A Simple Method for Twin Block Reactivation

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One drawback of the popular Twin Block appliance is the inconvenience of reactivation when needed to achieve an edge-to-edge protrusive position, full overjet reduction, or overcorrection.[1] Recent studies suggest that gradual, incremental advancement of the working bite during Class II, division 1 treatment may produce a more favorable response during growth modification, with a reduced likelihood of incisor tipping.[2,3] Unfortunately, reactivation of the original Twin Block requires either the addition of cold-cure acrylic over the inclined planes at chairside, time-consuming laboratory work, or the use of specially designed spacers or advancement screws.[4,5]

We have developed a simple and cost-effective technique for stepwise advancement of the Twin Block appliance, using a commonly available jackscrew.*

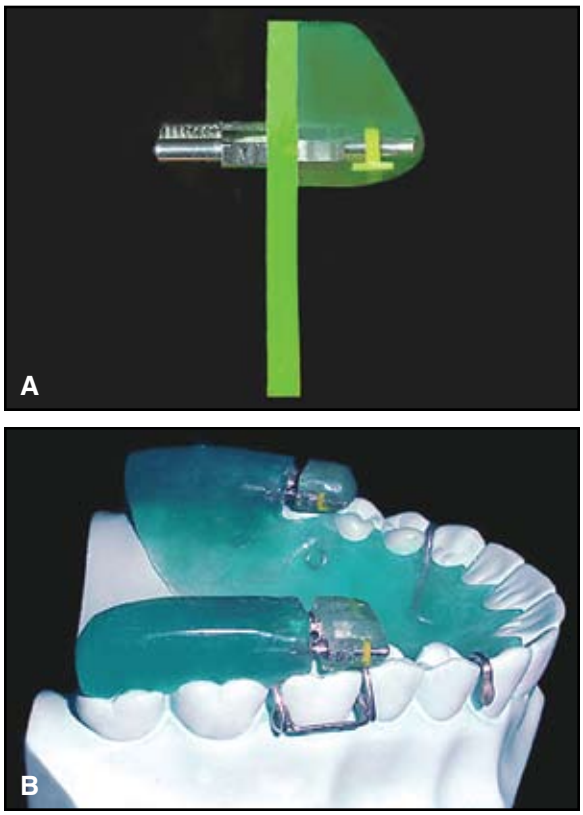

Fig. 1 A. Standard jackscrew modified with self-curing acrylic. B. Advancement screws incorporated into maxillary Twin Blocks.

Procedure

The activation procedure is as follows:

1. For each side of the Twin Block, add self-curing

*Part No. A0800-10, Leone SpA, Via P. a Quaracchi, 50, 50019 Sesto Fiorentino, Italy; www.leone.it.

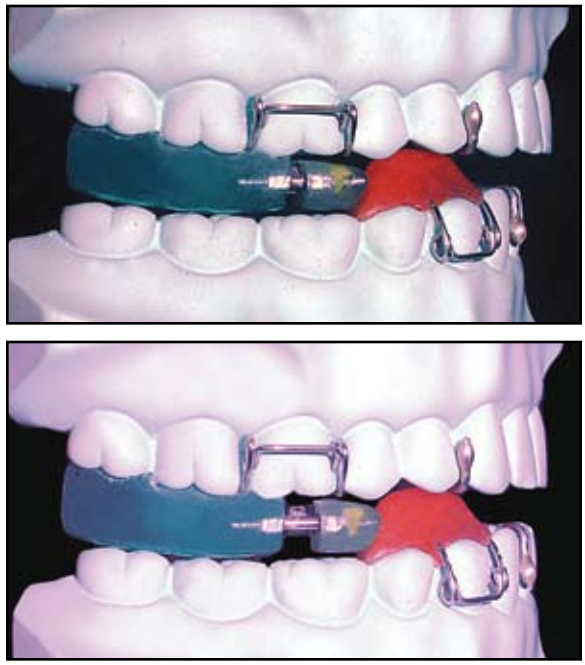

Fig. 2 Gradual 7mm advancement of Twin Blocks by activation of jackscrews.

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acrylic to one end of a standard jackscrew, up to the plastic separator, forming a 70° angled plane on the mesial surface of the block (Fig. 1A).
2. Incorporate the other end of the jackscrew into the mesial face of the upper block's main body, and finish the appliance.
3. Remove the plastic separator to expose the screw's central housing and activation holes (Fig. 1B).

Activation of the screws allows a gradual, 7mm anteroposterior correction (Fig. 2). This mechanism can also be used with the Class III or "reverse" Twin Block design[6] by incorporating screws into the mandibular blocks.

For optimal patient comfort, we recommend an initial advancement of 5mm, with subsequent activations of 2mm after eight weeks of Twin Block wear and 2mm after another eight weeks (Fig. 3). If further correction is needed, another 3mm of advancement remains in the system. The appliance can be worn 24 hours a day if necessary. In dolichofacial cases and patients with restricted mandibular protrusive movement, the initial mandibular advancement should be reduced to 3mm.

Case Report

A 13-year-old female presented with a marked Class II, division 1 malocclusion, mandibular retrusion, a 10mm overjet, and a deep overbite (Fig. 4). Because her mandibular protrusive movements were limited, a Twin Block appliance was constructed with an initial bite advancement of 3mm. Expansion screw activations were started after eight weeks, following the protocol described above.

During nine months of active Twin Block treatment, a Class I molar relationship was achieved and upper incisor inclination was improved (Fig. 5). A removable inclined plane was then worn for two months, and treatment was finished with an additional nine months of preadjusted MBT** appliances. The maxillary incisors were built up with composite after debonding (Fig. 6). Total treatment time was 20 months.

Conclusion

Advantages of chairside advancement of the Twin Block appliance with an adjustable jackscrew mechanism include:

- Accurate, measurable advancement, either bilaterally or unilaterally.
- No need for special screws[5] or spacers.[4]
- Ease of adjustment at the chair.

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Fig. 3 Typical patient after third Twin Block reactivation.

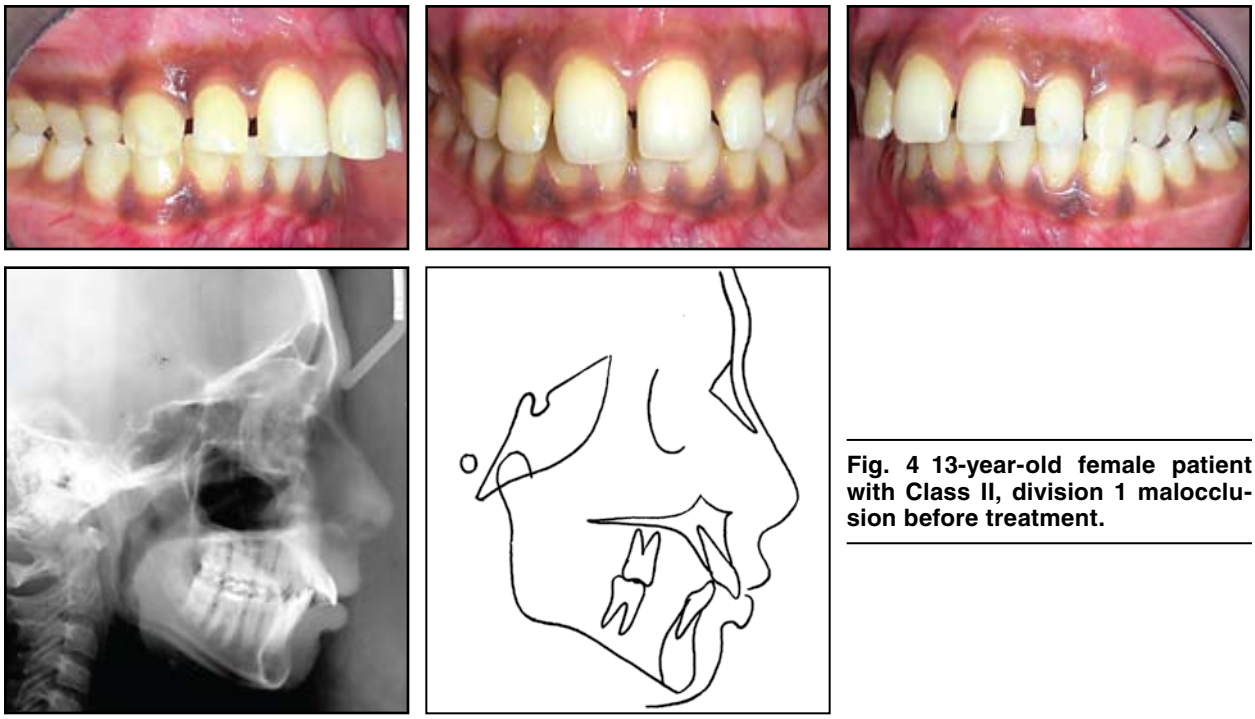

Fig. 4 13-year-old female patient with Class II, division 1 malocclusion before treatment.

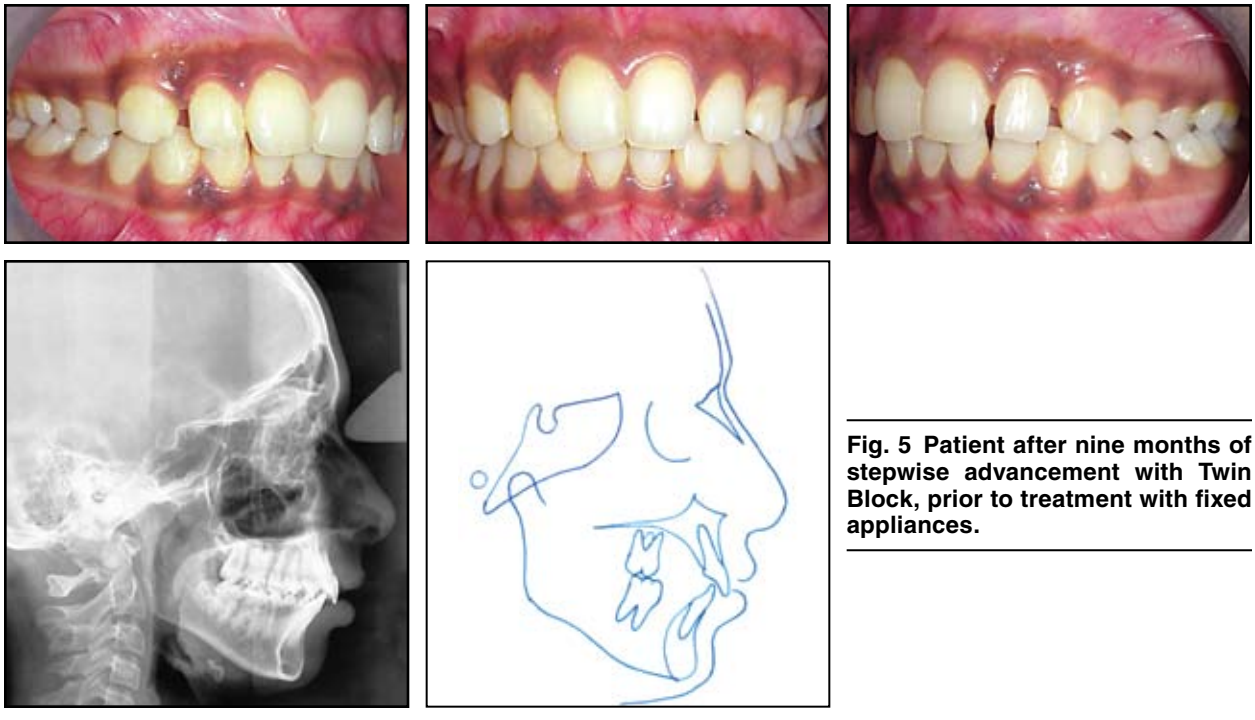

Fig. 5 Patient after nine months of stepwise advancement with Twin Block, prior to treatment with fixed appliances.

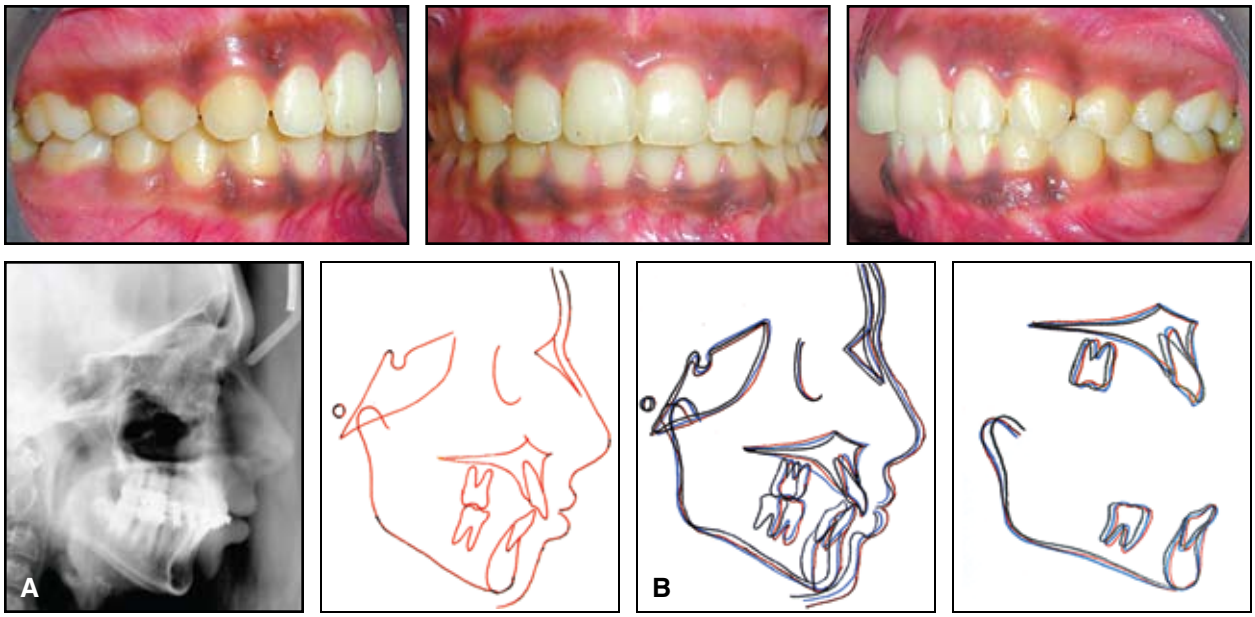

Fig. 6 A. Patient after 20 months of treatment. B. Superimposition of pretreatment (black), post-Twin Block (blue), and post-treatment (red) cephalometric tracings.

- Avoidance of free monomer cements.
- Reactivation without requiring additional laboratory work.
- Gradual adjustments for improved patient tolerance and potential enhancement of the mandibular growth response.[3]
- Reversibility of any overadvancement.
- Ability to trim blocks even in brachyfacial patients with deep overbite, since the jackscrews are positioned close to the upper dentition.

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