Phase 1: Anterior Crossbite and Crowding

Fixing a crossbite can be tricky. Orthos weigh in on their different techniques for what works and what doesn’t.

Introduction

Thought I’d share this recently completed Phase 1 case. A 10-year-old patient, mildly mid-face deficient, pre-menarche, presented with an anterior crossbite U2–2 and with 6–8mm of crowding. There was a CR-CO slide.

Treatment plan included RPE + 2x2 to advance and extrude the upper 1s, followed by sequential alignment of the 2s (once the 3s have cleared the roots). Although there were facemask hooks, I did not use a facemask. Retention is with a modified Theroux retainer.

Torquing arch in 19x25 TMA

The lowers were bonded in order to increase the OJ.
The superimposition may not be completely accurate. Several points on the pretreatment ceph were hard to visualize. The mandible did rotate down and back, thus facilitating the correction. Growth was not very substantial.

Based on the regional SI, the upper incisors appear to have extruded and proclined.
Conclusion

A couple of challenges I faced were maintaining bite opening (given the primary teeth and the metal occlusal surfaces) and fighting the crossbite. In retrospect, a fixed bite plate would have been a great option and a lower 2x4 at the beginning (instead of 10 months into treatment) may have allowed for faster normalization of the OJ. Any other thoughts or comments are welcome.

Thanks for sharing! Could you get her ETE in CR?

Close, but not completely. Only the UL1 distal edge contacted in CR.

Great work, thanks for sharing. What a great service you provided the patient and her family.

I probably would have placed anterior turbos on the lingual of the lower 2-2.

I have seen that open the bite, but it sometimes proclines the lower incisors and leads to some wear of the uppers.

Great-looking Phase 1 treatment and documentation! I have a time-travel machine and took the liberty of going forward in time a few years and was able to obtain the following observation photos on your patient when she’ll be in early permanent dentition. Here they are:

Just kidding of course. Here are the initial Phase 1 photos on this young fellow. It’s a very similar case. Again, kudos to you! Don’t be surprised if the parents decide not to pursue Phase 2 on your young lady.

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Phase 1 anterior crossbites are one of my favorite things to fix. I obviously customize for each patient, but my key is what I call “bite ramps” and this has made them easy for me to fix. One main key is for me to check for an anterior CR-CO shift. If present, I will expect success (especially if CR is edge to edge) and the ramps will work unless OB is very shallow. Some patients will go into full Phase 1 with ramps and some will just get a ramp or two with only a couple of brackets for 2–4 months. I will show a few patients I did years ago.

Patient 1 is literally the first patient I ever put these on. I placed these on a Tuesday with no brackets and took them off on a Friday. No other Phase 1. Just finished Phase 2 many, many years after this “Phase 1.” She did not need a Phase 2 (like Billy talked about), but they just wanted me to get everything just right.

I put these first ramps on by hand with Triad. I now use mini molds for my base and just round the edges, and can add to the Triad if I need it taller.

This next patient had a ramp on the LR1 and I bonded brackets on L2-2 only. Treatment was only a few months.
This third patient had a ramp on the LR2 and upper brackets.

Again, many of these type of patients I try to fix right away and if possible, try to fix in 1–3 quick visits to keep cost down.

Those are pretty neat. Thanks for the tip! Different than what I had envisioned and “fixes” the crossbite right away. I think that’s a huge benefit in these cases.

And on your patient I would have bonded UC-C and U6s, OCS UL1-C, first wire U014NC-C and bite ramps L1s. First time I see them back the crossbite would be gone on U1s and UR2. Might not be corrected on UL2 since it was not engaged. So I would now engage UL2, but leave the ramps on to make sure the UL2 does not try to pull the 1s back.

Many times I would be able to reduce the ramps so not as tall but just get to use them to hold correction. On your case I would detail out U2-2 since the bite is now fitting so well.

Thank you for the suggestion. I generally avoid bonding primary teeth. I have had minimal luck having the attachments stay on. Also, in such cases that need incisor extrusion and proclination as well as mesial molar movement, I’ll use a 2x4 torqueing arch so that additional span of wire is important. Below is an example.
I am not a big Phase 1 guy. My most common reasons are anterior or posterior crossbites. With that said I bond UCs on nearly all cases unless they are gone and then I will bond Ds. Yes, we occasionally lose a brace on primary teeth but I would not say the percentage is much different than any other tooth in the mouth for us.

I actually am wanting to reduce the span between the anterior and posterior and also want to have a tooth to push with my OCS closer to the area of need usually. Just out of curiosity, how long did the treatment take on the original case?

Smart mechanics. Will try a tip forward in my next case.

I think we are very similar in our approach towards Phase 1 treatment. On occasion, like you noted, I’ll offer it for psychological reasons. With Phase 1 cases, I really like the versatility offered by a partial strap-up. I don’t usually engage the 6s until I’m in 19x25 NiTi, so the wire doesn’t slide out etc.

The case took 18 months, but principally because of the U3s. They needed to erupt past the 2s so I could safely engage the laterals without risk of damaging the roots.