

Easy & Accurate Method of Bonding in Lingual Orthodontics

Dr. Tarun Sharma
Reader

Dr. Tarun Rana
Sr. Lecturer

Dr. Anant Jyoti
P.G. Student

Dr. Richa Aggarwal
P.G. Student

Department of Orthodontics & Dentofacial Orthopaedics, Seema Dental College & Hospital, Rishikesh, Uttarakhand, India.

Abstract

Bonding in lingual orthodontics is till date the most troublesome job in lingual orthodontic technique. For this many laboratory procedures have illustrated but they require larger inventory, precision and time. So we have developed a new and an easy method of bonding in lingual orthodontics that is accurate, less time consuming and inventory is easily available.

Introduction

The indirect bonding technique offers numerous advantages over direct bonding, especially in bracket positioning and the possibility of customizing the prescription¹. In lingual orthodontics, indirect bonding is usually necessary, due to the difficulty of precise positioning of the bracket on the lingual surface of the tooth (irregular anatomy), the difficult access to the working field, and the impossibility of direct vision without the error of parallax. Because of the increased difficulty in treating cases from the lingual, accurate bracket placement is of the utmost importance and is greatly facilitated by an indirect bonding technique^{1,2,3,4}.

Misplacement of a bracket in the SWA can cause deviations in rotation, tipping, in/out, extrusion/intrusion, and torque⁵. In lingual orthodontics, limited access and visibility, greater variation in lingual surface morphology (especially of the maxillary anterior teeth), shorter lingual crown height, a wide range of labiolingual crown thicknesses, sloped lingual surfaces, smaller inter-bracket distance, and tongue interference can all contribute to inaccurate bracket placement^{4,6}.

Laboratory Procedure

1. Materials needed are (Fig: 1)
 - i. Glue
 - ii. Pencil
 - iii. Scale
 - iv. Bioplast Sheet (2mm)
 - v. Boon's Guage
2. Accurate alginate impressions should be poured immediately in orthodontic stone and a working cast is obtained.
3. Excess stone should be removed from the models carefully to avoid marring the dental surfaces.

4. After the models have been dried, pencil lines may be drawn on the teeth to be bonded, indicating the long axis and the horizontal location of the bracket slot. This is especially helpful if the laboratory procedure is performed by auxiliary personnel (Fig: 1).
5. Glue is used to stick the bracket on the working model (Fig: 2).
6. The bracket is placed on the working model (Fig: 2).
7. When all the brackets have been placed on the models in satisfactory positions transfer trays are fabricated.
8. Bioplast sheet 2mm thickness is taken and sheet is adapted under vacuum on to the working cast. This will act as a tray to seat the brackets (Fig: 3).
9. This sheet is then cut by a scissor into three parts: from canine to canine; from one side of premolar to molar; and from other side of premolar to molar (Fig: 4). This is done to facilitate the positioning of brackets easily in the crowded cases. It can also be preserved for future use in re-bonding of brackets.
10. These sectioned custom trays are positioned in the patients mouth and bonded with self-cure or light cure composites and the tray is slowly and carefully removed⁶.

Bonding Procedure

The supplies needed for clinical placement of the brackets include:

- Patient transfer trays
 - Vacuum system
 - Small brushes
 - Cotton pliers, dental mirror, and scaler
 - Lip retractors
 - Air/water syringe
 - Pumice
1. All teeth to be bonded are pumiced, and lip retractors and tongue shields are placed. The lingual tooth surfaces is prepared for bonding.
 2. The enamel is etched & dried and the bracket bases are loaded with the light cured adhesive primer.

3. The three parts of the vacuum tray consisting of brackets are now seated on the arch and bonded.
4. The tray is then removed.

Advantages

This technique has many advantages, especially for lingual orthodontics^{7,8,9}:

- Chair time is 15 to 20 minutes for both arches.
- There is no flash left around the brackets.
- Bracket removal is easier.
- The risk of moisture contamination is greatly reduced.
- The laboratory procedure can be delegated.
- Bracket placement is very consistent.
- Positioning of the bracket is accurate.

Conclusion

The indirect bonding technique was significantly more accurate than the direct technique for all teeth in both labial and lingual orthodontics. With the use of pre-adjusted brackets the accuracy of bracket position decides the results so the treatment result is even better in this technique. All the materials used are cheap and easily available in our day to day daily practice and moreover it is very easy and less time consuming.

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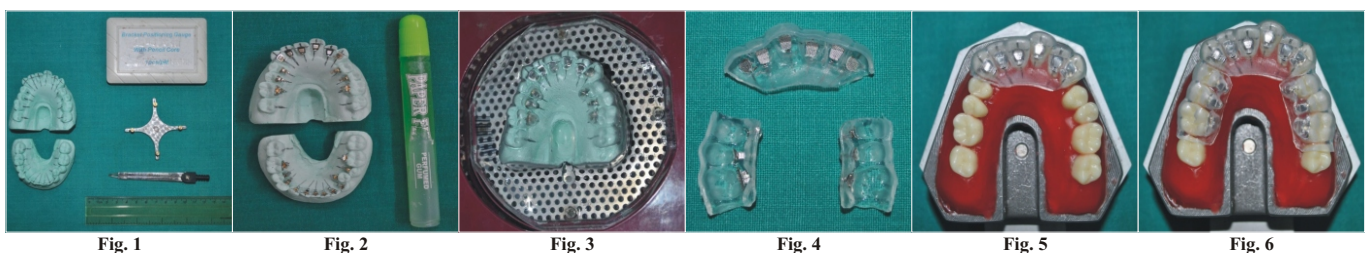


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Address for Correspondence : Dr. Tarun Sharma, Reader, Dept. of Orthodontics & Dentofacial Orthopaedics, Seema Dental College & Hospital, Rishikesh, Uttarakhand, India.

