

Unraveling Teeth in Stage I of Tip-Edge

Techniques for unraveling anterior teeth that can also be applied to Tip-Edge as well as Straight Wire orthodontics

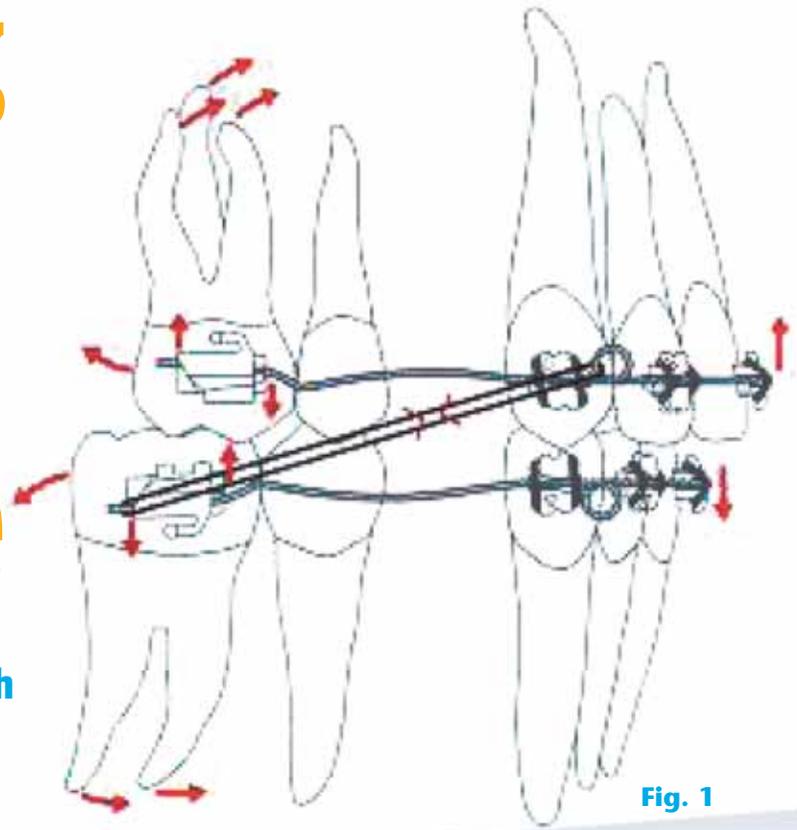


Fig. 1

By Jeffery Gerhardt, DDS

Most dentists who do Tip-Edge orthodontics are familiar with the illustration of Stage I as presented in Fig. 1. A typical way of starting a tip-edge orthodontic case is to place molar tubes on the first molars, bracket the anterior teeth, and use a .016 stainless steel wire with bite opening bends to correct an overbite. The idea behind this is to push off the first molars to

intrude the anterior teeth with a light 2 ounce force. The patient is instructed to wear a 2 ounce, class II elastic to pull the upper anterior teeth posteriorly to correct any overjet and offset the protrusive force of the .016 wire with anchor bends.

In cases with severe anterior crowding, the dentist cannot get the .016 stainless wire to fit and must first unravel (or straighten)

the anterior teeth before engaging the .016 stainless steel wires. This article will give some techniques for unraveling anterior teeth that can also be applied to Tip-Edge as well as Straight Wire orthodontics.

ARSENOL

Wires

There are several wires which can be used to unravel teeth.

1. .016 stainless steel wires
2. .016 or .014 Nickel titanium (niti) wires
3. .016 stainless steel wires looped wires
4. Combinations of these

Auxillaries

1. Standard modules
2. Ligation wires
3. .016 zing string
4. E-links

Techniques

1. NiTi wires
2. .016 looped wires
3. Piggy back – .016 Stainless steel wires with a .014 niti wire

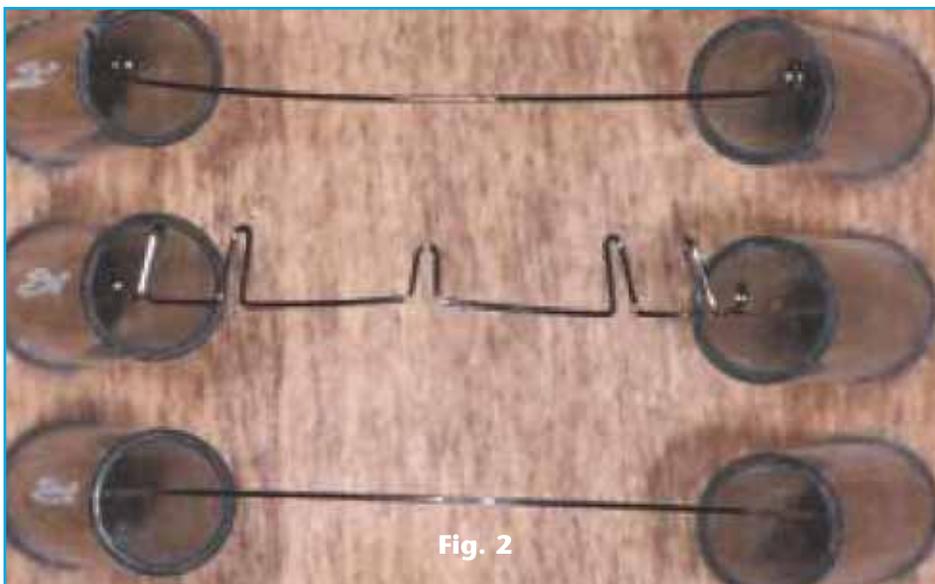


Fig. 2

“Unraveling anterior teeth in stage I of Tip-Edge orthodontics can often be a bit tricky, but your patients will be amazed how their teeth will straighten when the correct technique is used.”

NICKEL TITANIUM WIRES (NiTi)

I often advise the students in our orthodontic classes that, “When in doubt, start with a NiTi wire”.

NiTi wires are very flexible and when bent, return to their original form. These wires are used to unravel teeth. Since these wires can't hold a bite opening bend, they can't be used to correct an overbite or underbite. With tip-edge, a patient is kept in a niti wire only until their teeth are straight enough to go to a .016 stainless steel wire.

NiTi Wire- Example 1 (Figs. 3-5)

Patient was a first bicuspid extraction case.

Since we could not fit the patient with stainless steel wires, we placed upper and lower .016 NiTi wires. Note that we chose not to engage the upper right lateral into the wire because it would put too much torturing force on that tooth. A standard rule of thumb is to never put more than a 90 degree bend in a niti wire.

Pearl- When a canine is on top of a lateral, place an e-link from the canine to the hook on the molar tube. There is no need to engage the lateral if it is crowded out as the first objective is to get the canine into place.

NiTi Wires- Example 2 (Figs. 6-8)

Patient is a first bicuspid extraction case.

We placed upper .016 and lower .014 niti wires to unravel the teeth.



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11



Fig. 12

NICKEL TITANIUM WIRES (NiTi)



Fig. 13

These wires will be left in until the teeth are straight enough to move to .016 stainless steel wires.

Pearl- We placed a button on the upper left canine to move it into place with an e-link from the canine to the molar tube on the upper left first molar. At this point, we do not have to engage the canine into the niti wire as the first objective is to move the canine down and distally into place.

NiTi Wires- Example 3 (Figs. 9-13)

Class I Malocclusion. First bicuspid extraction case. (Patient was treated by dentists taking a 2-year, hands-on class in Austin, TX)

Upper and lower .016 niti wires were put in place. Note that there was not enough room to bracket upper laterals. After six weeks, a bracket was placed in the upper laterals. The patient was kept in

.016 NiTi wires. When the teeth were straight enough, the wires were changed to .016 stainless steel wires using normal stage I tip-edge mechanics. Since there was no bite to open, the wires were placed flat.

LOOPED WIRES

Looped wires are made of .016 stainless steel and are great for situations where the dentist wants to open a bite and procline teeth at the same time.

Fitting a looped wire (Figs. 14-18)

If a dentist wishes to use a looped wire, he can take a .016 stainless steel wire and bend the loops or buy pre-bend looped wires from Tp Orthodontics. The pre-bend looped wires come in sizes from 10 to 25.



Fig. 14



Fig. 15



Fig. 16



Fig. 17

LOOPED WIRES



Fig. 18



Fig. 19



Fig. 20



Fig. 21



Fig. 22



Fig. 23



Fig. 24

To size a looped wire, the dentist measures the width of a central and lateral incisor. If the central and laterals are each 6mm wide, then one would use a number 12 looped wire. This a good starting point and it is recommended that you try the wire before using it. When the canine circles touch the mesial of the canine brackets, the wire should bow 1-2mm in facially to the lower incisors which are to be proclined. If the wire does not bow out enough, the dentist may choose to use a larger looped wire. A wire which bows out too much would indicate that a smaller wire be used.

Fig. 16 shows the proper buccal flaring of a looped wire.

Often the loops in the wire must be bent so they do not poke the patient in the gums. In this case, a looped bending plier is good for the task. The looped wire is put into place. Note that tooth #

24 was too far lingual to be engaged with a module. A ligature wire was used instead. The tips of the loops were bent buccally, so that the wire would not poke the patient in the gums.

Looped Wires – Example 1 (Figs. 19-20)

The patient had an overbite plus crowding of the lower anterior teeth. Since we wanted to open the bite plus procline the lower anterior teeth, an upper .016 stainless steel wire was used in the upper arch and a .016 looped wire was used in the lower arch. Each wire had bite opening bends. The patient was instructed to wear 2 with class II elastics.

As soon as the lower teeth were straight enough, the looped wire was replaced with a .016 stainless steel wire. Normal stage I Tip-Edge mechanics were continued until stage I objectives were met.

Looped Wires – Example 2 (Figs. 21-24)

This is a non-extraction case where the patient is slightly dental and skeletal class III with an anterior crossbite. (Patient is being treated by dentists taking a 2-year, hands-on class in Austin, Texas.) .016 niti wires were placed in both the upper and lower as that was the only wire that would fit. A .016 looped wire was used to procline the upper anterior teeth. The upper laterals were then tied in with ligature wires.

The patient is now in the normal .016 wires to finish stage I of the treatment and is wearing 2 once class III elastics. The wires were placed flat as there was no bite to open and we proceeded with normal stage I Tip-Edge mechanics.

Looped Wires – Example 3 (Figs. 25-29)

The patient is in class III malocclusion. When he first came in, the only teeth he hit on were his second molars and anteriors. He was told he needed orthognathic surgery as it would produce the best results and correct his case. His parents decided against the surgical option and were willing to accept compromised results. Our orthodontic workup indicated a non-extraction case.

We began by placing an upper looped wire to procline the upper anterior teeth and an .016 stainless steel wire on the lower. The wires were flat because there was no bite to open and class III, 2 once elastics were used. When the patient's teeth were straight enough, .016 stainless steel wires were placed.

Pre-stage III – The bicuspid were bracketed and the patient was kept in .016 stainless steel wires. The posterior bite was not settled because the patient was not hitting on his anterior teeth.

Finished case – The braces were taken off early due to bad hygiene. The bite settled much better once the anterior teeth were proclined and the patient can now eat a hamburger. (Patient was treated by dentist taking a 2-year, hands-on class in Austin, TX.)

PIGGY BACK WIRES

This technique incorporates a .016 stainless steel wire on top of a .014 niti wire. An .016 niti wire can also be used, but we find it easier to engage the .014 niti into the bracket slot. This technique is used when the dentist wants to open the bite and unravel the teeth at the same time. An alternative technique would be to use a looped wire. This technique is primarily used when the patient has an overbite of 80% or more along with severe anterior crowding. If the patient has less than an 80% overbite, it is best to start with .016 niti wires alone and then move to .016 stainless steel wires when the teeth are straight enough.

Examples of the Piggy Back Technique Piggy Back – Example 1 (Figs. 30-32)

The patient had a 90% overbite and lower crowding. A .016 stainless steel wire was placed in the upper arch. In the lower arch, tooth # 23 was too far lingual to engage in the stainless steel wire, so a .014 niti wire was placed from canine to canine in order to move tooth #23 facially. A .016 Stainless steel wire was placed on top of the niti wire. Both stainless steel wires have bite opening bends placed in them. We removed the underlying niti wire when tooth #23 was straight enough to engage it into the stainless steel wire.

Piggy Back– Example 2 (Figs. 33-34)

This patient had a class III malocclusion and was a second bicuspid extraction case. The patient received placement of .016 stainless steel wires with bite opening bends in both the upper and lower. In the upper arch, a .014 niti wire was piggy backed (an upper looped wire could have been used in this case also). Tooth # 23 was tied onto the lower wire with a zing string. The patient is now in stage II of treatment and has .022 stainless steel wires in both the upper and lower. Finished case. (Patient treated by dentists taking a 2-year, hands-on class in Austin, TX)



Fig. 25



Fig. 26



Fig. 27



Fig. 28

PIGGY BACK WIRES



Fig. 29



Fig. 30



Fig. 31



Fig. 32

CONCLUSION

A dentist can follow some simple guidelines for wire selection in stage I of Tip-Edge orthodontics:

- 1 If the teeth are straight enough, use .016 stainless steel wires.
- 2 Start with niti wires on patients with severe crowding, but not a severe overbite or underbite to correct.
- 3 Consider looped wires or the piggy back technique on

patients with severe crowding and overbites.

- A. Use looped wires if you need to procline the anterior teeth.
- B. Use the piggy back technique if proclining is not needed.

Unraveling anterior teeth in stage I of tip-edge orthodontics can often be a bit tricky, but your patients will be amazed how their teeth will straighten when the correct technique is used.



Fig. 33



Fig. 34



Fig. 35



Fig. 34