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Restoring Anterior Aesthetics With Andrews Bridge Using A Coffee Straw – A Case Report

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I. Introduction

The anterior ridge defects present a challange in a patient to treat and they require great amount of planning, like removable or fixed prosthesis.

The patients chief concern in such cases is aesthetics, whereas for the dentist the concern is restoring the phonetics ,function and biomechanics along with aesthetics.

These defects have been successfully treated using conventional treatment approaches. However in certain cases where extensive loss of supportive tissue and when the alignment of the opposing arches and/or esthetic arch position of the replacement teeth create difficulties, convential methods of teeth replacement are not a good options.

Fixed partial denture require a good abutment support. The supporting teeth should be periodontically healthy and caries free.

Removable partial dentures provide the missing contour and means of positioning the replacement teeth in their natural relationship, they must incorporate coverage of large soft tissue area and several teeth as abutments for stabilization.

Such cases with extensive soft tissue an d bone loss can be treated with a Fixed removable prosthesis like The Andrews Bridge System. This is designed to meet the requirements for esthetics, comfort, phonetics, hygiene and favourable stress distribution to the abutments and soft tissues. The design consists of two porcelain fused to metal (PFM) crowns that fits over the abutments and the abutments are connected by a bar that runs over the bridge. This assembly is permanently cemented to the prepared abutment tooth, while the missing teeth were replaced by removable pontics with a clip embodied within an acrylic removable denture.(1)

INDICATIONS OF ANDREWS BRIDGE
a) Absolute Indications -
1) Excessive residual ridge defect.
2) Ridge defects/ jaw defects either due to trauma and/or surgical ablation.
3) Cleft palate patients with congenital or acquired defects. (2)
b) Relative Indications -
1) Often fixed partial denture failure with badly damaged, cracked or weakened teeth by fillings and disproportionate teeth. (3)
2) Sometimes could be used in patients with periodontal problems. (4)

CONTRAINDICATION OF ANDREWS BRIDGE
a)Deep Bite cases
b) Inadequate interocclusal distance

ADVANTAGES OF ANDREWS BRIDGE
a) It includes all the advantages of fixed and removable partial dentures with better aesthetics, along with better adaptability and phonetics.
b) It is comfortable and economical for patients.
c) There is no plate as in RPD.
d) No soft tissue impingement and the surrounding structures.
e) The system acts as stress breaker while transmitting unwanted leverage forces.

DISADVATAGES OF ANDREWS BRIDGE
a) The plastic clip wears with time
b) Oral hygiene maintanence below the bar is difficult in case clearence is not adequate.
c) Tongue space sometimes is compromised in case of lower teeth replacement
The Andrew's System is usually of two types based on the area of bar attachment-
a) Pontic supported.
b) Bone Anchored or Implant supported Andrew's Bar System.
This article thus explains the procedure of fabricating and correcting a ridge defect using a pontic supported fixed-removable Andrew's Bridge.

II. Case Report

A 33 year old male patient reporetd to the dental hospital after being treated for mandibular fracture with a complain of missing teeth in lower anterior region.(Fig No.1)
History revealed the patient had met with an accident 8 months back and got operated for the same.
It was confirmed with an OPG. The patient had bone plates in the mandible.(Fig No.2)
On clinical examination, slight asymmetry in lower lip was seen extraorally.
Intra oral examination showed missing 31,41,42,43,44.
The labial vestibule was at the level of the lingual vestibule. On Plapation the mucosa was found to be fibrous as the patient had a history of trauma.
Different treatment options were given to the patient (fixed partial denture, dental implants and removable partial denture) and advntages and disadvantages of each were explained. He was planned for Andrew's Bridge using 45 and 32 as abutments and removable partial denture for lower anteriors.

Fig 1. Intraoral pictures

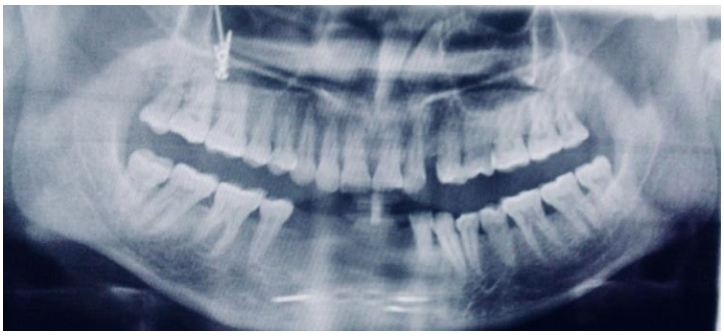

Fig No 2. OPG

Fig No3. Facebow Transfer

III. Methodology

Diagnostic casts were prepared using alginate impression material (Zelgan 2002, Dentsply). Facebow transfer was done using Whipmix facebow (Fig No.3) and the casts were articulated. The abutment teeth were prepared for metal ceramic crowns and another impression was recoreded using putty wash technique using polyvinyl siloxane (Dentsply) (Fig No.4) .Master casts were poured in Dental Stone (Type IV, Kalrock,Kalabjai) and temporisation was done.

Wax pattern were made on the prepared teeth and a bar was fabricated using a coffee straw which was adapted according to the curvature of the ridge and was attached to the abutment teeth as posteriorly as possible (Fig No.5) . The whole framework was then casted in chrome cobalt alloy (BEGO), and this metal framework was tried in the patient's mouth (Fig No.6) . The metal framework was checked for clearance between the bar and underlying soft tissue. Shade selection was done using Vita Shade guide and the metal copings were coated with ceramic, finished and polished (Fig No.7).

Then with the crowns in position, along the bar, the missing teeth were arranged in the wax rim

(Fig No.8) and trial was done in the patient's mouth, which was further replaced with pink coloured acrylic (Fig No.9)and a clip (Hader clip) was placed in the tissue surface to attach this removable partial denture (RPD) over the bar attachment (Fig No.10).

Final Prosthesis (Fig No.11) was cemented in the patients mouth using glass ionomer luting cement (MERON VOCO) (Fig No.12).

Following which the patient was trained to properly place and remove the removable component fabricated over the fixed component of Andrew's bridge. Oral hygiene maintanence instructions were given to the patient.

Fig 4. Tooth Preparation

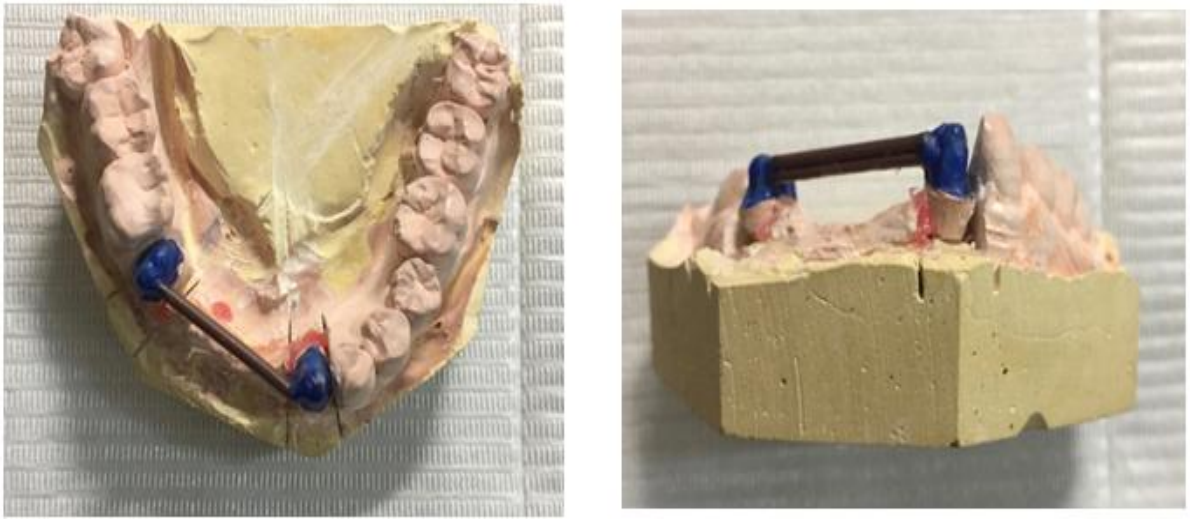

Fig 5. Wax pattern made for the crowns and bar created using a coffee straw

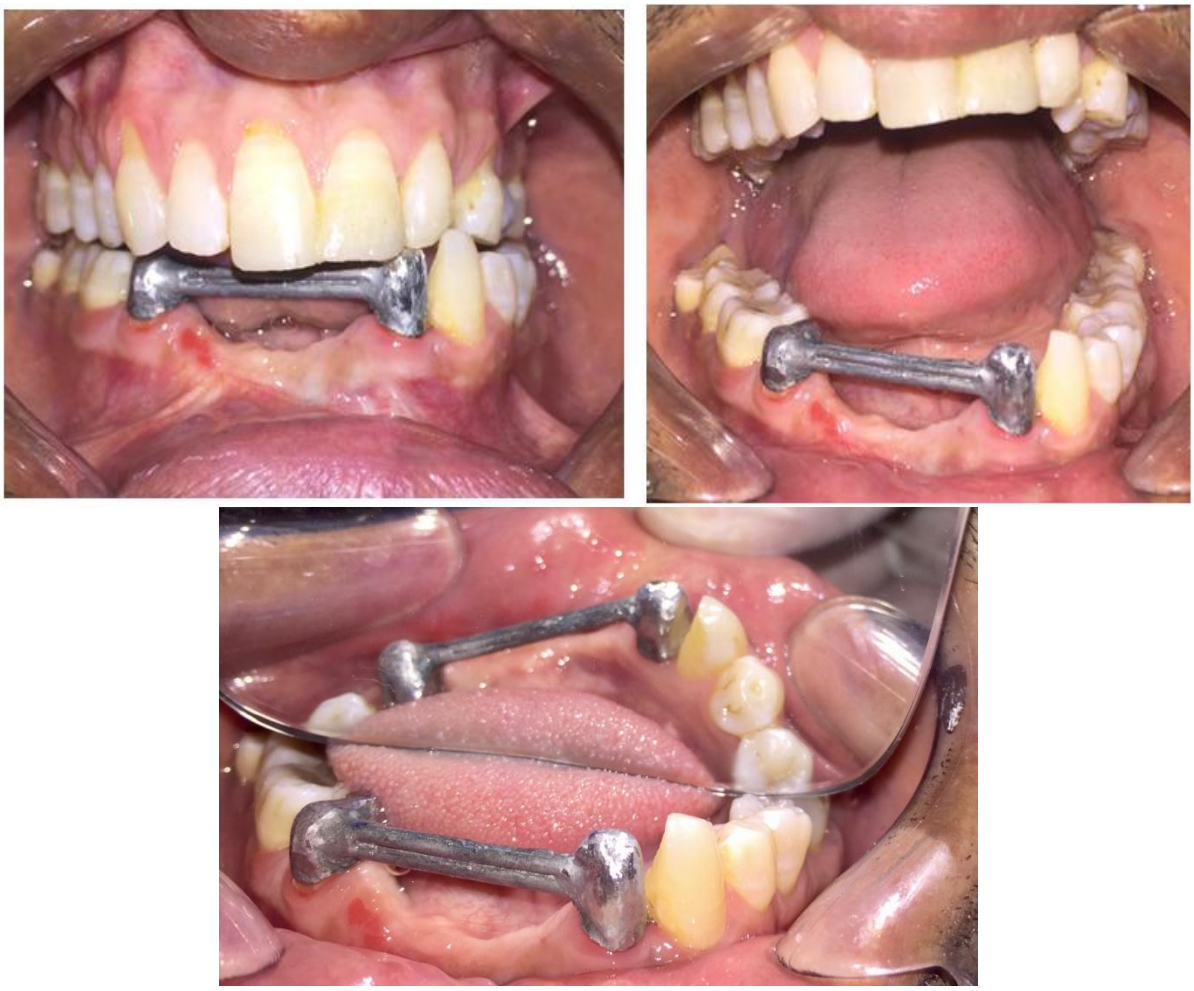

Fig 6. Metal Try in after casting

Fig 7. Try in after ceramic application

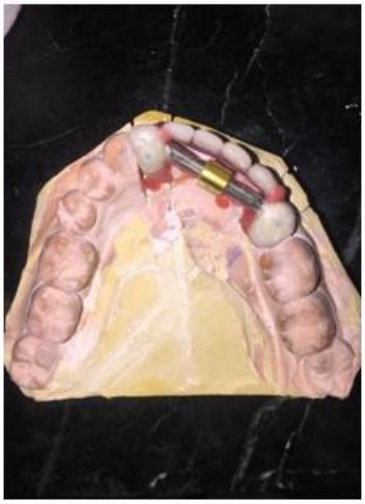

Fig 8. Teeth Arrangement with clip

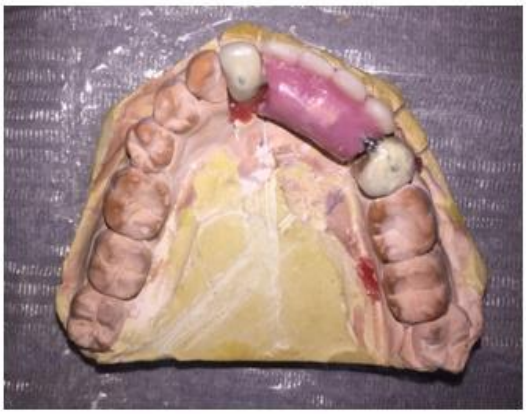

Fig 9. Acrylisation

Fig 10. Removable component with clip

Fig 11.Final Prosthesis

Fig 12. Post Cementation

IV. Discussion

The use of such treatment modality has been presented since 1900s. A round bar attached to abutment crowns supporting a suprastructure by Fossume appears to one of the first attempts. Other variations employing bar and clip concept were presented by Dolder, Baker and Hader and by Andrews. The first use of precision or semiprecision bar and sleeve assembly that provided for rotational stability gained directly through the substructure bar and the abutment teeth was the approach by Bennett, called as Bennett Blade. The Andrews bridge system was first introduced by Dr. James A. Andrews (Covington, La). (5,6)

Various treatment options available for the restoration of anterior edentulous space were given to the patient which included removable partial denture, fixed dental prosthesis and implant supported fixed prosthesis. Although Removable partial dentures provide the missing contour and means of positioning the replaced teeth in their natural relationship, they must incorporate coverage of large soft tissue area and several teeth as abutments for stabilization. (7)

Removable partial denture was also ruled out for this patient as the labial vestibule was attached at the level of the lingual vestibule in lower anterior region with fibrous mucosa. Retention and stability of RPD would be very difficult to achieve.

Regular or mini implant placement was a questionable procedure in this case as the patient had undergone madibular fracture fixation surgery and had bone plate placed in his mandible. Hence implants could not be placed.

Fixed partial dentures replacing canine can be difficult because canine often lies outside or inside the interabutment axis. The prospective abutments are the lateral incisor, usually weekest tooth in entire arch, and the first premolar, the weekest posterior tooth. A fixed partial denture replacing a maxillary canine is subjected to more stresses than that replacing a mandibular canine, since forces transmitted outward (labially) on the maxillary arch, against inside of the curve (its weakest point). On the mandibular canine the forces are directed inward (lingually), against the outside of the curve (its strongest point). Any fixed partial denture replacing a canine should be considered a complex fixed partial denture. No fixed partial denture replacing a canine should replace more than one additional tooth. (Shillenberg) (8)

The advantages of the conventional Andrew's Systemare adequately reported in the literature. Such an assembly provides maximum aesthetics and phonetics in Class III ridge defect cases, when other traditional treatment options prove to be futile (like implants/FPD). Another main advantage of Andrew's Bridge System is the criterion of the removable part which can be easily used by patient for hygienic access to abutments and surrounding structures.(9)

V. Conclusion

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

Hence, it is the best treatment option for patients with severely resorbed ridges where aesthetics due to repositioning of teeth creates difficulties hence giving maximum aesthetics, hygenics, good fit, along with minimal trauma to soft tissues and surrounding structures or underlying bone at an economical price.

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References

[1]. Achieving esthetics with Andrews Bridge, Prasan Kumar, 10.5005, jp-journals-10019-1119
[2]. James E. Immeleus and Mohamed Aramany. A Fixed - Removable Partial Denture For Cleft Palate Patients. J.Pros.Dent. Vol. 34: Issue 3. Sept 1975: 286-291.
[3]. Gordon N. Gates and Andrews J. Boch. Boulder. Prosthodontics-crown and bridges.mht
[4]. R. Sheldon Stein. Pontic – Residual Ridge Relationship: A Research Report; J.Pros.Dent. March – April 1966.
[5]. John E. Rhoads et al. Dental Laboratory Procedures: Fixed Partial Dentures, 2nd Ed. St. Louis: Mosby; 1986. p. 367-380. Leonard A. Mueninghoff, Mark H. Johnson. Fixed-removable partial denture. J Prosthet Dent 1982;48:547-550.
[6]. A FIXED REMOVABLE PARTIAL DENTURE TREATMENT FOR A SEVER RIDGE DEFECT
[7]. Ravi Shankar Y GITAM Dental College & Hospital, Visakhapatnam - International Journal of clinicl and disgnostic reserch.Int J Dent Case Reports 2011; 1(2): 112-118
[8]. Shillinberg
[9]. INTERNATIONAL JOURNAL OF RESEARCH IN DENTISTRY Andrews Bridge System – A literature Review ,Dr Priyanka Gubrellay, Dr Prateek Gubrellay, Dr. Richa Vyas ,Department of Prosthodontics, R.R. Dental College and Hospital, Udaipur, India.Received: 3 Apr. 2014; Revised: 6May 2014; Accepted: 11June. 2014; Available online: 5 July 2014

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