

The Application of Removable Orthodontic Appliances in Multiband Techniques

DR. FRANS P. G. M. VAN DER LINDEN*

Multiband techniques offer greater possibilities than those using only removable appliances. Many malocclusions can be corrected satisfactorily only by means of the multiband approach. Even in such cases, there are conditions in which it is advantageous to start the treatment of the upper arch by means of a removable plate. This holds true particularly for malocclusions involving marked irregularities in the labiolingual positions of the upper incisors and for mesially-tipped and blocked-out cuspids in extraction cases.

In Figures 1 a-b-c and 2 a-b-c two cases are presented with situations of this nature. In both instances the application of a multiband appliance will result in a partial retraction of the protruded incisors and an undesirable labial movement of the lingually-placed ones. This is due to the distribution of forces which is mainly reciprocal (Figs. 1d and 2d). The unfavorable reactive forces on neighboring teeth cannot be avoided in most instances. Occasionally auxiliaries such as elastics can be used to reduce this effect to a certain extent.

In most of the cases as described above, a drift tendency shows up when first premolars are extracted and no orthodontic appliances are introduced. Usually the cuspids move in the direction of the extraction spaces and the lateral incisors follow. Maximum advantage of these "natural" drift tendencies may be taken by the use of a simple removable plate. The mesial migration of the buccal teeth can be controlled and auxiliary springs may support and guide the movements of the anterior

teeth. When the acrylic of the plate is removed in the correct way, and the cuspid retraction springs and subsequently the labial bows are activated very slightly at strategic points, an important initial correction can be achieved. The distribution of forces is more favorable and less stress is put on the anchorage teeth (Figs. 1e-f and 2e-f).

In Figures 1 g-h and 2 g-h the improvement obtained after five and six months of treatment with removable appliances is shown. The cases were finished with the edgewise arch technique (Figs. 1 i-j and 2 i-j). Usually the lower jaw is banded shortly after the insertion of the removable upper appliance.

In the case of Figure 2 the upper plate offered still another advantage in that it prevented the upper central incisors from striking the bands and brackets of the lower dental arch.

The point of application of springs for retraction of upper cuspids has to be placed at the gingival margin. This results in a more favorable force than when the point of application is to the incisal. In this way less bodily movement or uprighting of the cuspids with the multiband appliance will be needed later. The same advantage stands for the cervically-placed labial bow on the incisors. The need for the use of torquing forces later may be reduced.

The headgear is prescribed in cases in which it is attempted to influence the growth of the maxillary complex or when a real anchorage problem exists. We then provide the upper first molars with bands bearing double tubes and use a special clasp for holding the plate. It should be mentioned that a proper

* Professor of Orthodontics, University of Nymegen.

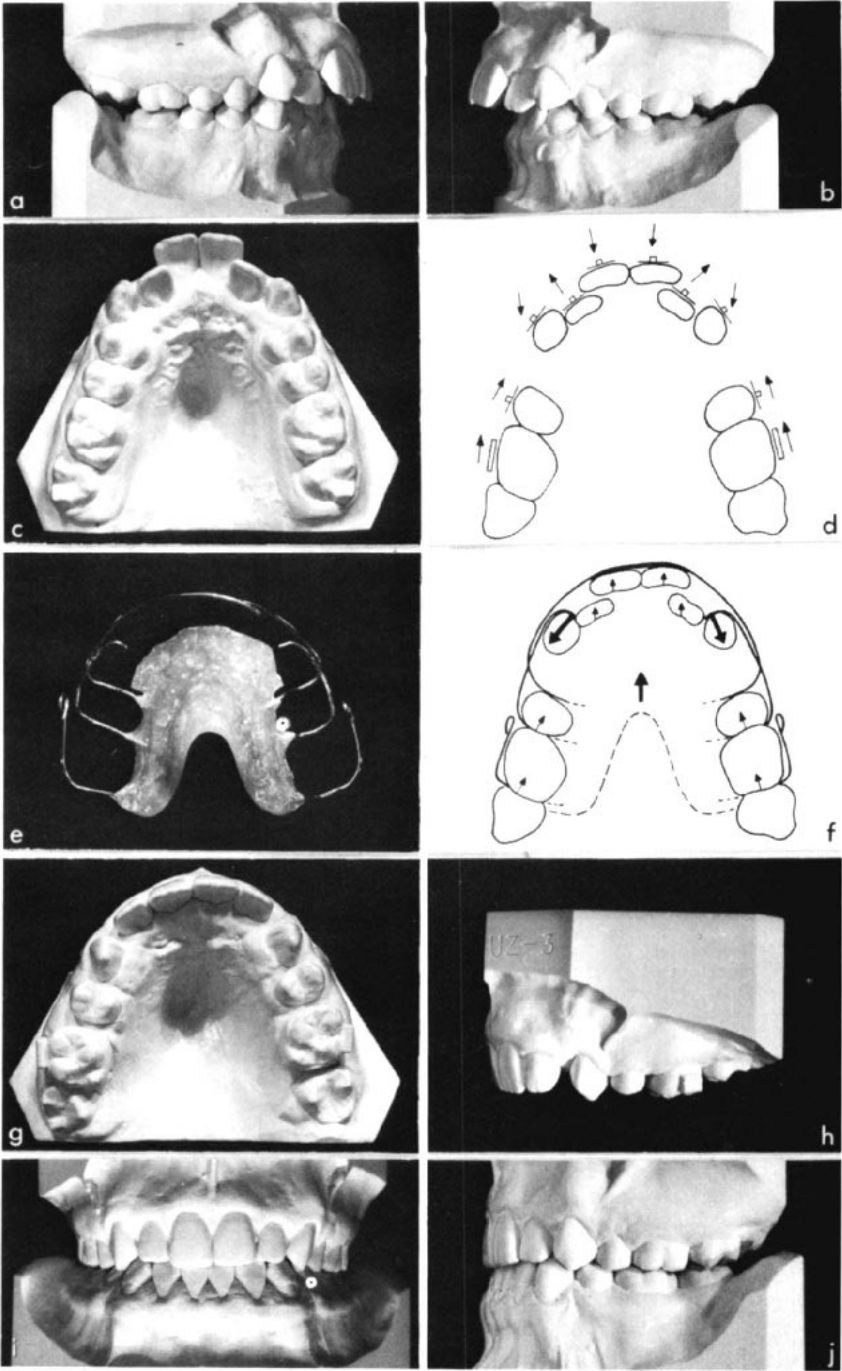


Fig. 1

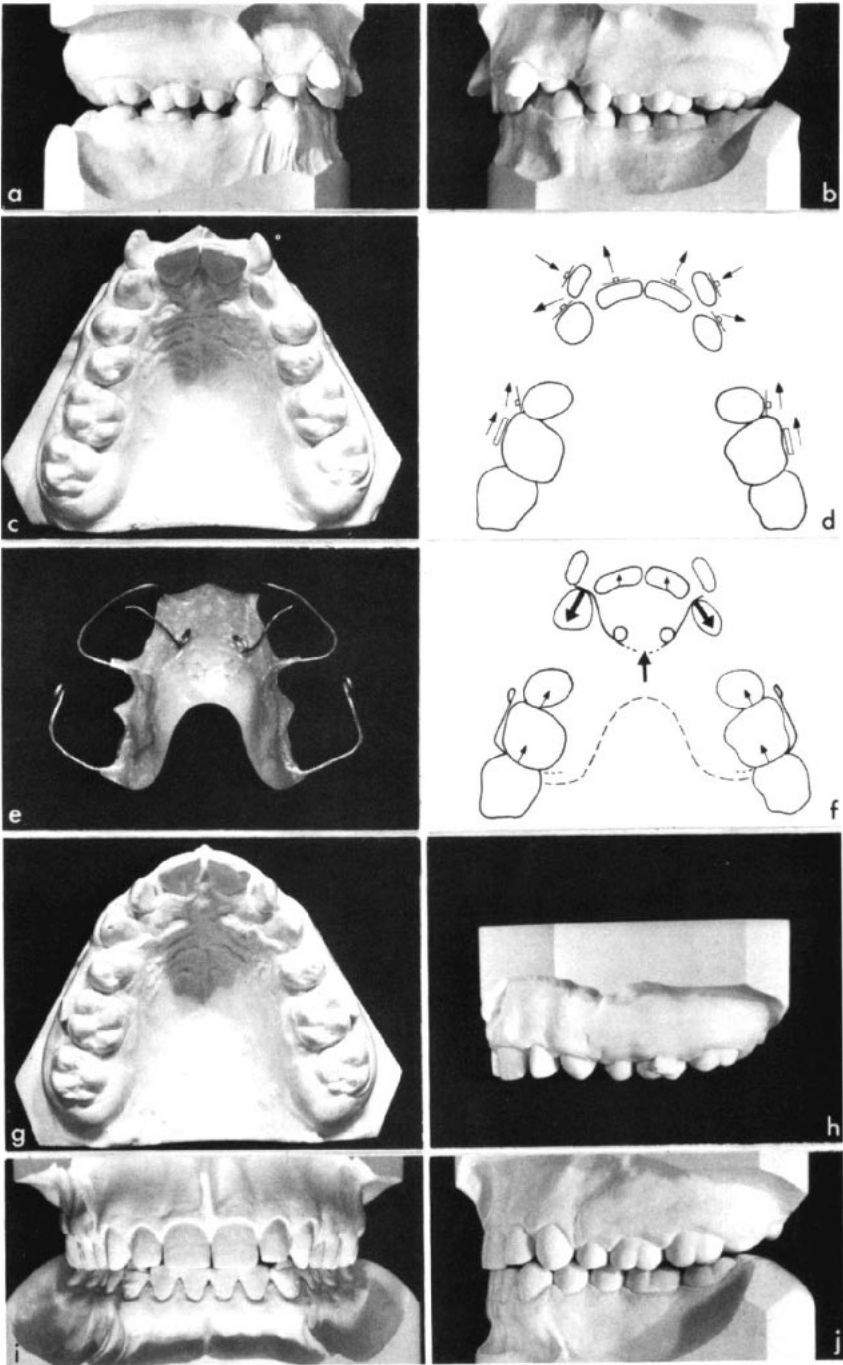


Fig. 2

use of the removable appliance will result in a minimal mesial movement of the anchorage units. Besides this, the sagittal slope of the palate contributes to anchorage in a favorable way. Two noncontinuous bows are preferred because they are more supple and offer a better force control than a continuous one. All metal parts are designed to deliver the proper forces during a three-week period. Correct handling will give good results in a rather short time.

It may be assumed that in situations as described above the amount of root resorption will be less with the use of a removable appliance than when multi-band techniques are applied right from the start. The better control of the

forces and the avoiding of undesirable movements justify this assumption.

SUMMARY

The use of removable orthodontic appliances is advocated for starting the correction of marked irregularities in labiolingual positions of the upper incisors and for mesial-tipped and blocked-out cuspids in premolar extraction cases.

The better control over the forces and their points of application, the elimination of undesirable movements and the possibility of less root resorption are discussed.

*Sint Annastraat 313
Nymegen, The Netherlands*