TECHNIQUE CLINIC

The Snail Loop for Low-Friction Space Closure

The closing loop is one of the most popular low-friction alternatives to sliding mechanics for space closure.[1] Several loop designs using various wire alloys have been introduced, including the conventional omega loop, the T-loop, and the opus loop.[2-5]

Loop design, positioning, and preactivation are the most important factors in determining the effectiveness of closing loops.[5] An ideal loop would have a high activation potential and a low load-deflection rate, and would be easy to fabricate and comfortable for the patient.[5]

This article describes a spiral-shaped loop called a "snail loop", designed for en masse space closure of the anterior teeth (A).

Loop Design

The snail loop is fashioned from .017" × .025" stainless steel wire by bending a simple omega loop into a spiral shape, which provides the forces and moments. The snail loop has the potential for twice as much activation as a stainless steel omega loop before undergoing permanent deformation.

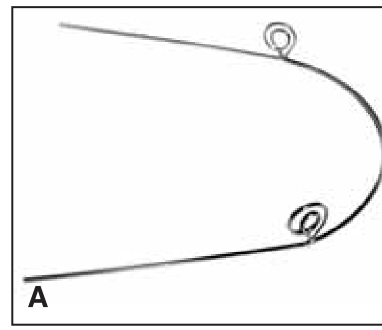
The outer portion of the snail loop is 8mm high and 6mm wide, and the inner portion is 6mm high and 3mm wide (B). Preactivation alpha and beta bends (C) incorporated into the wire ($\alpha = 25°$, $\beta = 35°$; total = 60°) are greater than those used for the conventional omega loop. The anterior and posterior moments produced by these preactivation bends will counteract the tipping moments created by the retraction force of the appliance, and are reinforced by the activation moment produced by the loop's spiral design (D).

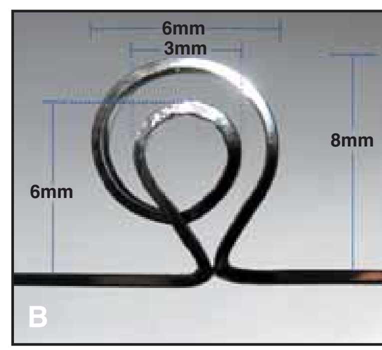
If an extrusive or intrusive force against the anterior and posterior segments is not desired, the loop must be centered between them. Miniscrews may be used with the snail loop for additional anchorage.

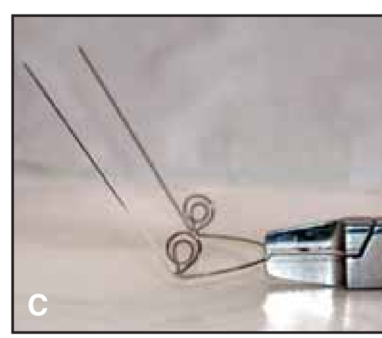
Advantages

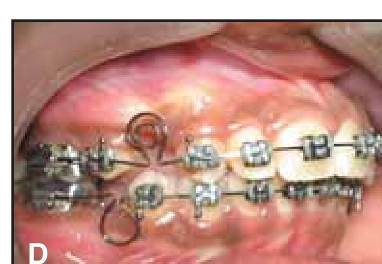
The snail loop provides results similar to those of other loops used for space closure, with the following advantages:

- Potential for greater, more efficient vertical movement of the anterior segment, due to the flexibility in the vertical plane provided by the spiral design.
- Lower load-deflection rate from using a longer wire.
- More control of the moment-to-force ratio, allowing bodily movement, controlled tipping, or uncontrolled tipping as desired.
- Reduced number of activations and patient visits.
- Easier fabrication and placement.
- Improved hygiene and patient comfort, with less cheek impingement.









Like other frictionless appliances, the snail loop eliminates the need for emergency appointments due to poking wires, which are common with the use of sliding mechanics.

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