Direct Bonding of Lingual Orthodontic Brackets – Kommon Base Technique

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Abstract: Kommon base is a direct bonding method in lingual orthodontics is used for precise bracket positioning without the use of any transfer trays. This article explains about the procedure and its advantages.

Key words: Kommon Base • Lingual Orthodontics

INTRODUCTION

Kommon Base is a precise direct bonding system. Kommon Base system has a large bonding base, which can achieve a good bracket fit and precise bracket positioning while also enhancing bond strength [1]. Kommon Base does not require transfer trays because of its self-positioning shape. The aim of this article is to outline the architecture of the Kommon Base Modified and the improvements in the customized base design and in the bonding system have allowed development of a precise direct binding system, named Kommon Base.

Armamentarium: Kommon Base features a large bonding base, which can guarantee an optimal fit and a precise bracket position while optimizing bond strength. Transfer trays are no longer needed on account of its self-positioning shape. Kommon Base Modified consists of 2 types of resins; (i) Flowable Composite (3M Filtek Z2350), (ii) Conventional Light cure composite (3M Transbond XT). Lingual brackets (STb) [2], Metal Primer, Light Cure Primer (3M Transbond), Upper and lower 17x25 SS Mushroom Shaped arch wire, Modules, Bracket holding tweezer, Lead Pencil and marker (Fig. 1).

Laboratory Procedure: Silicon rubber base impressions (Fig. 2) are taken and study models (Fig. 3) are prepared. The set-up is done with HIRO technique (Fig. 4) [3, 4] and in the finished set-up model separating medium (Fig. 5) was applied. This procedure helps in separating the Kommon Base [5] from the Model and to prevent the contamination of interior surface of the base. 17x25 stainless steel mushroom shaped arch wire (Fig. 6) fabricated on set up model. Initially anterior brackets are secured with modules (Fig. 7a, 7b) & tried on set up model. Later all brackets were secured with module to arch wire (Fig. 8).

Light Cure Primer Application is done to the bracket base (Fig. 9) and the bracket base is coated with conventional light cure adhesive (Fig. 10). Composite pads with wire is placed in position and light curing is done (Fig. 11). The Arch wire is removed and the modules are placed to prevent the resin flowing under bracket wings (Fig. 12).

The outline for the Kommon Base is prepared on the working model (Fig. 13). The High flow composite resin is placed close to bracket base and is light cured (Fig. 14). Flowable resin extension up to the outline mark on lingual surface is done (Fig. 15).

The brackets are removed from the set-up model by pulling with tweezers (Fig. 16). During this procedure, Kommon Base does not break off, because flowable resin is flexible in comparison to conventional composite resin. If the Kommon Base is interfering with adjacent teeth, the overlapping part is gently trimmed with airoter handpiece and a diamond bur. Using this procedure, a chair side trial fitting is not necessary. Although the bracket wing is close to the adjacent tooth, an optimal fit is achieved. A trial fitting on the model (Fig. 17) is done after the trimming of overlapping part of Kommon Base.

The inner surface of the Kommon Base is sandblasted with 5% alumina and then Acetone is applied to clean the bonding surface. Light Cure Primer is applied and Cured (Fig. 18).

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Clinical Procedure: Lingual Surface of the teeth is cleaned with Airotar handpiece and diamond bur. It is air dried with 3-way syringe and 37% orthophosphoric acid.
gel conditioner is applied for 30 seconds (Fig. 19) and rinsed with 3-way syringe. The Lingual surface is air dried and light cure primer is applied and cured. High Flow composite is spread on inner surface of Kommon Base (Fig. 20) and gently placed on tooth. Press the bracket with the explorer to obtain a best-fit position (Fig. 21); excess composite is removed with the explorer and is exposed to visible light.

RESULTS

Kommon Base can be removed from the model without fracturing the extended surface during the laboratory procedure. The extended resin base is very thin like a film and can be trimmed without fracture. Trial fitting on the patient can be avoided as the adjustments have already been done in the laboratory. Reduced chair side time can be achieved with the Kommon Base when clinical bonding is been done. It is an simple and easy procedure when compared to labial fixed orthodontics as the bracket positions are to be inspected and checked.

Debonding Kommon Base is similar to labial fixed appliance. But it is difficult to remove the composite which are on distal surface to molars and premolars. In such cases, newly developed adhesive removing pliers with a tapered tip are useful. The remaining base can be removed with a low-speed hand-piece and a diamond or a polishing bur.

DISCUSSION

In lingual orthodontics, the indirect bonding system has been indispensable because of its morphological variations on the lingual surfaces. The advancement of the different bonding materials help in accurate fitting and removabiliy of the core. With Kommon Base, on the account of improved bonding property, the bracket failure is very rare. As the bracket base is extended; the large bonding base ensures high bond strength and prevents bond failure. Once the bracket base is sand blasted with 5% alumina, light cure primer is applied to the pad and cured and then high flow filled flowable resin is applied using a microbrush. The advantage of the Kommon Base system are;

- Owing to the complex lingual tooth morphology, precise bracket position with Kommon Base can be obtained.
- Optimal fit is achieved due to the large bonding base.
- Due to its self-positioning shape, transfer trays are not needed.
- Trial fitting is unnecessary hence chair time is reduced.

The only disadvantage is difficult to maintain a dry field since brackets are bonded close to gingival tissue.

REFERENCES