

CASE REPORT Use of SPEED Supercable with Sectional Mechanics

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A maxillary permanent central incisor can fail to erupt because of a midline supernumerary or a retained deciduous incisor. When spontaneous eruption of the permanent incisor does not occur after removal of the supernumerary or deciduous tooth, orthodontic traction may be required to bring the incisor into the arch.

Placement of a full fixed appliance may not be feasible in the early mixed dentition because of a lack of teeth available for bonding. There is also a risk of root resorption if the lateral incisors are bonded when the incisor roots are in close proximity to the crown of the developing permanent canine (Fig. 1).

This article describes such a case that was resolved by the use of a sectional SPEED appliance with a SPEED Supercable archwire.

Case Report

A 10-year-old boy presented with a retained maxillary left deciduous central incisor associated with failure of eruption of the permanent successor (Fig. 1). Both maxillary lateral incisors and the right central incisor had erupted. The unerupted permanent incisor was palpable high in the buccal sulcus. Radiographs confirmed the clinical findings and ruled out the possibility of a midline supernumerary.

Initial treatment involved the removal of the retained deciduous incisor and exposure of the maxillary left central incisor (Fig. 2). Four months after the surgery, some spontaneous eruption of the permanent incisor had occurred, but it was evident that orthodontic intervention would be required to bring the tooth into the arch (Fig. 3). SPEED brackets were placed on the two central incisors, and an .016" Supercable archwire was engaged in the brackets. Light-cured composite stops were added to the archwire to prevent archwire disengagement or fraying of the wire ends (Fig. 4).

A marked improvement in tooth position was evident eight weeks later (Fig. 5). The appliance was removed after six months of active treatment (Fig. 6), and the final radiograph showed good tooth alignment with no evidence of root damage. A bonded palatal retainer was placed to counteract any vertical or rotational relapse tendency (Fig. 7).

Discussion

SPEED Supercable is a superelastic nickel titanium coaxial wire consisting of seven interwoven strands. The superelastic properties of Supercable allow full bracket engagement with extremely low unloading force delivery. In this case, full ligation of any other wire might have resulted in permanent deformation of the archwire, debonding of the brackets, or application of excessive force.

Supercable is designed to accept sharp bends without taking a permanent set. Therefore, distal end bends are impossible. Although light-cured composite stops were used in this case, specially designed Supercable stops are also available.

The SPEED system is ideally suited to segmental mechanics. When the spring clip is closed, the bracket acts as a tube. This allows fewer teeth to be incorporated into the system without the problems of archwire disengagement that occur with wire ligation of twin brackets. □

FIGURES



Fig. 1 10-year-old male with retained maxillary left deciduous central incisor. Note angulation of maxillary lateral incisors.



Fig. 2 After exposure of maxillary central incisor.



Fig. 3 Four months after exposure.



Fig. 4 Sectional SPEED appliance with Supercable wire. Note composite stops to prevent fraying of wire ends.



Fig. 5 After eight weeks of treatment with sectional SPEED appliance.

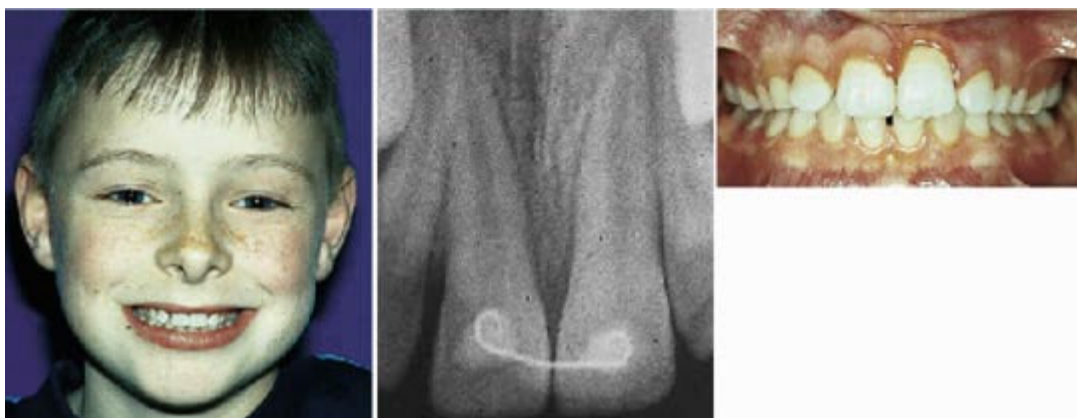


Fig. 6 After six months of active treatment.



Fig. 7 Bonded palatal retainer.

FOOTNOTES

1 SPEED: Trademark of Strite Industries, Ltd., 298 Shepherd Ave., Cambridge, Ontario, N3C 1V1 Canada.

2 Supercable stops: Strite Industries, Ltd., 298 Shepherd Ave., Cambridge, Ontario, N3C 1V1 Canada.