

AN IMPROVED CAD-CAM LINGUAL FIXED RETAINER

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Objectives of the investigation

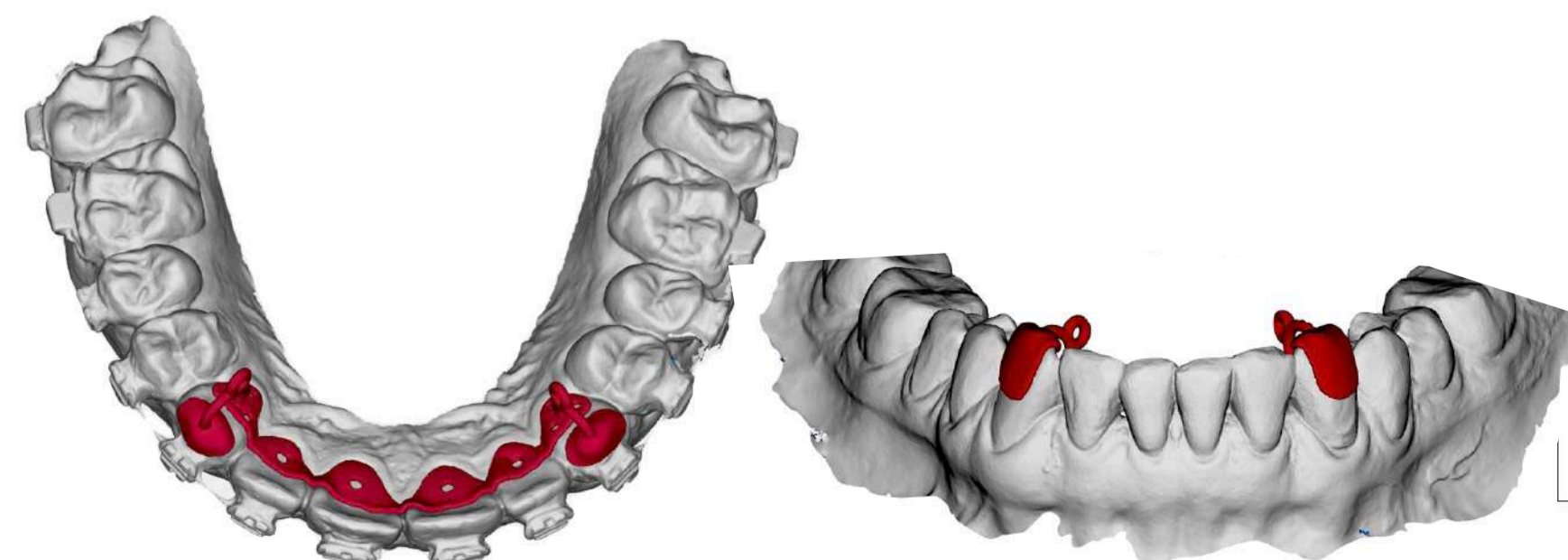
Why it is interesting

Almost all the orthodontic finished cases need a retainer to maintain the teeth in the achieved proper position. There are two main categories of retainer: removable and fixed. Fixed retainer is typically bonded on the lingual/palatal side of the anterior teeth, generally from cuspid to cuspid or from first premolar to first premolar. Traditionally fixed retainer is made of a twist soft wire passively adapted by the orthodontist on the labial anatomy of the frontal and then bonded with light curing material. One of the issues of the traditional fixed retainer is the frequency of debonding and/or breakage of the wire itself. The possibility given by new digital tools in dentistry, such as IOS, designing software and additive production technologies have allowed the realization of full customized retainer that could copy exactly the lingual anatomy narrowing the debonding and/or breakage possibilities. According to our experience this Cad-Cam retainers are less bulky so given more patient comfort as well as allowing an easiest hygiene maintenance. However, the positioning of the retainer becomes essential to exploit the precision obtained by the digital workflow. Digital retainer providers usually deliver the anatomic designed retainer with a silicone positioning jig and/or with a positioning protocol with a dental floss to be strictly followed. Both the options are not optimal since the exact position is not easy to keep as well as the adhesive removal easiness, before the light curing, could be affected by the presence of the positioning jig. Based on this consideration we have developed a simpler, integrated retainer design that guarantee its perfect fitting and bonding therefore minimizing the chair time as well as the adhesive quantity thus assuring less debonding possibility.



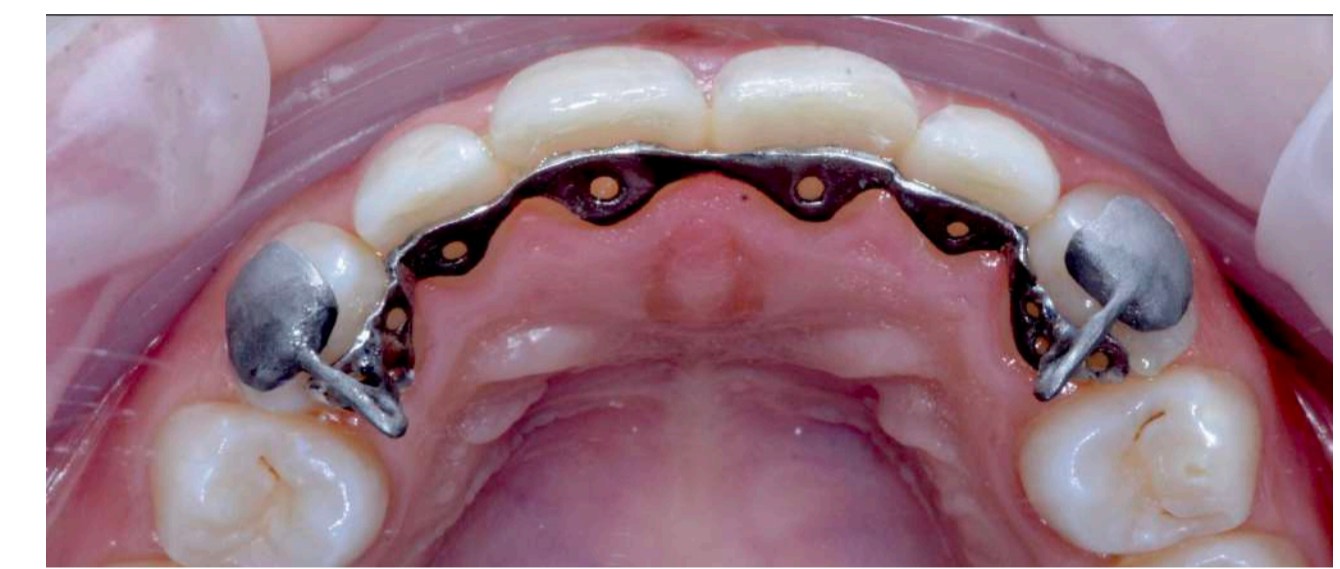
Treatment objectives and alternatives

The goal of this method is to obtain a stable positioning and perfect matching of the retainer with the labial teeth side. This novel Cad Cam retainer features integrated positioners, while the others Cad Cam retainers need additional jig or dental floss for keeping it in place during the bonding procedure. This newly developed retainer also minimizes the overall thickness and composite quantities thus favoring the patient's comfort and hygiene.



Essential results

The clinical procedure with this new Cad Cam retainer is extremely easy and less operator dependent since the exact fitting is assured by its unique design with integrated positioners anchored on the cuspids. Moreover, the Chrome Cobalt Laser Melting production guarantees absence of Ni as well as excellent precision and minimum thickness. Even if our experience is limited to few cases, we are extremely satisfied by the clinical procedure and, up to day, we did not have any debonding.



Conclusions

This newly designed Cad-Cam retainer keep all the positive aspects of the full customized contemporary retainers addressing the weaker point that is, according to our experience, the difficulties in transfer the software definite position in the patient's mouth. This design overcome the possible misplacing magnifying the advantages of a retainer digital design and production.

