

Acrylic Splints and Inclined Planes In Orthodontic Therapy

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In many cases of malocclusion, a valuable aid to treatment is the use of acrylic splints and inclined planes.

The advantages of using a clear acrylic, cemented to the teeth with a suitable shade of synthetic cement, are many. Since clear acrylic is transparent, such appliances are inconspicuous and practically unnoticeable. They are light in weight, easily constructed and simple to remove from the teeth. The material is soft, has a certain amount of "give" or wearing away and can be ground down or reduced in size with a rubber wheel after cementation. Acrylic splints and inclined planes cause no trauma and are very comfortable after a day or two.

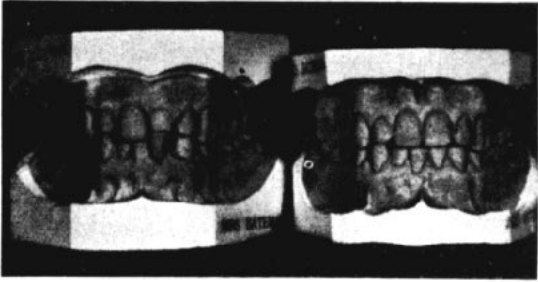
Formerly, when a plate was used to open a bite where upper molars or bicuspid—*or both*—were occluding buccally to lower molars and bicuspid, it was possible to move teeth. However, as soon as the patient removed the plate, much valuable time was lost because of the resultant trauma and "jiggling" of the teeth.

In various types of cases illustrated herewith, the use of many bands is eliminated. Where anterior upper incisors are locked in lingual occlusion, an anterior inclined plane cemented to the lower anterior teeth is the only appliance necessary. In other cases where the locking is deep, posterior splints are used in conjunction with the anterior inclined plane. Often molar tubes are incorporated in the posterior splints and placed in the same position they would occupy on molar bands. After teeth have been unlocked and the splints removed, there is obviously an open bite exactly where the splint was used; but this condition disappears in a few days. In Class I cases where the lower anterior teeth simulate a Class III relationship, a speedy correction is effected by employing the anterior inclined plane.

In the construction of acrylic splints and inclined planes, a duplicate model is articulated and the bite is opened just enough to free the locked teeth.

Indications for the employment of such appliances are outlined in the series of treated cases which follow.

* Read before The Edward H. Angle Society of Orthodontia, Santa Barbara, California, March, 1947, Biltmore Hotel.



Before Treatment

After Treatment



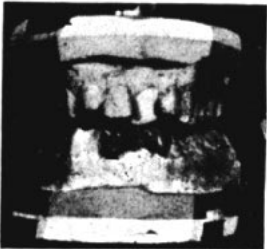
Before Treatment



Upper

Lower

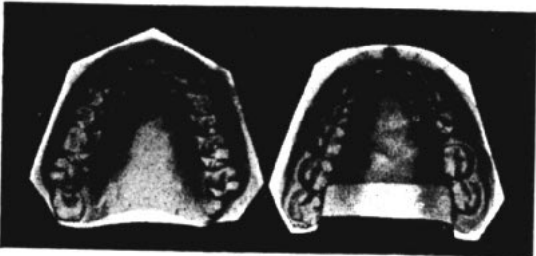
Casts Before Treatment



Acrylic inclined plane
on articulator.



Three days after inclin-
ed plane was placed.
(Note how bite is clos-
ing).



Upper

Lower

Case After Treatment



After Treatment

CASE 1.

Upper left central locked in
lingual occlusion.

Lower left central was loose.
This tooth was extracted.

Age of patient — 36.

Appliances used — Acrylic in-
clined plane cemented to lower
teeth.

After removal of inclined plane,
bands were placed on lower
cuspid and incisors to close
space and to realign lower
teeth.

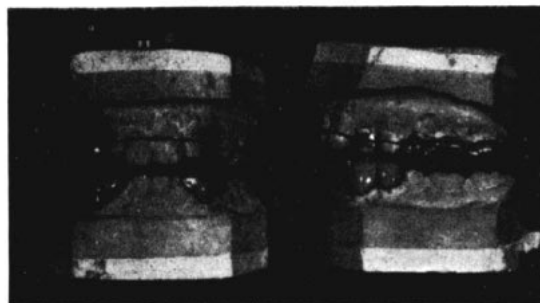
Time of treatment — 6 months.
No retention.

Because of age of patient, no
attempt was made to correct
rotations or to close lower right
space.



Before Treatment After

Before Treatment After



Splints in Place on Casts.

CASE 2

Both upper cuspids locked in lingual occlusion.

Age of patient — 18.

Appliances used — Acrylic Splints covering upper molars and second bicuspids. Molar tubes are processed into splints.

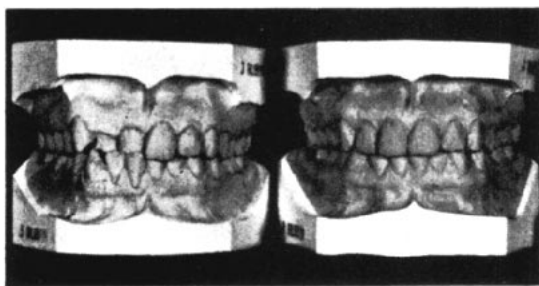
Acrylic inclined planes on lower cuspid regions. Bands with rotation staples on 3|3. Round steel arch .018 on upper.

Time of treatment — 6 months. No retention.



Before Treatment

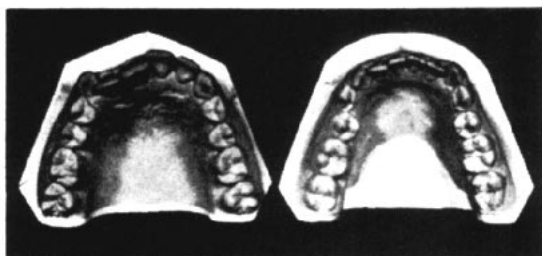
After Treatment



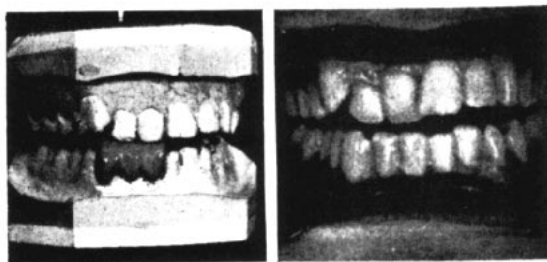
Before After
Treatment



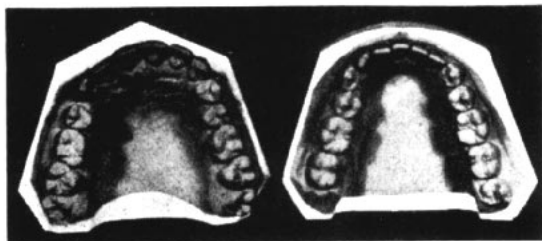
Before Treatment



Before Treatment



Cast Mouth
With Splint in Place



After Treatment



After Treatment

CASE 3

Upper right central and lateral incisors locked in lingual occlusion.

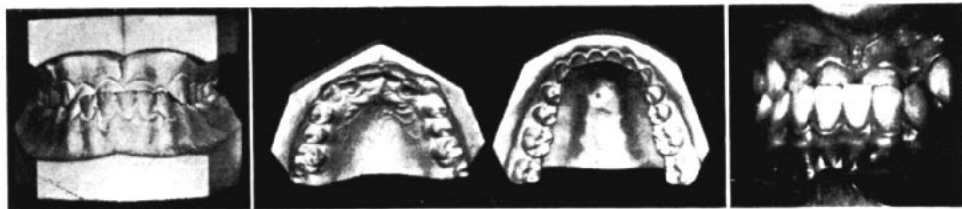
Age of patient — 21.

Appliances used — Acrylic Inclined Plane on lower anterior teeth.

Note: Upper right first bicuspid and lower right cuspid (infected tooth) were extracted.

No bands were used. Spaces are now completely closed.

No retention.



Before Treatment

CASE 4

A Class I malocclusion with all lower six anteriors in Class III relationship.

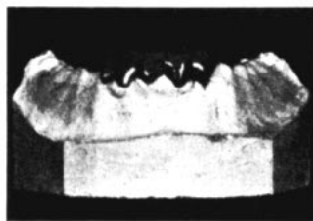
Age of patient — 13.

Appliances used — Acrylic Inclined Plane on lower anterior teeth.

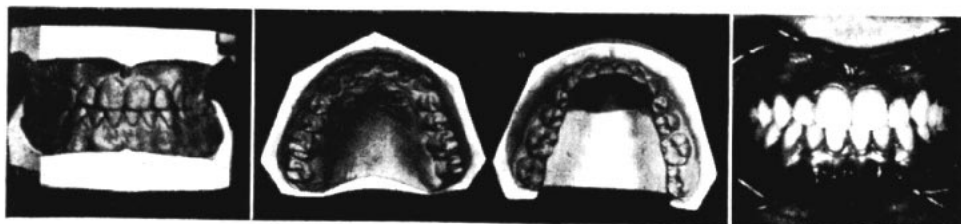
Bands on 6 2 | 2 6

Time of treatment — 12 months

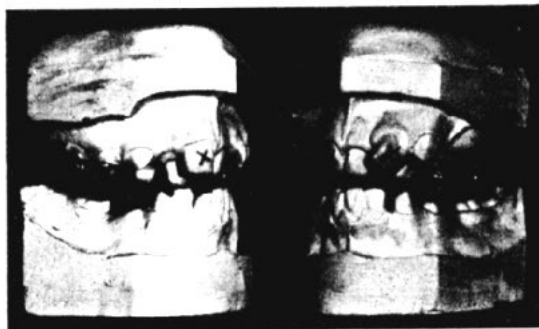
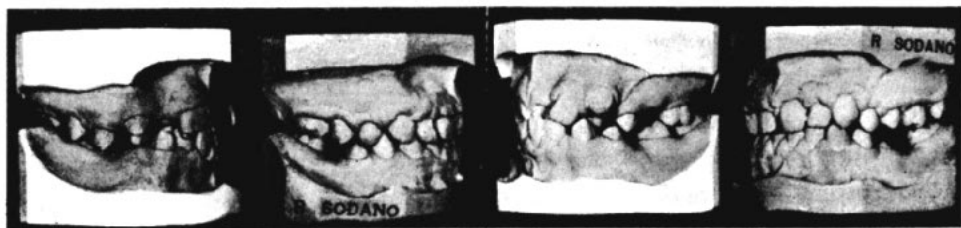
No retention



Acrylic Splint in Place



After Treatment



CASE 5.

A severe malocclusion complicated by the presence of four upper central incisors, three of which were locked lingually. Both upper laterals were also locked in lingual occlusion. Both upper cuspids located exactly in a labial position to the laterals. The upper first molar had been extracted and both lower first molars were doubtful. Both lower second bicuspid were impacted. The extra set of centrals marked X were extracted. Treatment started Jan. 1946 with upper acrylic splints (including molar tubes). Case showing result as of March 1947 (still under treatment) is illustrated. When impacted lower second bicuspid erupt, lower second molars will be moved mesially to close spaces left by extraction of first molars. Age of patient — 14.



Before Treatment



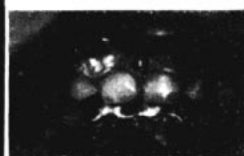
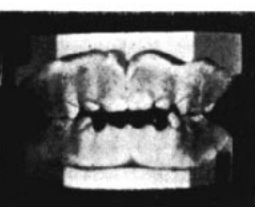
After Treatment



Progress photo. An inclined plane (cemented to lower anterior teeth) with brown cement (for photographic purposes only) was used in conjunction with molar splints as upper right central and lateral were locked quite severely in lingual occlusion.



After 14 months. Note. No bands used on lower teeth up to this point. As soon as lower 2nd bicusps erupt, necessary bands will be placed to move 2nd molars mesially to take places of 1st molars which were extracted.



Before Treatment

Splint in Place



After Treatment

CASE 6.

Class I malocclusion in the deciduous denture with the upper anterior teeth in lingual occlusion.

Age of patient — 2 years.

Appliance used — Cast Gold Inclined Plane on lower anterior teeth. (This case was treated about 10 years ago before acrylic material was used.)

Time of treatment — 3 weeks.

No retention and no re-treatment in the permanent dentition.



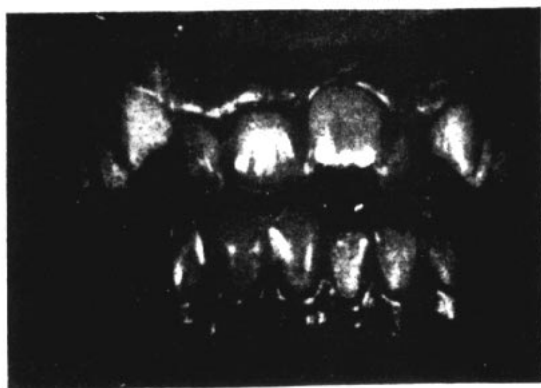
Before Treatment After



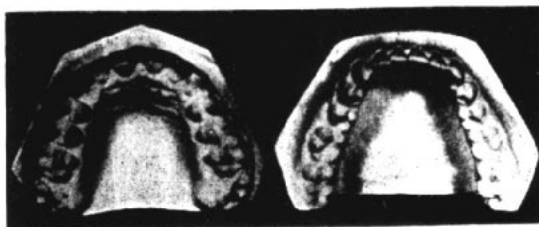
Before Treatment



Before Treatment



Inclined Plane in Place



After Treatment



After Treatment

CASE 7.

A Class I malocclusion with molars, bicusps and cuspids in perfect occlusion. Upper right lateral and central, and upper left lateral locked in lingual occlusion. Lower teeth were in good alignment. Patient, age 15, absolutely refused to wear bands. Parents were told that the three locked teeth might require bands later to complete rotations. Treatment was started with an inclined plane on lower right cuspid region and when the upper right central and lateral started to slide over into normal occlusion (about 6 weeks) another inclined plane was cemented on the teeth in the lower left cuspid area. On several occasions some additional acrylic was added to the inclined planes to engage the disto-lingual surfaces only of both upper laterals.

Summary

There is a distinct place in orthodontics for the employment of acrylic splints and inclined planes.

Posterior splints can be used on both sides of the mouth or just on one side where necessary.

Contrary to popular opinion, the opening of a bite does not cause any discomfort as the amount of opening usually corresponds to the rest position of the teeth. Teeth are held in firm occlusion only occasionally; most of the time, even with the lips closed, upper and lower teeth are apart.

The fact that splints and inclined planes are cemented to the teeth is a distinct advantage over the use of removable plates. Malocclusions are corrected more speedily and trauma is reduced to a minimum. Inconspicuous, easily cleaned and simple to construct acrylic splints and inclined planes help to eliminate some of the complicated appliances which have too many unseen forces.

—*Medical Tower*