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Modified pendulum appliance to improve anterior anchorage

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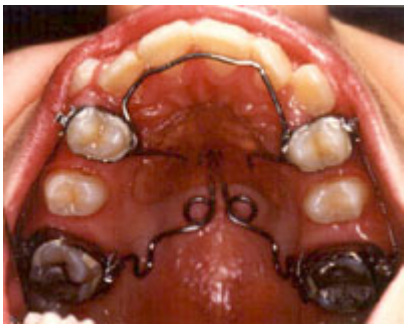
INTRODUCTION

The Pendulum appliance is one of the most terrific and useful appliances for the treatment of Class II malocclusions in non-compliant patients. As reported by Hilgers, the appliance has its anterior anchorage based on a Nance button which can be connected to the first premolars (or the first deciduous molars) and to the second bicuspids (or second deciduous molars) using bonded occlusal rests. To prevent bond fractures, Hilgers recommends banding only the first bicuspids. This procedure may produce an unfavorable effect of mildly protruding the anterior teeth. To reduce this protrusion, the Pendulum appliance can be modified

FABRICATION



As described by Hilgers, the Pendulum appliance can be fabricated using .032" TMA wire to form the right and the left molar springs which are inserted into an acrylic Nance button . The springs are extended as close to the center of the palatal button as possible to maximize their range of motion, to allow for easier insertion into the lingual sheaths and to reduce forces to an acceptable range. The Nance button can be held in position by banding the first premolars and soldering it to the bands. Instead of adding occlusal rests on the second premolars, a lingual .036"SS wire can be soldered to the first bicuspid bands. This wire must be bent in order to contour to the lingual surface of the four upper incisors.

PLACEMENT

Molar bands are cemented without engaging the distal springs. The anterior portion of the appliance is then easily cemented in place. The lingual arch must fit the lingual surface of the anterior teeth, without producing palatal sores. As soon as the appliance is cemented, the pendulum .032" TMA springs are inserted into the lingual sheaths of the molar bands.

DISCUSSION

The modified Pendulum appliance presents some advantages over the regular Pendulum.

(1) It minimizes risks of bond failures. Being fabricated exclusively with bands, it reduces the possibility of accidental debonds.

(2) It permits the molar transeptal fibers to move the second bicuspids distally, without banding or bonding them. This action is more physiological and helps to control posterior anchorage, after achieving Class I molar relationship.

(3) It reinforces anterior anchorage during the distalization of the molars (especially when second molars are erupted), reducing any anterior protrusion.

CASE REPORT C.S. 11,2 yrs Skeletal Class II, Dental Class II division 1. Her upper arch shows severe crowding (photo 1).

According to her facial profile and model analysis, non-extraction treatment was recommended.

A Modified Pendulum appliance was placed at the beginning of treatment.

After 6 months, each molar showed 7 mm of distalization (photo 2).

Fixed straight wire appliance was placed to control molar anchorage and to open cuspid spaces.
After 12 months, the upper arch was aligned (photo 3).

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REFERENCES

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