

Case Report

A case report on Andrew's Bridge

Deepali Deore¹, Rakesh Pawar², Hemant Gadge³, Prashant Sriram⁴, Nilesh Patil⁵

¹ Post Graduate Student, Department of Prosthodontics, MGV Dental College, Nashik, Maharashtra

² Post Graduate Student, Department of Orthodontics, MGV Dental College, Nashik, Maharashtra

³ Senior Lecturer, Department of Prosthodontics, ACPM Dental College, Dhule, Maharashtra

⁴ Senior Lecturer, Department of Oral Surgery, ACPM Dental College, Dhule, Maharashtra

⁵ Senior Lecturer, Department of Endodontics, ACPM Dental College, Dhule, Maharashtra

ARTICLE INFO



Keywords:

Andrews Bridge, Missing Anterior

ABSTRACT

Loss of teeth is by far the most common dental problem that the patients face.

Caries, periodontal diseases, trauma, congenital abnormalities which lead to teeth loss are often accompanied by loss of surrounding hard and soft tissues. Following case report shows replacement of missing mandibular incisors with Andrew's bridge. Esthetics, function, phonetics and oral hygiene maintenance are all considered during prosthesis planning.

Introduction

Loss of teeth is by far the most common dental problem that the patients face.

Caries, periodontal diseases, trauma, congenital abnormalities which lead to teeth loss are often accompanied by loss of surrounding hard and soft tissues.

The dentist is left with two choices: surgical correction and prosthetic correction.

Surgical correction of these defects followed by fixed prosthesis seems to be most tempting treatment choice. However, local and systemic conditions of patient don't always allow surgical correction.

Prosthetic correction of these defects pose a special challenge. Conventional Fixed partial denture and implant supported fixed prosthesis can not replace large amount of surrounding structures.

Removable partial denture can not be used when adjacent abutments are periodontally compromised.

To satisfy the functional and esthetic demands of the patient as well as to make the prosthesis long lasting from biomechanical point of view, a fixed removable prosthesis is the best prosthetic option in such a clinical scenario.

Dr. James Andrews of Amite Louisiana (Institute of Cosmetic Dentistry, Amite, LA, USA) first introduced a fixed-removable prosthesis. ^[1] It is also called as Andrew's Bridge which consists of a fixed retainer and removable pontics. ^[2]

Following case report shows replacement of missing mandibular incisors with Andrew's bridge. Esthetics, function, phonetics and oral hygiene maintenance are all considered during prosthesis planning.

* Corresponding author: *Dr. Hemant Gadge, Department of Prosthodontics, ACPM Dental College, Dhule, Maharashtra. Contact: +91-9923174714*

Clinical report

A 45 year old female patient reported to the hospital with the chief complaint of missing mandibular anterior teeth.

Patient gave history of extraction of teeth one year ago due to mobility.

Intraorally all mandibular incisors were missing. Residual ridge was Siebert's class III.³ Bilateral canines showed gingival recession. On radiographic examination, bone loss was observed around both canines.

Patient was explained about all treatment options. With patient's consent, Andrew's bridge was planned for the patient.

Procedural steps

1. Diagnostic mounting was done on Hanau wide articulator (Teledyne Water Pik, Fort Collins, Colorado, USA) with facebow transfer.(figure 1,2,3)
2. Diagnostic mock up was done to determine the extent of tooth preparation required.
3. Clinically, tooth preparation was done for lower canines. (figure 4)
4. Chemico-mechanical method of gingival retraction was used.
5. Impression was made in addition silicone medium body viscosity in a custom tray. (figure 5)
6. Impression was poured in type IV dental stone and mounted on articulator after die cutting
7. Wax pattern were fabricated for PFM prosthesis. Pre fabricated plastic bar pattern (RHEIN 83-OT BAR MULTIUSE, Vijai dental, Chennai, India) was cut to the accurate length and waxed to the patterns. (figure 6)
8. It was made sure that 2-3 mm space remains between undersurface of the bar and ridge crest.
9. Pattern was cast and metal try in was performed. (figure 7).
10. Once fit of the casting was checked intraorally, ceramic build up and removable prosthesis fabrication was done.
11. The bar and PFM crowns assembly was cemented with glass ionomer cement (GC Fuji luting cement). (figure 8)
12. The undercut under the bar was blocked out with wax and the retentive bar clip was relined intraorally in cold cure acrylic resin.
13. The patient was trained in placing and removal of the prosthesis. Interdental brush was prescribed for oral health maintenance under the bar. (figure 9,10)

Figures:



FIGURE 1



FIGURE 2



FIGURE 6



FIGURE 3



FIGURE 7



FIGURE 4



FIGURE 8



FIGURE 5



FIGURE 9



FIGURE 10

Discussion:

The most commonly seen defects are the combined Class III defects (56% of cases), followed by horizontal defects Class I (33 % of the cases). 4 Vertical defects were reported to be found in 3% of the patients. 5 Large vertical and horizontal bone defects pose a prosthodontic challenge as it is difficult to restore esthetics and function along with the complete closure of the defect. Such clinical conditions are not successfully treated by conventional fixed or removable prosthesis.

Advantages of Andrews Bridge system:

1. Andrew's system provides maximum esthetics and optimum phonetics in cases involving considerable supporting tissue loss, jaw defects and when the alignment of the opposing arches and/or esthetic arch position of the replacement teeth create difficulties.
2. It can be removed by the patient thereby providing access for maintaining hygiene around the abutments and surrounding tissues.

3. The pontic assembly can be relined as the ridge resorbs. ⁶
4. Compared to a conventional RPD, the fixed-removable partial denture is more stable because it is totally tooth borne, and the occlusal forces are directed more along the long axes of the abutment teeth. ⁶
5. Since the prosthesis is retained by a bar retainer, the normal perception of taste is maintained as the flange need not to be extended palatally for support.
6. Surgical correction of the defects using grafts and placement of implants is an expensive treatment plan for some patients. Surgical procedures also require patient's consent and compliance.
7. Andrew's Bridge has been adapted to implant prosthesis very well. ^{7,8}
8. Andrew's Bridge provides a better therapeutic and emergency treatment. ⁹

Limited reports of the failure of such prosthesis are found in the literature. The failures are mainly due to inadequate soldering. However, this was completely eliminated by attaching retainers to the bar in a single casting.¹⁰ The patient was comfortable with the final outcome and had pleasing esthetics and phonetics.

Summary:

Andrews Bridge system is a fixed-removable prosthesis that is indicated in patients with few missing teeth and large localized ridge defects. This functionally fixed prosthesis successfully replaces the missing teeth along with complete closure of the defect, restores speech and esthetics.

References:

1. Andrews JA. The Andrew's Bridge: A Clinical Guide. Covington, LA: Institute of Cosmetic Dentistry; 1976. P. 3, 7.
2. Everhart RJ, Cavazos E Jr. Evaluation of a fixed removable partial denture: Andrews bridge system. *J Prosthet Dent* 1983;50: 180-4.
3. Seibert JS. Reconstruction of deformed, partially edentulous ridges, using full thickness onlay grafts. Part I. Technique and wound healing. *Compend Contin Educ Dent* 1983;4:437-53.
4. Abrams H, Koczyk RA, Kaplan AL. Incidence of anterior ridge deformities in partially edentulous patients. *J Prosthet Dent* 1987;57: 191
5. Garber DA, Rosenberg ES. The edentulous ridge in fixed prosthodontics. *Compend Contin Educ Dent* 1981;2:212- 23
6. Mueninghoff KA, Johnson MH. Fixed-removable partial denture. *J Prosthet Dent* 1982;48:547-50.
7. Andrews JA, Biggs WF. The Andrews bar-and-sleeve-retained bridge: A clinical report. *Dent Today* 1999;18:94-6, 98-9.
8. Sadig WM. Bone anchored Andrews Bar system, a prosthetic alternative. *Cairo Dent J* 1995;11:11-5.
9. Deboer J. Edentulous implants: Overdenture versus fixed. *J Prosthet Dent* 1993;69:386-90
10. Chandra S, Singh A, Gupta H, Chandra C. Treatment using functionally fixed prosthesis: A case report. *J Indian Prosthodont Soc* 2014;(14 Suppl 1):206-9.