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THE FIXED-REMOVABLE SOLUTION FOR ANTERIOR RIDGE DEFECTS: A CASE REPORT

Dental Science

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ABSTRACT

Treating patients with anterior missing teeth along with soft or hard tissue defects is a challenging situation faced by the prosthodontist. Meticulous treatment planning involves weighing the options between removable, fixed or implant-supported prosthesis. The following case report presents a case of Siebert's Class III defect treated using Andrew's Bridge where the wax pattern was fabricated using a coffee stirrer.

KEYWORDS

Andrew's Bridge, Coffee Stirrer, Hader Bar, Fixed Removable Prosthesis, Ridge Defects

Introduction

One of the most difficult challenges for a prosthodontist is to replace teeth with soft and hard tissue defects. Soft tissue defect precludes the use of a tooth-supported fixed dental prosthesis. While an implant-supported fixed prosthesis would be the best option but concomitant augmentation would be required resulting in increased treatment cost and time. A removable partial denture is thus the option of choice. However, patient acceptance with a removable prosthesis is less. Also, the presence of clasps on the anterior teeth is an aesthetic compromise.
The restoration of a Siebert Class III defect can be efficiently done by a fixed-removable prosthesis as described by Dr James Andrew which consists of a fixed retainer and removable pontics.[1,2] Several bar attachments have been described in the literature, the popular ones being Dolder Bar(Dolder Bar System; Attachments Intl, Inc, Burlingame, Calif) and the Hader bar (Hader-EDS Bar System; Attachments Intl, Inc) amongst others. One drawback of using a bar attachment is the cost of the plastic pattern. An economic alternative suggested by Guttal et al is the use of plastic coffee stirrer which adapts well to the metal housing and clip.[3]

This case report describes the restoration of an anterior Siebert's Class III defect using an Andrew's Bridge casted using a coffee stirrer.

Case Report

A 35-year old male patient reported to the outpatient department(OPD) of the Department of Prosthodontics with the chief complaint of missing front teeth which were extracted 3 months back due to a cyst in the corresponding region. On intraoral examination, it was confirmed that 21, 22, 23, 24 were missing with an associated soft and hard tissue deficiency(Fig. no. 1(a) & (b)). 25 was prepared previously for a fixed partial denture. Extraorally, a depression in the region of the missing teeth was apparent with the absence of nasolabial fold and loss of fullness in the corresponding region(Fig no. 3(a)).

Fig 1(a) & (b): Intra-oral preoperative view showing the defect

An orthopantomogram(OPG) was done to check the extent of the ridge defect, condition of the remaining natural teeth and periodontal support of the abutment teeth. The OPG revealed a dento-alveolar defect in the region of 23, 24. All the other teeth were healthy, with no other relevant clinical findings. Considering the unique clinical situation, a treatment plan was formulated where the prosthetic rehabilitation was planned using an Andrew's Bridge.

Maxillary and mandibular diagnostic impressions were made and the casts mounted on a semi-adjustable articulator. The teeth 11 and 25 were decided to be used as abutments and a wax mockup was done in relation to the same.

In the second appointment, the abutment teeth were prepared according to the guidelines for a porcelain fused to metal(PFM) full coverage restoration. Gingival retraction was done using a gingival retraction cord(Ultrapak-00) and the maxillary definitive impression was made with addition silicone impression material(Aquasil Putty and Lightbody, Dentsply, Germany). Provisional crowns(ProTemp II-3M ESPE, USA) were fabricated and cemented in the patient's mouth. The maxillary cast was poured, die preparation was done and mounted on the semi-adjustable articulator in maximum intercuspation.

The wax pattern(crowax, Renfert, Germany) was fabricated on the prepared dies. To fabricate the bar attachment, a plastic coffee stirrer(Fresh and Honest; Coffee Makers, Bangalore, India) was used instead of the conventional plastic pattern(Fig no.2(a)). The entire framework was then sprued, invested and casted. Following metal trial, the ceramic buildup was done(Ceramco3, Dentsply, Germany). With the framework in the patient's mouth, a pickup impression was made using addition silicone impression material(Aquasil Putty and Lightbody, Dentsply, Germany) and poured in dental stone(Kalastone, Kalabhai, India). A self cure (DPI- RR Pink) denture base was adapted to the bar and teeth arrangement was done to best match the patient's contralateral natural teeth. A wax trial was done and after evaluation of aesthetics and phonetics, the trial denture was acrylised(Fig no. 2(b)).

Fig 2(a): Wax pattern with plastic straw. Fig 2(b): Trial of waxed up denture.

The prosthesis was retrieved, trimmed and polished and was checked for occlusion, aesthetics and fullness of the cheeks. The clip assembly was attached to the bar and a window was created on the tissue surface corresponding to the position of the clip. The opening was sealed with self-cure acrylic resin(DPI- RR Pink) thus picking up the attachment in the RPD and sealing the prosthesis. Final fit in and insertion of the prosthesis was then done. Post insertion instructions were given and the patient was to report for regular follow-up for every 3 months.

Fig 3(a): Pre-operative extraoral view. Fig 3(b): Post-operative extra-oral view.

Discussion and Conclusion

Loss of teeth is almost always associated with ridge defects. For optimum aesthetics and function, it is mandatory to correct these ridge defects surgically. Surgical correction followed by implant placement is an expensive and time-consuming treatment. Hence, Andrew's Bridge(1966) is a viable treatment option in such cases. The advantages of this treatment option include:[4]

1. Better aesthetics
2. Optimum phonetics
3. Better hygiene maintenance
4. Better stability in comparison to RPD
5. No palatal extension of flange
6. Surgical correction can be avoided.

In the above case, the patient was not willing for surgical correction of the ridge defect, therefore Andrew's Bridge was chosen as a treatment for restoration of the missing teeth. The final prosthesis was able to restore normal extraoral appearance of the patient as well(Fig no.8). To decrease the cost of the treatment a coffee stirrer was used in lieu of the plastic pattern. Andrew's Bridge combines the advantages of both removable and fixed partial dentures thus rehabilitating the patient in the best possible way.

Andrew's Bridge is a forgotten technique, not very popular. However, it is specifically indicated for rehabilitating patients with ridge defects, cleft defects, those requiring diastemas for optimum aesthetics, etc.

A thorough examination and correct diagnosis of the patient is essential so that optimum treatment can be executed with the best knowledge of the clinician and the technician.

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