

Management of anterior ridge defect with fixed-removable partial denture – Andrew's bridge

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Abstract: To replace the missing anterior teeth has always been a challenge for the prosthodontist. Replacing missing teeth along with the defect is a technique sensitive process which requires proper treatment planning. This article presents a case report of missing upper anterior with a sebart's class 3 defect which was replaced by Andrew's bridge. It is a combination of fixed partial denture and removable partial denture which is described in the following article.

Key Words: sebart's classification, aesthetic, bar and clip attachment, partial denture.

I. Introduction

Esthetically and functionally successful prosthetic management requires cautious attention and thorough treatment planning. It is more challenging when the partially edentulous arch is distal extension situation¹. Combination of fixed and removable prosthesis by using precision attachment is beneficial as it creates the most esthetic partial denture possible². Yet, they have in the past been largely ignored by most dental professionals for understandable reasons. The use of precision attachment adds a new dimension to dental treatment and also broadens the referral base of a dental surgeon³. Precision attachments are classified as extra coronal and intra coronal. Intra coronal describes an attachment within the boundaries of the cusps and normal proximal axial contour or within the normal contour of the crown of a tooth⁴. It has been well renowned that esthetic is difficult to achieve with anterior ridge defects present in a patient's mouth. Though, to treat defects with inadequate width and height, conventional options of fixed partial dentures like bridges or implant supported fixed partial dentures are impracticable. For such cases "Andrew's bridge" where replacement of teeth along with the supporting structures can be achieved with esthetics⁵.

Indications

1. Movable joint in fixed-removable bridgework.
2. To provide movable joint in removable bridgework, semi removable bridges, semi removable pontic section.
3. To stress break, free end saddles.
4. To retain hybrid dentures.
5. To stabilize unilateral saddles.
6. As contingency devices for extension or conversion of existing fixed appliances.
7. Pier abutments.
8. Titled molars. Fixed partial denture's in severely misaligned abutments.
9. Use in over dentures (different forms of retainer are bare, telescopic, use of auxiliary attachments).
10. Fixed removable implant restorations.

Contraindication

1. In sick and senile
2. Periodontitis
3. Gross periodontal disease
4. High caries rate
5. Inadequate room to employ them

Benefits Of Prefabricated Attachments

1. Absence of clasps hence better esthetics.
2. Dentures are much more streamlined because of absence of extra coronal clasps and rests, particularly most attachments are contained within crowns of natural teeth.

3. Loads applied to denture and therefore to attachments are more favorably directed to long axes of teeth.
4. Retention is better as compared to normal clasps.
5. Particularly effective in preventing rotational and backward movements of denture base, a problem common to unilateral and bilateral free and saddles.

Drawbacks

1. Tooth preparation is required.
2. Teeth with large and vital pulp are often at risk because of large amount of tooth structure that has to be removed.
3. Crowns with short height are usually unfavorable.
4. Their problems in free end saddle cases because of complexity of movement and their so-called stress breaking action, which is often theoretically unsound.
5. Cost and time high and technical expertise required is considerable.

Case Report

A 23 year old female patient named prabhjyot kaur reported with the chief complaint of missing teeth in her right upper front region of mouth (fig. 1,2) since last 2 years. Patient gave history of bone augmentation to replace the missing teeth with implant, which was done 1 year back to cover the defect but due to the bone loss, it was impossible to place the implant. So Andrew's bridge was planned. Procedure is as below.

1. Alginate impression of upper and lower arch has been made; impression was poured with dental stone.
2. Treatment partial denture has been fabricated with heat cure polymethyl methacrylate acrylic resin and inserted in patient's mouth.
3. Tooth preparation of the abutment tooth adjacent to edentulous area has been done, and final impression of the maxillary arch has been made with elastomeric impression material.
4. Temporary crown has been fabricated and cementation was done, treatment partial denture was inserted in patient's mouth.
5. Metal copings were fabricated and bar was attached to it and ceramic build-up was done over the metal coping (fig. 3). Crown with metal bar was checked for the fit and esthetic (fig. 4). Lingual interferences were removed.
6. Pick-up impression was made (fig 5) and cast has been fabricated. Removable partial denture was made and clip attachment (fig. 6) was inserted in the intaglio surface of the removable partial denture.
7. Try-in was done and interferences were removed.
8. Crown and bar assembly was cemented with glass ionomer cement and removable partial denture was inserted (fig. 7).
9. Patient was recalled after 1 week for follow-up.

II. Discussion

Tooth loss and resorption of alveolar bone following loss of teeth is an to be expected outcome. Study showed that high incidence (91%) of residual ridge deformity after tooth loss ha been reported. Only 9% of the patient's with the anterior teeth missing did not have ridge defects between the two canines⁶.

The most commonly combined (vertical and horizontal) class iii defects (56% of cases) were found followed by horizontal defects class i (33% of the cases) and only 3% of patients were reported with vertical defect⁷. Placement of implants and surgical correction with graft is an expensive treatment plan for some patients. Functionally fixed partial dentures can prove successful in restoring function, esthetics, speech and closure of the defect when fixed or removable prosthesis is not practical. Alternate along with an acrylic denture flange for tissue defects is an additional advantage as it does not need separate prosthesis for the gingival as in fixed dental prosthesis. Since the prosthesis is retained by a bar retainer, the normal perception of taste is maintained as the flanges need not be extended palatally for support⁸.

III. Conclusion

With use of bar and clip attachment we can let alone use of visible metal clasp on the anterior teeth while replacing missing teeth with cast partial denture, diversity in the tooth and pontic size while restoring with the fixed partial denture and did not need to compromise the esthetics while replacing it with implant prosthesis. Thus Andrew's bridge will offer stability support and esthetic while replacing the missing teeth.

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Figure 1 – pre-operative



Figure 2- intra-oral view



Figure 3-crown with metal bar



Figure 4-try in of crown with metal bar



Figure 5-pick-up impression of metal-bar assembly



Figure 6-clip attachment in removable partial denture



Figure 7 post operative