation of marginal integrity and occlusal contacts by placing the anterior segment first followed by posterior segment



### 2. f) Fabrication of definitive prosthesis

The ceramic layering was added in a conventional manner in both segments followed by glazing, sandblasting, finishing and polishing.



### 2. g) Prosthesis Cementation

The final prosthesis was evaluated for retention, stability and precise fit.

Cementation of prosthesis was done using type I glass ionomer cement with the anterior segment cemented first followed by posterior segment. Post-rehabilitative instructions were given to the patient and advised for periodic follow-up and oral hygiene maintenance.



### 3) References

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