Indirect bonding: Digital technique vs conventional method

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One of the peculiar features of straight-wire techniques is the in-built tip, torque and in-out adjustments in the brackets, which reduces the need for making first-, second- and third-order bends on the arch. It follows that the precision in the positioning of the brackets is of fundamental importance for making the correct adjustments and for the consequent predictability of the result, thus making bonding one of the most important steps of the whole treatment.

Fig. 1: Dental studio-Ortho Studio Module.
With direct bonding, there is a high margin of error in bracket positioning, due both to the dental professional’s experience and to difficulty with visualisation. The positioning errors that can be made are on the horizontal, vertical and mesiodistal axes, and can create the need to reposition the brackets during orthodontic treatment, resulting in a waste of time. Over the years, indirect positioning techniques have been developed to make positioning more precise and to make the procedure as fast as possible. The aim of this study was to compare a new, digitally assisted method of indirect bonding (Transfer Bite Leone) with the conventional clear two-tray technique, using the split-mouth method to evaluate the amount of remaining composite around the base of the bracket in both procedures.

In order to avoid differences due to placement, we used the same dedicated programme for both methods. STL files, obtained from intra-oral arch scanning or stone model scanning, were loaded and processed with the Leone Maestro 3D Ortho Studio software (AGE Solutions). This digital tool permits the segmentation and width and height measurement of the teeth, and the subsequent determination of the long axis and the average height of the clinical crowns, in order to virtually arrange the brackets in the correct position. The den-

Fig. 2: Indirect bonding through Leone’s JIG and brackets. Figs. 3 & 4: Limitations of the conventional method, such as non-constant accuracy and excess of composite around the base of the attachment.
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Our experience of using the Transfer Bite system on 12 patients allows us to confirm that this new indirect bonding method is simpler, easier and more accurate than the conventional method. Furthermore, it proved to be a less operator-dependent technique, allowing even less-experienced clinicians to achieve optimal results.

Fig. 5: Leone’s Transfer Bite system.