DOI: 10.7860/JCDR/2017/22900.9279

Case Report

Dentistry Section

Palliative Care with Attachment Hybrid Removable Prosthesis

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ABSTRACT

Abutment injury, unsatisfactory aesthetics and lesser retention exist with the cast partial denture. Though these constraints exist in the Removable Partial Denture (RPD) it is still widely used because of the simplicity in design, fabrication, economics and patient comfort. This clinical report describes a hybrid RPD technique which uses extra coronal attachment that reduces the limitations and provides better comfort for the patient.

Keywords: Attachment prosthesis, Hybrid denture, Precision attachment

CASE REPORT

A 47-year-old female patient had pain in the right lower mandibular posterior teeth. On examination patient had a Fixed Partial Denture (FPD) in relation to teeth #44, 45, 46, 47. Patient was diabetic from past 15 years. On examination tooth #47 revealed periapical infection with poor prognosis. The FPD was removed and the distal abutment tooth #47 was extracted. The extraction of teeth created a Kennedy Class II partial edentulous space. Generalized scaling was done as an oral prophylactic measure and the decayed teeth were restored.

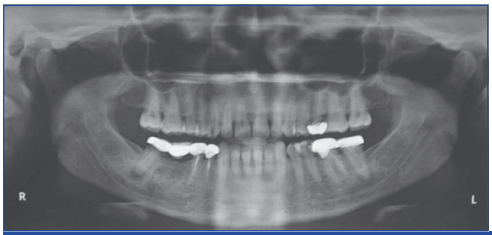
Patient was provided with all prosthetic treatment options from RPD to implant prosthesis in the management of partially edentulous space. Due to the contributory medical situation and the economic barrier patient preferred removable partial denture. The patient requested for prosthesis which is more retentive and that produces lesser discomfort than the conventional RPD. The patient was educated for hybrid prosthesis. With the knowledge provided patient accepted and treatment plan was charted for the fixed removable attachment prosthesis.

Procedure

1. The supporting structures of teeth #44 and 45 were satisfactory on examination [Table/Fig-1]. The prepared surface of teeth #44 and 45 was modified and finished for new Porcelain Fused Metal (PFM) crown [Table/Fig-2].
2. Single step putty wash reline impression (Aquasil, DENTSPLY, De Trey, GmbH) was made [Table/Fig-3]. Master cast was obtained from the impression with Type IV gypsum product.
3. Inlay wax pattern for PFM was made for teeth #44 and 45 on the die cast using P K Thomas (PKT) technique. The patrix (OT CAP, Rhein 83 Inc, USA) was attached to distal end of tooth #45 with surveyor. The matrix was placed over the patrix and the partial denture wax frame work was made. The casting of the FPD and RPD was done adhering to the laboratory procedures [Table/Fig-4,5].
4. Try-in of metal frame work was done. Maxillo-mandibular relationship was recorded. Wax try-in was done on the patient to evaluate both function and aesthetics, then the RPD was processed with heat cure acrylic resin [Table/Fig-6].
5. Occlusal adjustments, regular finishing and polishing procedures were followed and denture was finished.
6. The finished FPD and partial denture was cemented with Type I Glass Ionomer Cement (GIC) [Table/Fig-7,8]. After the initial set the RPD was detached and the excess cement was removed from the FPD.
7. The denture was reinserted and patient was reviewed periodically and at six months follow up radiograph was taken [Table/Fig-9].

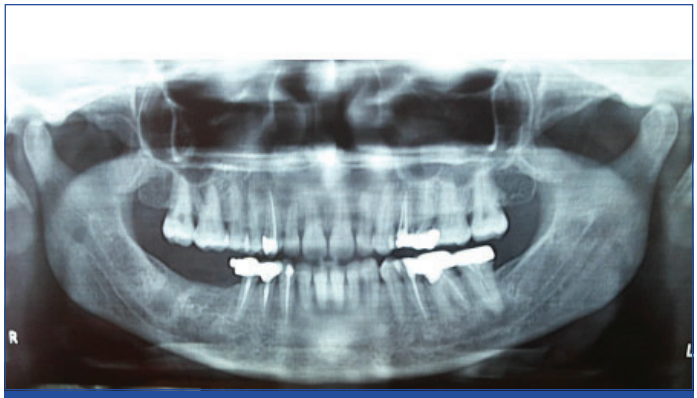
DISCUSSION

Varied treatment modalities like dental implants, RPD (cast partial denture and temporary partial denture), cast partial denture and attachment denture are available in management of Kennedy Class II distal extension situations. The preference among them is the RPD [1]. RPD is a versatile and preferred treatment option followed through ages. The dentist-technician favour it as they are skilled and well trained for the various encountering RPD situations. The patient's choice towards RPD is mainly due to economic barrier and comfort. The cast partial denture has its own advantages and disadvantages. It is mostly advised in longer edentulous span, condition of greater bone resorption, situations that require cross arch stabilization and to distribute forces on wider areas. The major limitation with the cast partial denture in distal extension situations are lesser retentive denture and aesthetics which is affected due to the display of the clasp retainer assemblies [2]. These limitations of cast partial denture are reduced with attachment hybrid prosthesis.




[Table/Fig-1]: Pre-operative radiograph. **[Table/Fig-2]:** Tooth preparation for PFM. **[Table/Fig-3]:** Final impression, inter-occlusal record and maxillary cast. **[Table/Fig-4]:** Fabricated prosthesis. (Images left to right)

[Table/Fig-5]: Fabricated prosthesis on cast. **[Table/Fig-6]:** Prosthesis try in. **[Table/Fig-7]:** Cemented prosthesis. **[Table/Fig-8]:** Post-operative in occlusion. (Images left to right)



[Table/Fig-9]: Post operative radiograph taken at six months.

The attachment hybrid prosthesis uses an extra-coronal attachment, with the matrix which is casted with the FPD framework and the patrix to the RPD [3]. The fixed removable union between the splinted FPD and RPD improves the retention and reduces the limitations of the conventional cast partial denture [4].

The semi precision attachment is less expensive compared to other treatment modalities [5]. The clinical and laboratory fabrication procedure is effortless. The fusion of attachment patterns to FPD wax pattern assists the casting procedure and reduces the limitations observed in other attachment systems [6]. The plastic pattern of the attachments facilitates casting with similar alloys [7]. The patient comfort and retention of the prosthesis is superior [8]. The plaque retention in relation to FPD is decreased with the easy access for maintenance of gingival hygiene. The absence of extra coronal clasps reduces the abrasive action on the abutment teeth, reduces the teeth wear and decay rate [9]. The masticatory efficiency and comfort are enhanced with the increased retention of the denture. Though it is comparatively expensive than the conventional denture the advantages outcome the limitations.

In present case the extra-coronal attachment was resilient alongwith lingual guiding arm design. The resilient attachment distributed the masticatory forces efficiently to the abutment teeth and to the supporting tissues. The usage of lingual guiding arm in prosthesis design reduced the wear of the attachment, increased the patient adaptation and agility for usage [10]. The knowledge on the use of attachments and case selection is important. The hybrid dentures are not indicated in weak abutment teeth, longer edentulous span, less manual dexterity of patients. Advanced skill required from both clinician and technician in identifying the right situation and in the fabrication procedures for successful fabrication of prosthesis [11,12]. A periodic review of patient has to be done to evaluate the prognosis of abutment teeth and retention of prosthesis.

CONCLUSION

The case report illustrates the use of extra-coronal attachment hybrid prosthesis that combines the advantages of FPD and reduces the limitations of RPD and also explains the procedure of fabrication and the advantages of using attachment hybrid prosthesis over conventional RPD, such as retention and patient acceptance were increased in diabetic patient.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jul 20, 2016**
Date of Peer Review: **Sep 20, 2016**
Date of Acceptance: **Oct 14, 2016**
Date of Publishing: **Jan 01, 2017**