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Modified Beggs Retainer: A Quick and Easy Manoeuvre to Aid Retention

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Abstract

Aim: The purpose of this study was to compare a modification of Beggs retainer having two additional arrowheads with the conventional Beggs retainer.

Material and method: 40 orthodontically treated adult patients participated in the study. In their retention phase all the patients were provided with two set of appliances; the conventional as well as the modified Beggs retainer. All the appliances were fabricated by the same technician to avoid any kind of bias. The patients were instructed to use each set of the retainer for a span of 15 days each and the patients were asked to report back at the end of 1 month for a follow up. At the follow up visit all the patients were given a feedback questionnaire and the efficacy of the two appliances was compared.

Result: Findings suggested that the modification of the Beggs retainer had added advantages over the conventional retainer and also had a better patient acceptance.

Conclusion: This modification of the retainer provided a better alternative to the conventional retainer in terms of retention as well as patient acceptance.

Keywords: Beggs Retainer; Orthodontics; Retention

Introduction

A phase of retention is normally required to prevent the inherent tendency of the teeth to return to their original position. Retainers are used after orthodontic correction to maintain the teeth in the new position whilst allowing remodelling of the surrounding tissue [1]. The original Wraparound retainer was popularized by P.R.Begg. It is the most frequently used retainer in orthodontics. It consists of a labial wire that extends till the last erupted molar and curves around it to get embedded in acrylic that spans the palate. There was no cross -over of wires between the canine and second premolar there by eliminating the risk of extraction space opening up [2,3]. Beggs retainer has a tendency to slip from distal aspect of the last erupted tooth during activation, especially in partially erupted teeth. In order to overcome this disadvantage of the conventional appliance, a modification has been introduced. In this new design two arrowheads were incorporated in the mesial and distal bucco-proximal undercuts of first molar to improve retention and stability of

the appliance. The aim of this study is to compare the efficacy of the modification of the retainer with the conventional retainer.

Material and Method

The study was carried out at the Department of Orthodontics and Dentofacial Orthopaedics, Pandit Deendayal Upadhyay Dental College and Hospital, Solapur. A total of 40 patients who had completed their orthodontic treatment participated in the study.

Inclusion Criteria

- Subjects over 18 years of age
- Treated with extraction/non extraction approach.
- Good oral hygiene.

Exclusion Criteria

- Uncooperative patients.
- Tooth anomalies, fractured tooth.
- Premature debonding.
- Patients with bonded retainers.
- Patients who have undergone orthognathic surgery.

Written informed consent was taken from all the subjects participating in the study. Once their orthodontic treatment was finished the braces were removed and alginate impressions were taken to make casts for the retainers. The impressions were poured in dental stone and retrieved by the same operator. The Beggs retainer and the modified Beggs retainer were made by using 20 gauge SS wire. The wire bending was done after which cold cure acrylic was used to make the passive part of the retainer. Both retainers were trimmed and polished by the same operator. All participants were handed over these two sets of retainers for their use and were given instructions of use for the same. All the retainers were fabricated by the same technician to avoid any kind of bias. The participants were instructed to use each retainer for a span of 15 days each 22 hours a day and were asked to report back for a follow up at the end of one month.

At the end of one month all participants were made to fill a feedback questionnaire reflecting their experience regarding the use of both the retainers. Data was tabulated based upon the questionnaire and demographic graphs were formulated.

Construction of the Modified Beggs Retainer

Following are the steps of fabrication: (Figure 1).

1. An appliance is fabricated using 0.9mm (20guage) stainless steel wire. Arch form was made on the cast touching the labial surface of all teeth.
2. A U-loop was given at the canine-premolar region to increase the length of the wire to gain more flexibility. Appliance is activated by compressing 'U' loop.
3. Mesial and distal undercuts are marked on the cast (Figure 1a).
4. Wire is place on the model and distance between mesial and distal undercut is marked on the wire (Figure 1b).
5. The wire is then extended from U loop till the mesial undercut of first molar and first arrowhead was made to engage the undercut (Figure 1d).
6. Wire is then extended till distal undercut and another arrowhead is made to gain retention (Figure 1f).
7. After making both arrow heads, the tip of the arrowhead is adapted in the undercut with the help of a plier for better retention (Figure 1g).
8. Labial wire is then extended till the last erupted molar and curved around it to get embedded in acrylic (Figures 2 & 3).

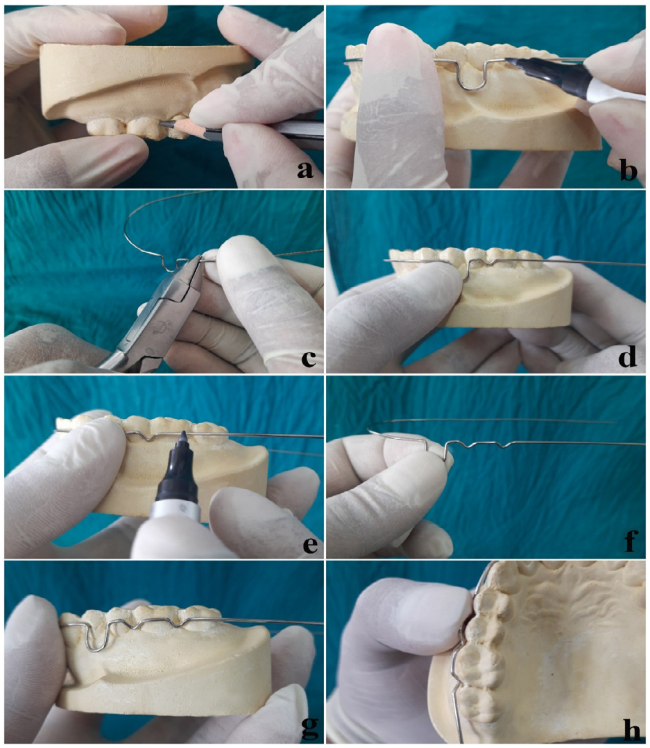

Figure 1: Steps in fabrication of double arrowhead beggs retainer**. (a).** Mesial and distal undercuts of the first permanent molar are marked. **(b).**After making U loop with stainless steel wire (0.9mm) position of first arrow head is marked. **(c)**Wire is bent on marking to form arrow head. **(d).**Wire is placed on model to check the accurate postion of arrowhead on undercut. **(e).** Position of second arrowhead is marked on wire. **(f)** The same is done on the other side to form the second arrowhead**. (g).** Check the proper seating of arrowhead in mesial and distal undercut. **(h).** Occlusal view of arrowheads.

Figure 2: Double arrowhead beggs retainer.

Figure 3: Clinical view of double arrowhead beggs retainer.

Result

In this study, the result showed that modified arrowhead Beggs retainer was found to be more stable and retentive than conventional Beggs retainer. The results showed better patient compliance with the modified Beggs retainer as opposed to the conventional Beggs retainer. No significant differences were reported with respect to ease of insertion and removal of the appliance. Also both the retainers had similar remarks on their aesthetics. Though the modified retainer did exhibit a marked difference over the retention of the appliance as opposed to the conventional Beggs retainer (Figure 4).

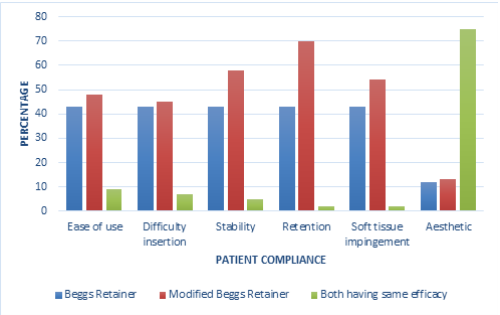

Figure 4: Comparison between Beggs retainer and modified Beggs retainer.

Discussion

Proper retention after orthodontic treatment is a very crucial factor for the success of orthodontic treatment. Patient compliance is very mandatory in cases where removable appliances are used to prevent relapse. The Beggs retainer is one of the most commonly used removable retainer. The Begg's retainer is fabricated with acrylic resin, covering the palate and presents a stainless steel buccal arch that usually extends as a continuous arch till the distal surfaces of last erupted molars and contours the buccal aspects of anterior and posterior teeth, without the need of any retention clasps [4,5].

Varshita, et al. [6] conducted a comparative study to evaluate the patient acceptability and compliance for Beggs and Essix removable retainers. Based on the questionnaire provided to the patients, it was concluded that, Conventional Beggs retainer had inferior patient acceptance and compliance in terms of speech, soft tissue impingement and aesthetic efficacy when compared to Essix retainer, a modification of the appliance seemed to be necessary. The above findings were supported by other prospective studies conducted by Kumar, et al. [7].

The complex wire bending of the Beggs retainer makes it difficult for the clinician to adapt the wire distally especially in case of a partially erupted or a distally tilted molar. The retention of the appliance is also compromised if the distal part of the wire is not adapted properly.

To overcome this drawback Sahoo, et al. [4] came up with a modification in the conventional appliance. In this modification they incorporated an additional arrow head to increase the retention of the appliance. To further aid in retention yet another modification was introduced in this article by adding two arrowheads in total to aid in better retention and stability.

The results of this study broadly concluded that the modified Beggs retainer had a better compliance over the conventional one. From the questionnaire provided to the patients it was concluded that, the ease of use was marginally better for the modified retainer than the conventional one. There was no much difference between the two retainers when it came to difficulty in insertion of the appliance. However, retention and stability were significantly better in the modified Beggs retainer than the conventional retainer. Aesthetically majority of the patients agreed to the fact that there was no much difference between the two appliances.

Conclusion

This study concluded that the arrowhead modification

inculcated in the conventional Beggs retainer can provided added advantages as well as improve the patient compliance. However, long term clinical trials should be carried out to evaluate the efficacy of the same.

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