Beautiful Smiles by Design

Traditional Braces for the Adolescent Malocclusion

James R. Waters, DDS, MSD

Diplomate American Board of Orthodontics
Treatment For Children, Teens And Adults

820 N. Canal ~ Carlsbad, NM ~ (575) 885–2020
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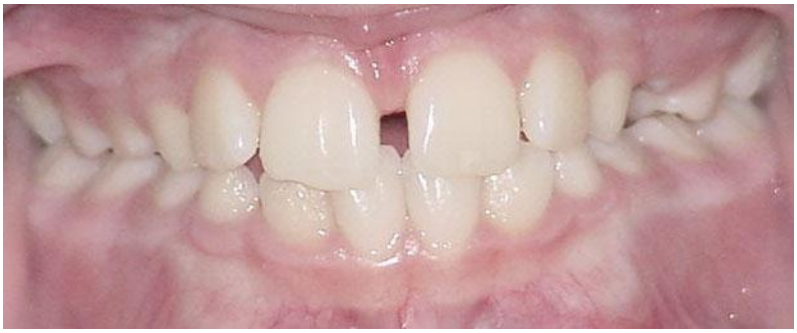
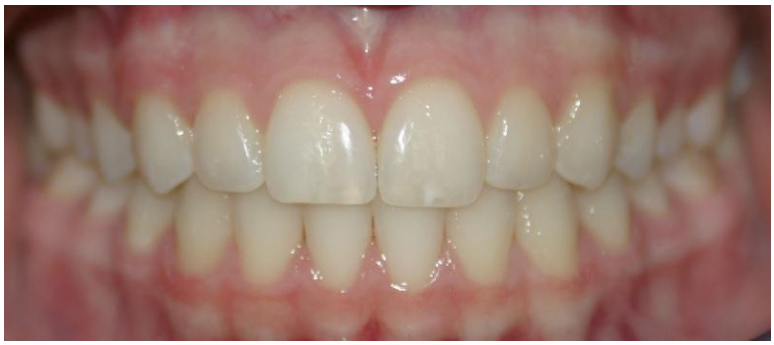
Typical Adolescent Treatment with Narrow Maxilla



This 11 year old patient presented with a narrow upper jaw (note the "tapered" arch formfrom back to front) and a large midline space. The narrow upper arch has constricted her lower arch causing crowding of lower incisors (as well and folding them back).

Treatment started with a bonded RPE (expander) to widen her upper jaw to the ideal width. This created a larger circumference and relieved the constriction to the lower arch. Braces were added to complete alignment and coordinate arch forms without removal of permanent teeth. Space was closed inthe midline of the upper arch.



After 6 months expansion and 18months braces, appliances (braces) were removed (see below) and retainers placed. You can now appreciate the expanded upper arch form withall teeth aligned and occluding ideally.

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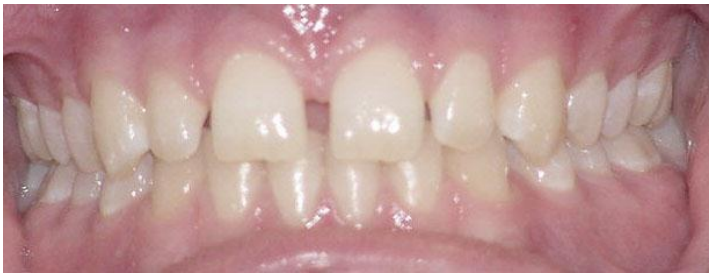
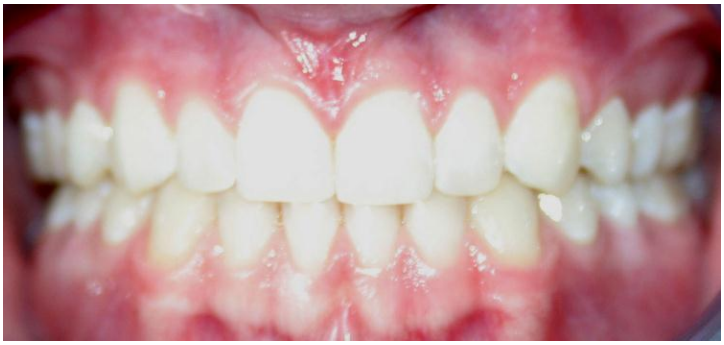
Spacing From Heavy Anterior Occlusion and Excessive Mandibular Growth



This 14y 2mo young lady presented with spacing due to heavy contact with lower teeth which in turnwas due to excessive growth of her lower jaw pushing her lower teeth into her uper teeth.



Correction included reducing the widths of the lower posterior teeth one at a time and retracting the lower teeth backward into the new spaces sequentially (and bilaterally). Once the lower teeth were pulled back, the lower jaw was given time to shift and finally the upper space was closed. **Treatment time was 17months**; the pictures above were taken 2 ½ years following removal of braces. Note the stability even after retainers werediscontinued.

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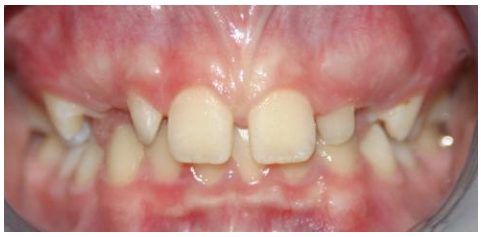
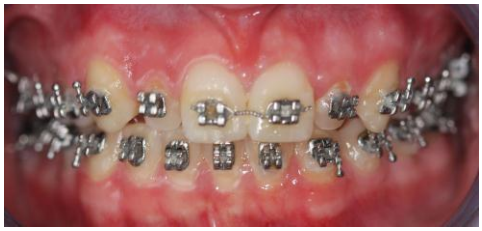
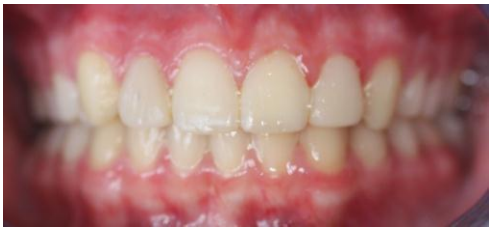
Deepbite Class II with Congenitally Small "Peg" Lateral Incisors



11y 2mo Initial Photos, note the bite deep into the palate and the small lateral incisors



At age 13, alignment has been corrected as teeth erupted and the bite has been opened to ideal overjet/overbite; lateral incisors remain small but have been positioned for composite build-ups.



At age 14y 1mo, after the restorations have been completed and the bite has settled into a solid Class I relationship; note the new balance between upper and lower teeth created by the restored lateral incisors.

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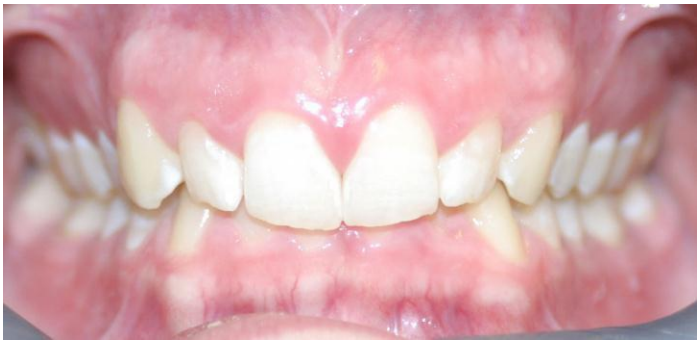
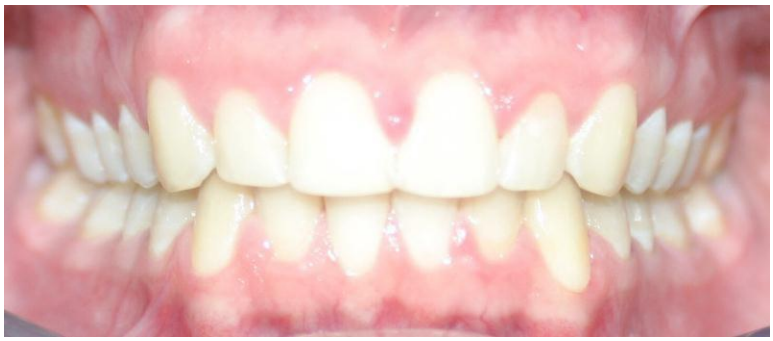
Class II Division II Severe Deepbite with Distal Closure



16y 2mo Initial photos showing the severity of the deepbite with lingual tipped upper incisors pushing the lower jaw back. Note the already severe incisal wear.



18y 6mo Photos taken 6months after the removal of braces show a full correction of the deepbite as well as uprighted upper incisors un-locking the lower jaw and allowing it to settle forward into ideal overjet. The edges of the teeth were then re-shaped to restore a younger appearance.

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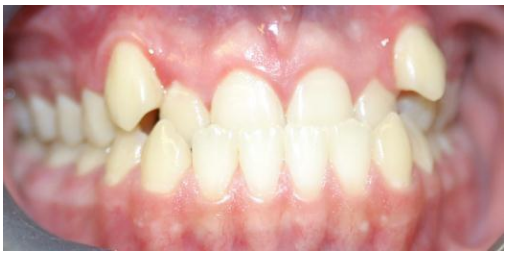
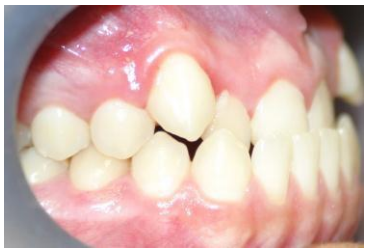
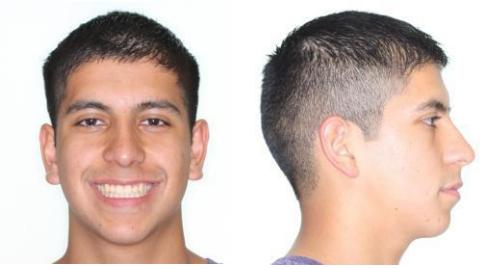
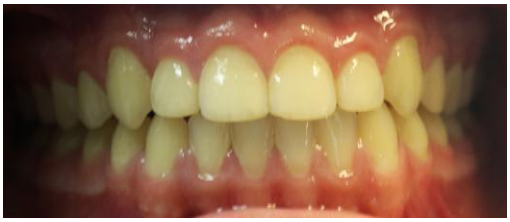
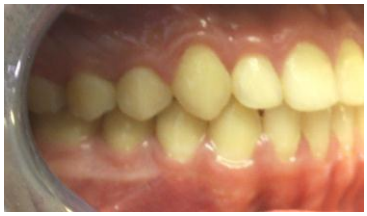
Young Adult Underbite, RPE and Non-extraction Braces

15y 3mo Initial records show a full Class III underbite with posterior crossbite and buccal eruption of upper cuspids. Profile and facial proportions remain Class I.

18y 7mo Records taken 12months following braces and expander show a full correction of overjet and overbite with complete correct of both anterior and posterior crossbites without removal of any permanent teeth. Note the crisp Class I occlusion and stable posterior overjet.

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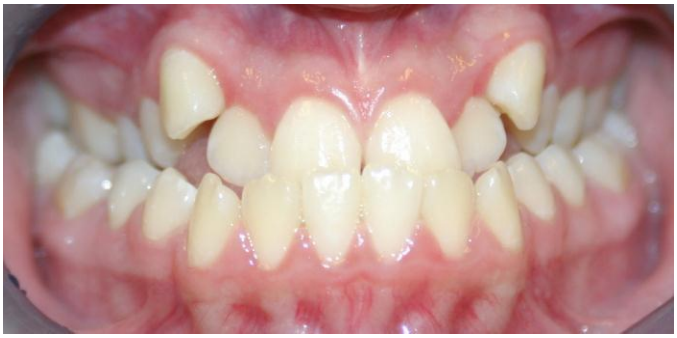
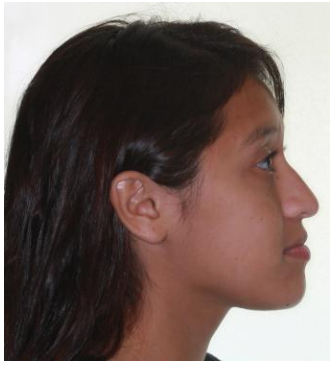
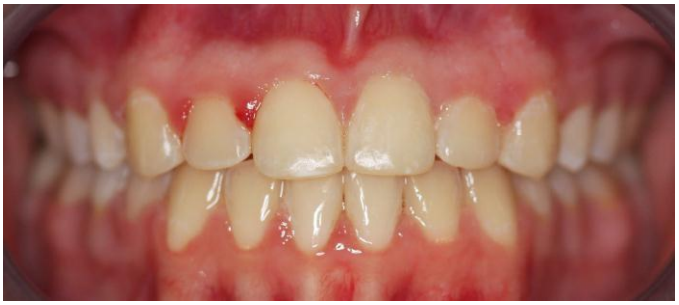
Severe Class III Full Underbite with Bilateral Posterior Crossbite; Treated with RPE, Protraction and Braces, (non-extraction)





14y 1mo Initial Photos revealing severe Maxillary Hypoplasia (under-developed upper jaw) with underbite, bilateral posterior crossbites and severe crowding.

16y 6mo at the completion of treatment which included expansion and protraction to widen the upper jaw and pull it forward just enough to prevent removal of teeth. Note the improved overall profile and cheek support as well as the correct inclination of upper teeth following treatment to restore ideal overjet and overbite.

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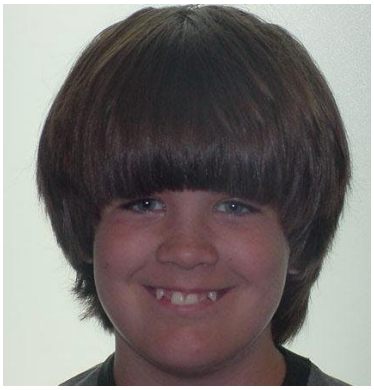
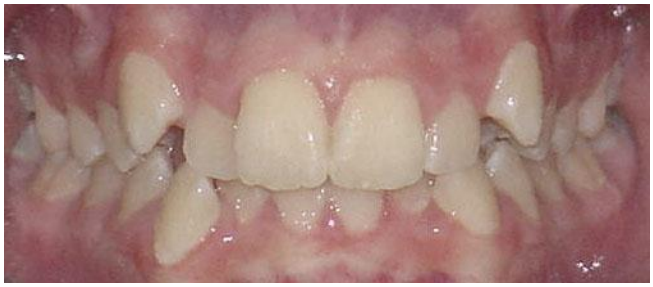
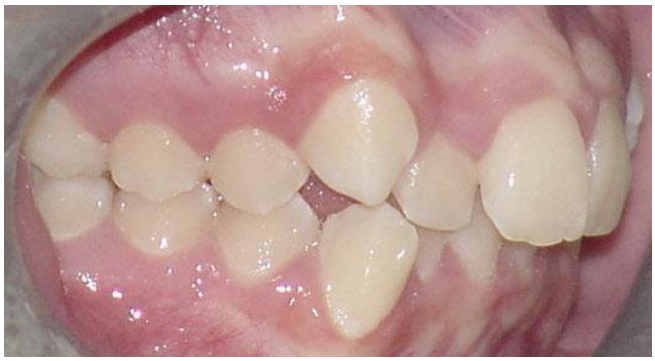
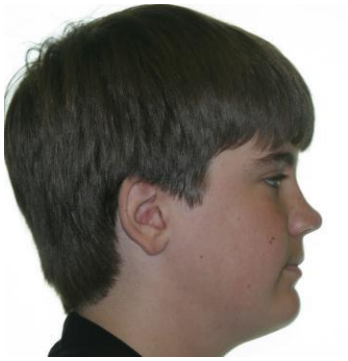
Crowding with Narrow Maxilla, RPE and Non-extraction Braces

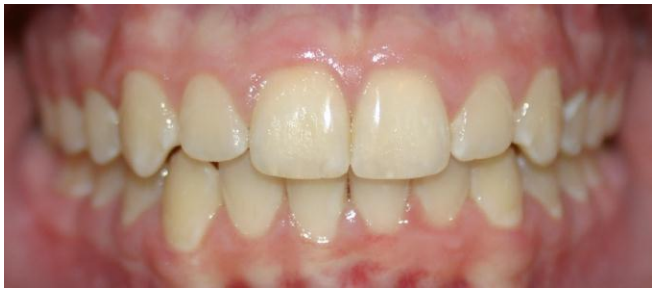


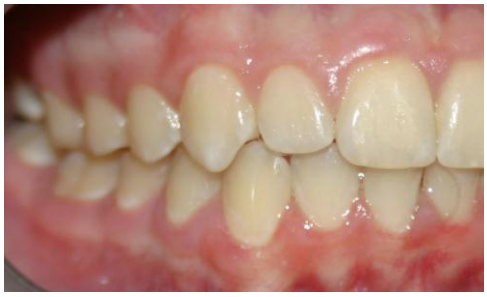




This 12 year old presented with crowding secondary to a narrow upper jaw with insufficient space for upper Canines and constriction to the lower dental arch. Note the Class II canines with deepbite. Expansion and braces were planned to restore function and open space.







Now at age 14, we have expanded the upper jaw with a Bonded RPE (expander) to correct the buccal overjet andre-open space for the previously blocked canines. Full braces were then employed to align and coordinate the dental arches. Note the broader smile back to the molarsas well as the now Class I canines with ideal occlusion. an added improvement is seen in the patient's profile.

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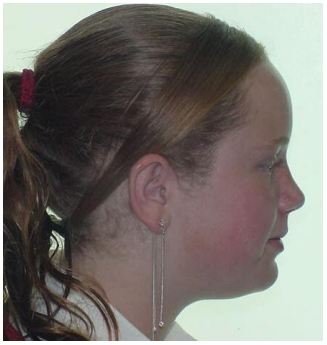
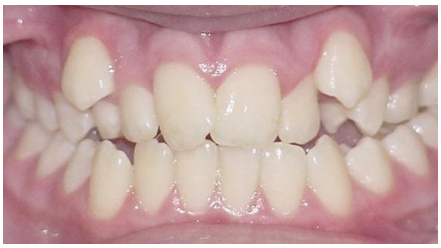
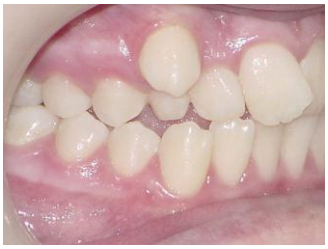
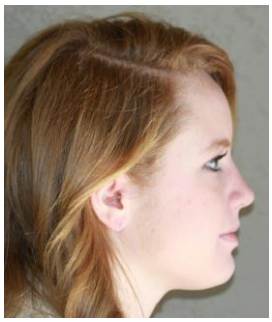
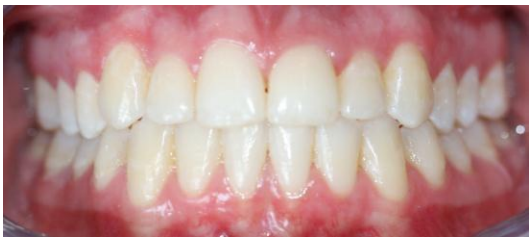
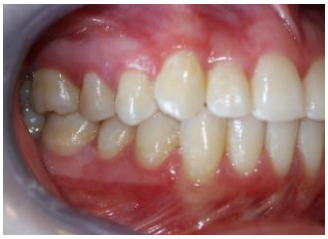
Severe Crowding; RPE and Braces (non-extraction)

12y 5mo Initial Photos revealing an underdeveloped maxilla with full crossbite and severe crowding including blocked out upper cuspids and an end-on incisor occlusion.

An expander was employed to widen this young lady's upper jaw which made room for the upper teeth and allowed for ideal alignment and arch coordination with full braces. No adult teeth had to be removed.

Now at **18y 0mo, a full 4 years after braces** were removed, one can appreciate the stability from the initial expansion which changed the skeletal base or foundation prior to the basic alignment of teeth. Without expansion, permanent teeth would have had to be removed and the smile would be less full with a lack of lip support.

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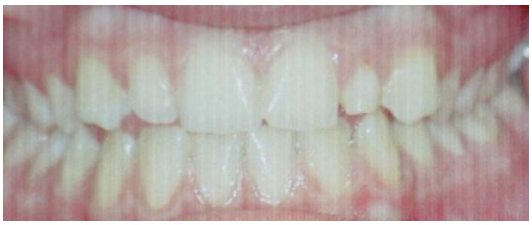
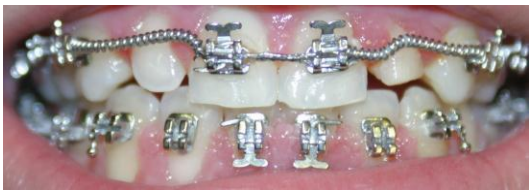
Missing lateral incisor, retained Primary lateral, Implant to replace missing upper left lateral incisor.

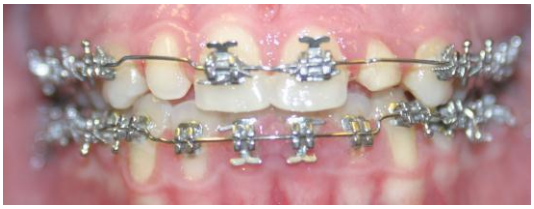
13y 7mo with missing upper left lateral incisor (retained baby tooth) and small upper right lateral incisor. Class III occlusion with edge to edge incisal occlusion.



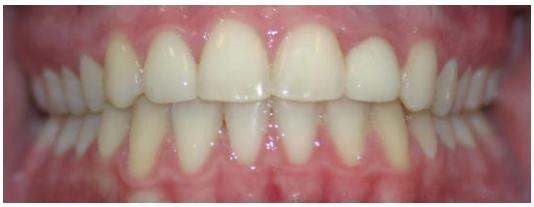
14y 6mo with braces, lower teeth have been pulled back and space opened around the upper left baby tooth as well as a matching space around her upper right small incisor.



At 15, we have re-shaped incisal edges and finished opening all space for an implant (to replace the baby tooth) and a veneer (to balance the size of the smaller right lateral incisor on the opposite side).



Following braces, the patient was retained until ready for an implant; the implant was then placed along with a veneer on the opposing small incisor. These pictures were taken at 18y 3mo, 12months after the implant.



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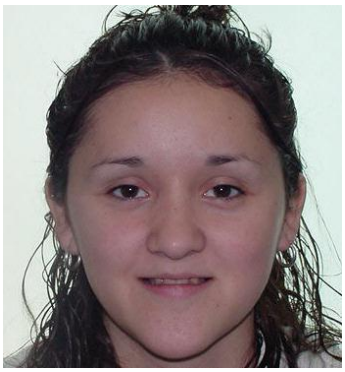
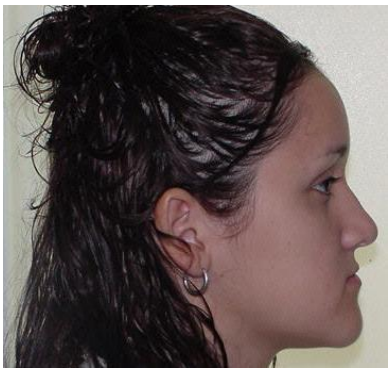
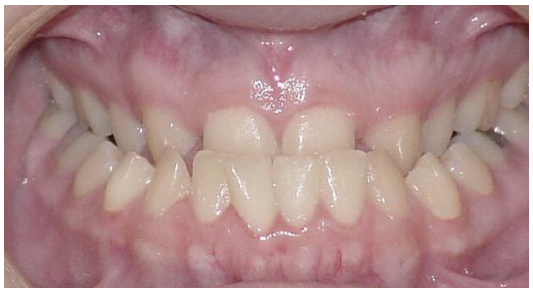
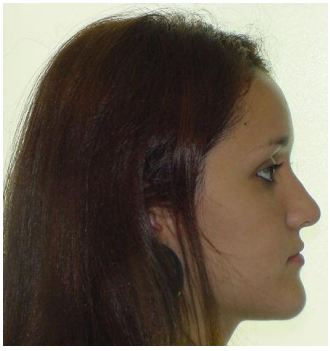
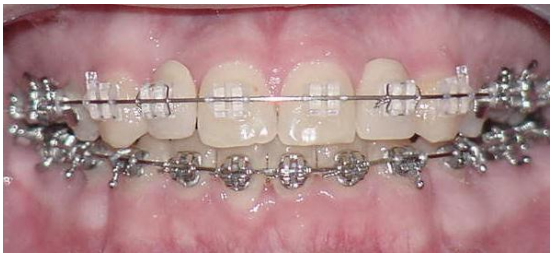
Severe Underbite with Missing Lateral Incisors and Upper Premolars

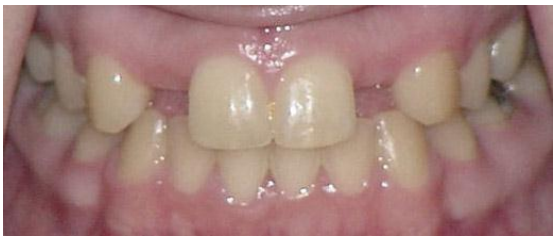
Lower 1st bicuspids were removed to balance her already missing upper 2nd bicuspids. Additionally, this young lady was born without upper lateral incisors which were planned for implant replacement.

Here, following expansion and space closure in the lower arch, space is now being opened for replacement teeth in the upper arch. Note that we have "jumped" the bite by pulling the lower front teeth back into the lower extraction spaces.

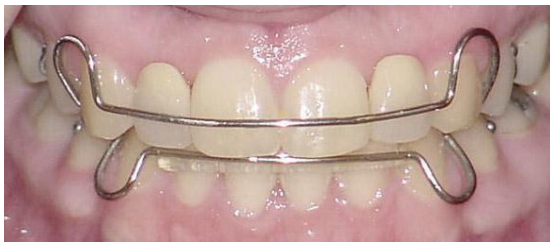
26 months into treatment, we have enough space to place false teeth into the spaces. The correction is all but complete pending implants from her general dentist.

26 months into Braces



At removal appointment ready for implants



Finish with retainers (including false teeth)

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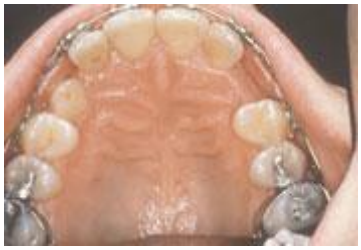
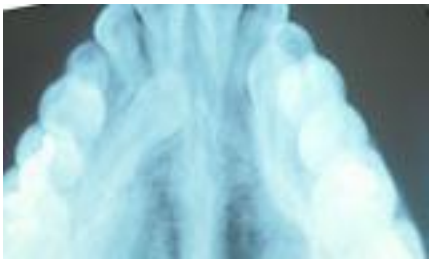
Impacted Canine Treated with Surgical Exposure and Forced Eruption

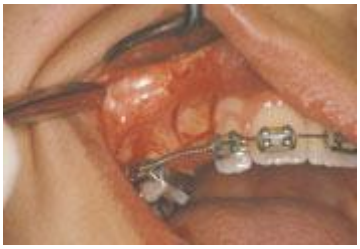
Impacted canine teeth are not completely uncommon in developing dentitions. The cause can be a retained baby tooth, a poorly angulated tooth bud, an under-developed upper jaw, and/or severe crowding of the erupted permanent teeth. Unfortunately, leaving impacted teeth under the erupted teeth can cause significant damage to adjacent roots. Furthermore, as the impacted tooth develops, it can grow such that there is no way to have it exposed and aligned; in these cases it must be removed altogether. Of course this means that impacted canines should be exposed and aligned as soon as identified by your Dentist or Orthodontist. In many cases, removal of a stubborn baby tooth can by itself spur the natural eruption of the would-be impacted canine.

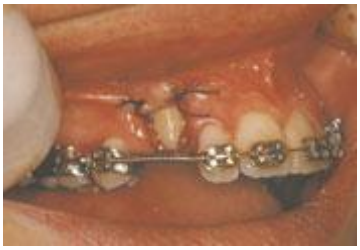
In the 13 year old patient below, there was significant root development of the impacted canine which pushed the tooth too far forward for natural eruption. The cause of the impaction is most likely a poorly positioned tooth bud (permanent canine); note the upper left canine has yet to erupt as well but it is good position).

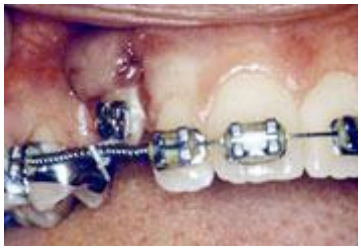


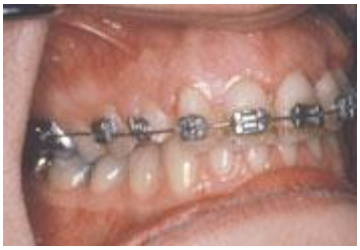


Once this patient was placed in full braces, he was sent to an Oral Surgeon for exposure of the impacted canine. At the same time, a bracket was placed and the gum level lowered around the impacted canine. Once exposed with a bracket, forces were placed on the impacted tooth to cause eruption in the necessary direction to achieve ideal alignment. Once aligned, the tooth will function normally and it will be as if the tooth was never impacted.









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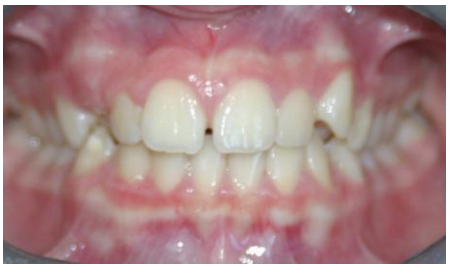
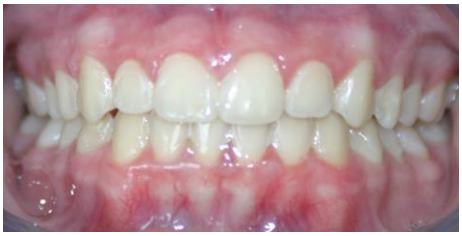
Adolescent Impacted Canine with Narrow Maxilla

10y 5mo female presented due to an impactedupper right canine which was blocked out of the dental arch due to a narrow (small) upperjaw along with the eruption of the adjacent teeth taking up all space before the canine could erupt. Note the back teeth all in a longshadow due to the narrow arch.



We began treatment by placing a bonded RPE (expander) to widen her upper jaw due to the narrow buccal segments constricting the lower arch and causing a space deficiency in the upper arch for the right canine. Full braces were placed following active expansion and used to align both arches while coordinating the space from the expansion over the impacted canine. As the canine began to erupt, it was bonded and guided into place while the arches were coordinated to their full ideal relationship.

Now at 12y 10mo, 3months after the braces were removed, you can see that the upper right canine is fully erupted and aligned. Note also the positive effect of the expansion as we can see all of the posterior teeth along her new broad smile. Because a bonded expander was used to actually make the upper jaw wider, the correction will remain stable.



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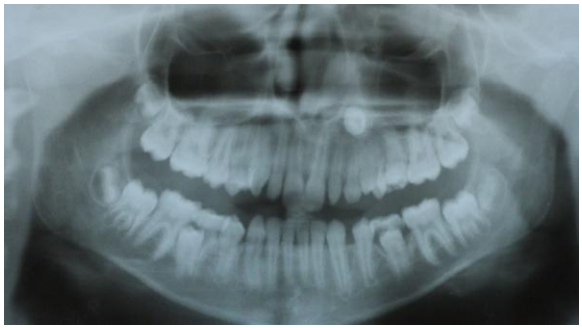
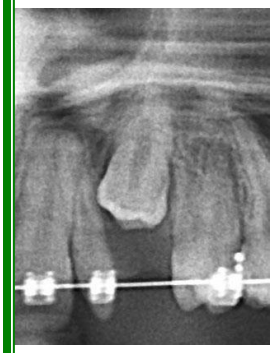
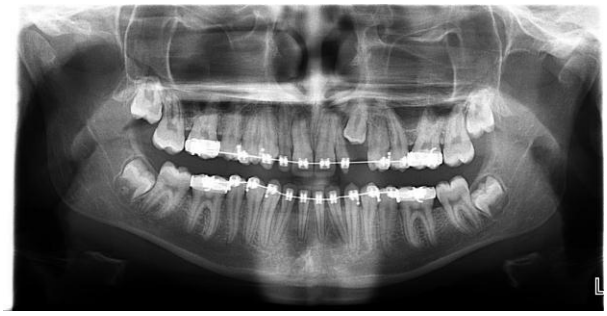
Severely Impacted Canine

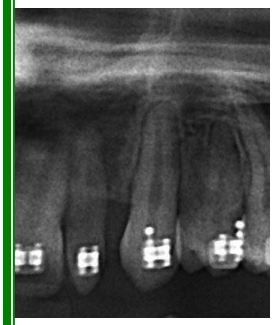
This impacted cuspid is resting along the floor of the nasal cavity and sits horizontal directed buccally (it is growing straight out toward the cheek). The adjacent lateral incisor is a “peg lateral” and the primary cuspid remains with a full root. The plan is to expose the impacted cuspid without removing the primary tooth yet.



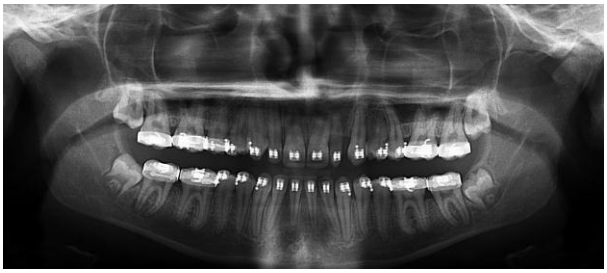


After 12 months, we have pulled the impacted cuspid down more than 50% but the chain has come off. We were successful moving adjacent roots away to assist and have now removed the primary cuspid. I have to now refer back to re-attach a chain to the impacted cuspid so that I can continue pulling it down into place.





Another 12months and the cuspid has reached the plane of occlusion. We are now working to swing the adjacent roots back into place while we finish the remaining alignment. Although a long treatment process of 36mo, we have prevented an implant and provided a well needed correction. The adjacent “peg” lateral will now be built up to a normal size.



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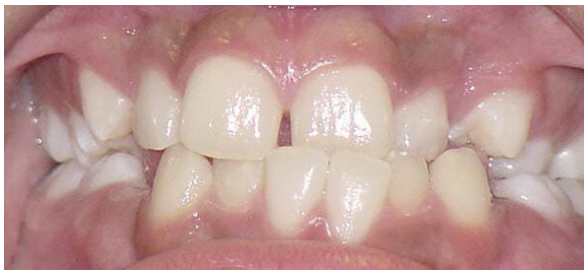
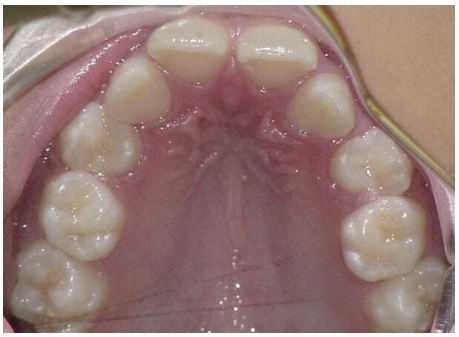
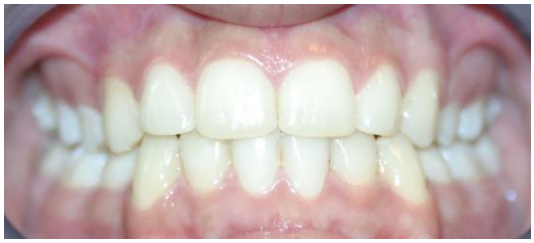
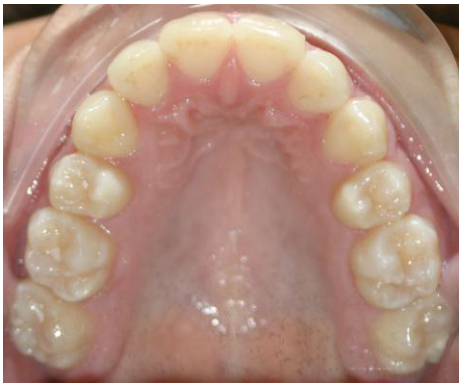
Severe Crowding with Impacted Cuspids

Initial photos show severe crowding with completely blocked out and impacted upper canines and a full underbite with crossbite.

12 months following braces (including surgery to expose upper canines & force eruptions). Note all four 1st bicuspids were removed to make room for the canines. Note also the upper jaw was pulled forward out of crossbite with expansion and protraction headgear.

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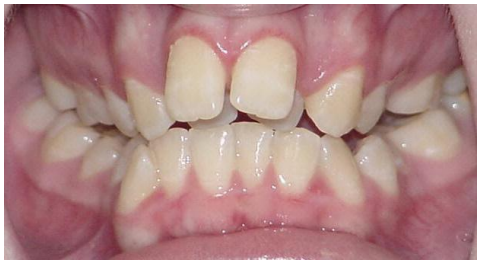
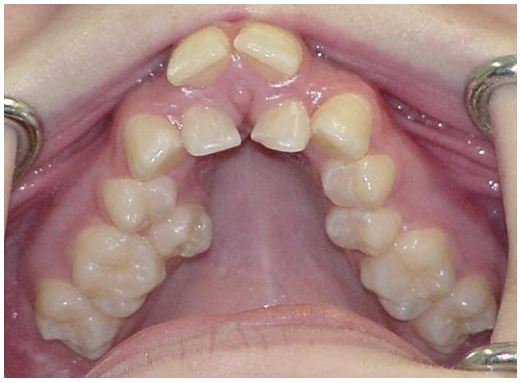
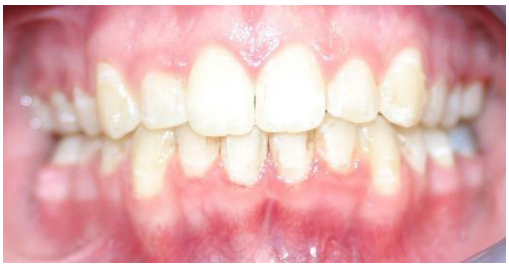
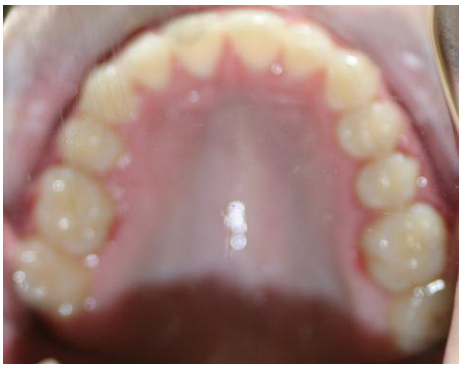
Maxillary Hypoplasia, RPE and Unilateral Extraction

This **15 year old** patient presents after years of mouth-breathing; note the extremely narrow upper jaw from years of muscle constriction with no support from the tongue (which remained low at all times). Note also the upper right bicuspid in the palate and the upper lateral incisors behind the central incisors.

Now following 6mo of palatal expansion, removal of the upper right 2nd bicuspid and alignment of the upper arch we see a finished occlusion with ideal overjet and overbite and a normal arch form. **Total treatment time was 26 months**. Retention will be very important and life-long due to the late start we had (age 15).

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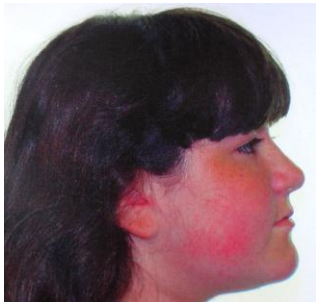
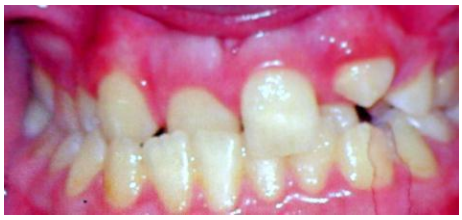
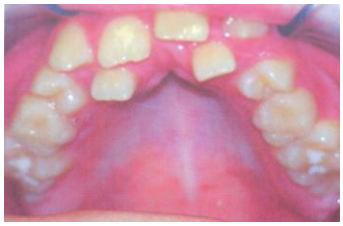
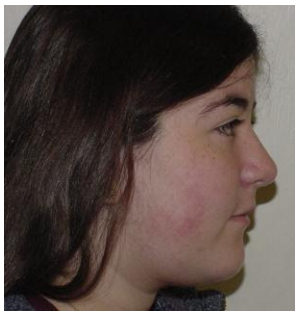
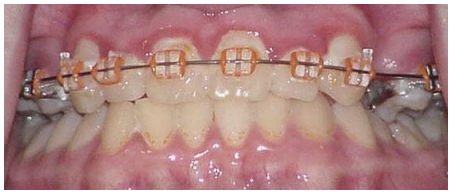
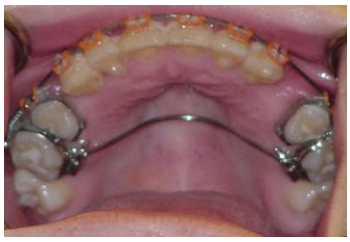
Severe Crowding with Class III Underbite

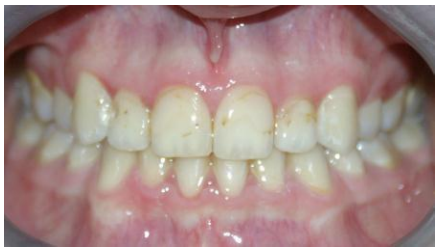
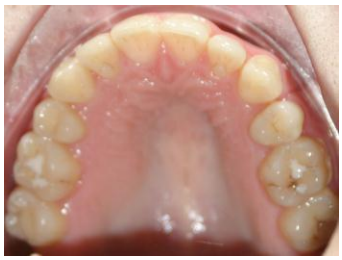





Initial Photos showing severe crowding, multiple blocked & impacted teeth with underbite.

Following Protraction & Expansion, but prior to removal of bicuspids (awaiting growth).



3 years after braces removed, note all four 1st bicuspids were removed and the spaces remain closed with a stable occlusion, ideal overjet and ideal overbite. Note the natural angulation of the incisors.

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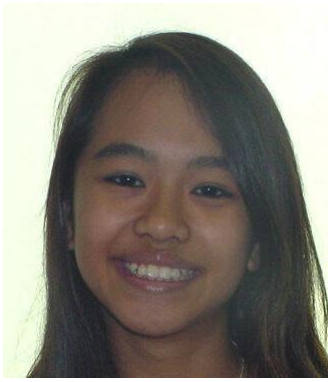
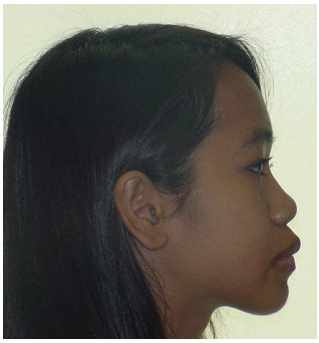
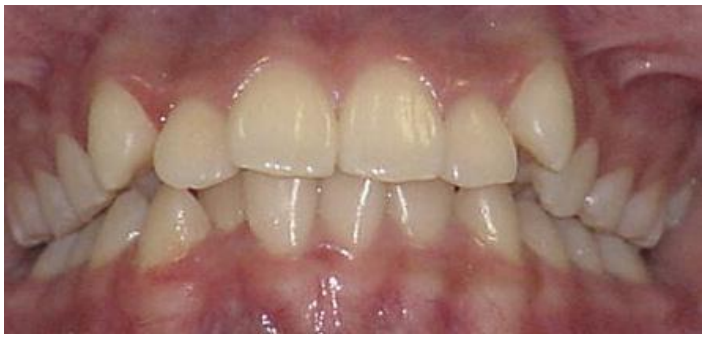
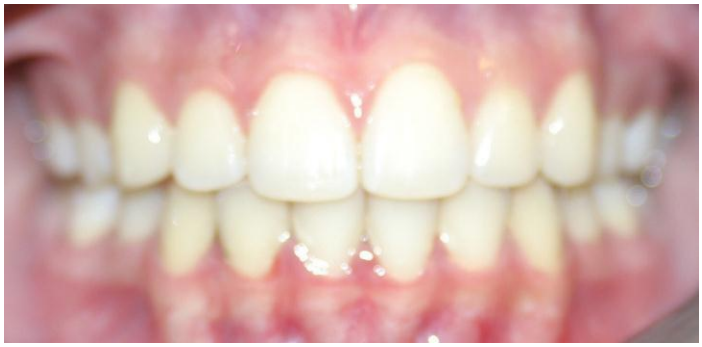
Severe Dental and Facial Protrusion, Treated with Braces and 4-Bicuspid Extraction

13y 3mo Patient presents with severe crowding and a protruded upper lip.





16y 2mo One year following removal of braces which included removal of all four 1st bicuspids and retraction or pulling back of all front teeth to reduce protrusion. Of course the teeth look beautiful now that they are aligned however the bigger change is in the patient's profile.

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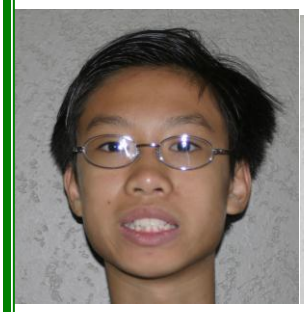
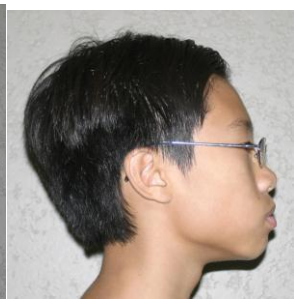
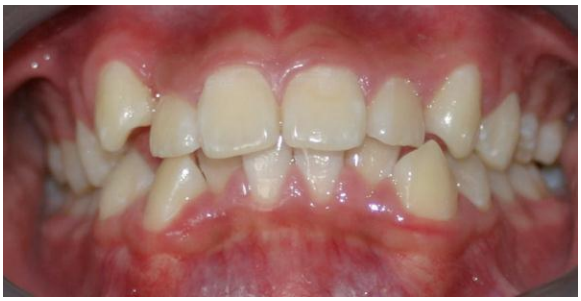
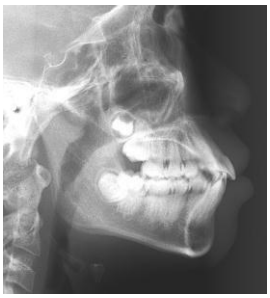
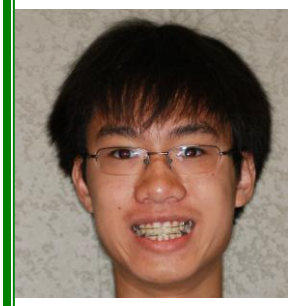
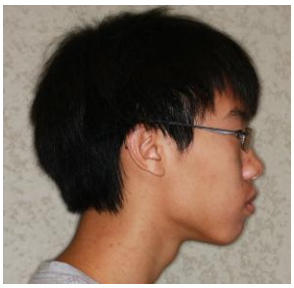
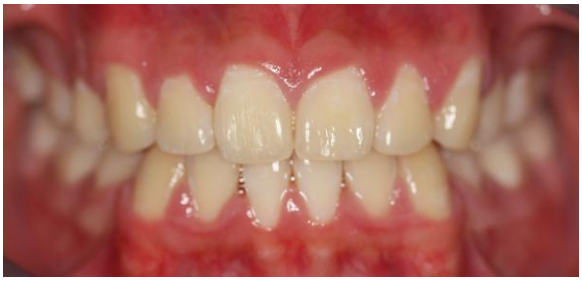
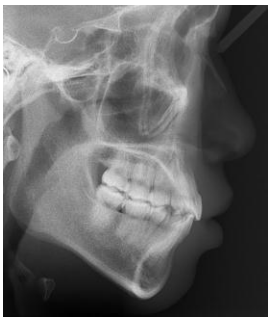
Class III with Severe Crowding, Extraction Case

12y 2mo male Initial photos showing the severity of crowding and dental protrusion affecting the patient's profile; braces were planned with removal of all 1st bicuspids.

15y 0mo Photos taken 6mo following removal of braces. Alignment has been corrected following removal of bicuspids; note all spaces have been closed and remain closed. X-Rays illustrate the reduction of dental protrusion and the improvements made to his profile.

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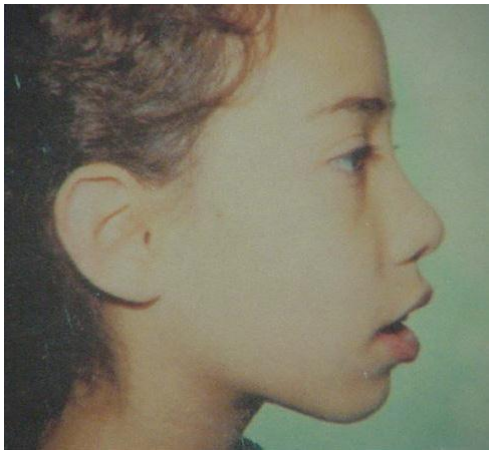
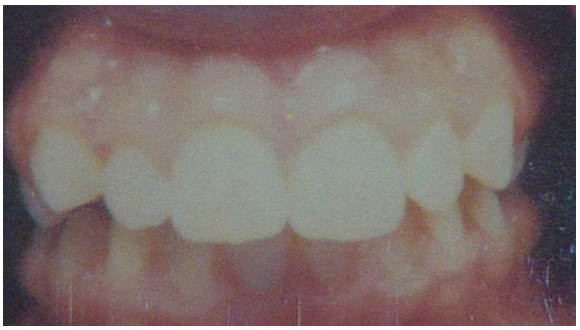
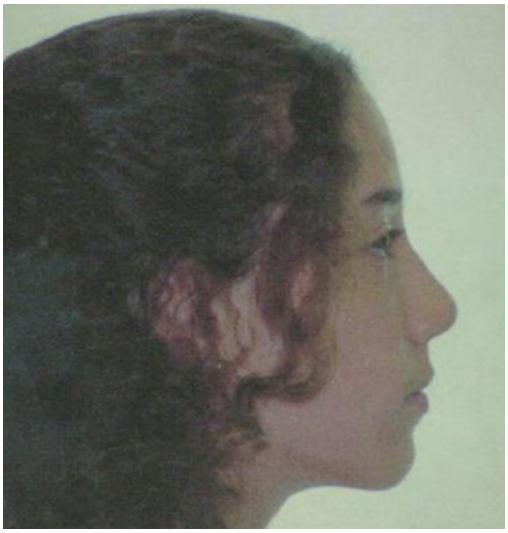
Open Lip Posture and Excessive Overjet Treated with 4-Bicuspid Extractions





This **11y 4mo female** patient presented with excessive overjet and upper teeth pushed forward from the upperjaw bone. Note the "open lip posture" at rest, in other words, see how she cannot close her lips without significant effort.



All four 1st bicuspids were removed and the upper teeth were pulled back over the center of the bone to matchthe position of the lower teeth. Overjet was corrected. More importantly, note the facial profile at rest. The patient now has a relaxed, closed bite upon resting. All space was closed from the extractions. Although the lower photograph is canted, there was no cant in the patient's smile. **Treatment time was 22 months**.

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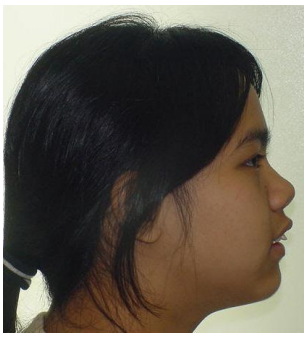
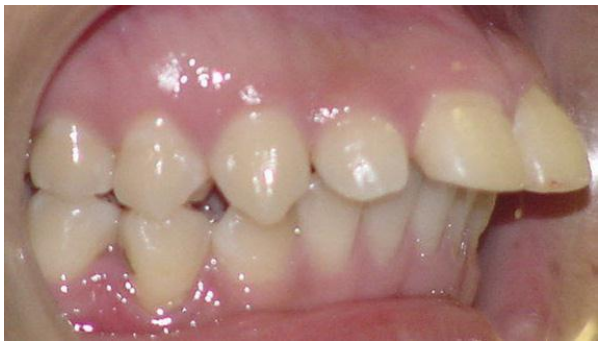
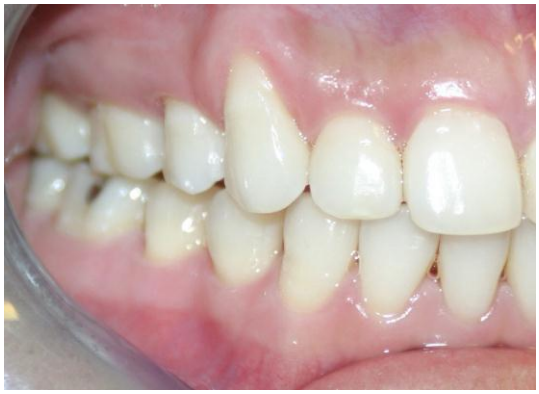
Class II Severe Protrusion, Braces and 2 bicuspid Extraction

17y 6mo Initial Photos showing severe dental protrusion with Class II end-on occlusion. Treatment planned for full braces including removal of upper 1st bicuspids and retraction of upper front teeth to reduce overjet.

21y 5mo A full 2 years after braces revealing stable Class I occlusion with ideal overjet and overbite remaining. Note also the extraction space remains closed and occlusion has settled. The patient's profile is measurably improved as well.

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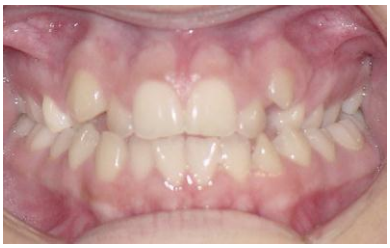
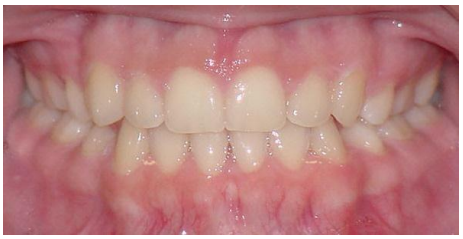
Class III Severe Crowding Corrected with Bicuspid Extraction Therapy

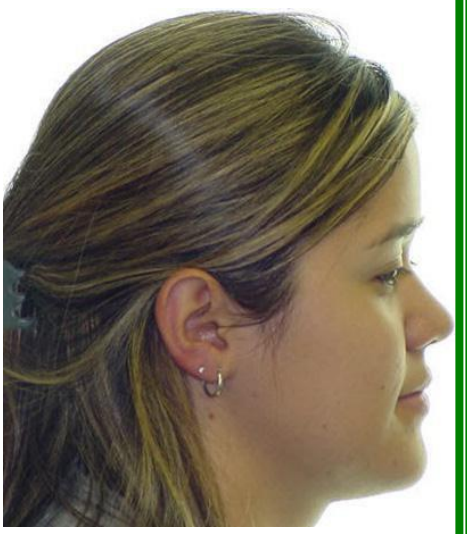


This **17 year old** presented with a small upper jaw and forward lower jaw (Class III) which was wider than her upper (crossbite).Severe crowding from the small upper jaw blocked the eruption of both upper canines.

All four 1st bicuspids were removed and **braces were used for 22 months.** The extractions were necessary from the upper arch to balance the collective size of the teeth v. the size of her upper jaw while an expander was used to widen her upper jaw; teeth were removed inher lower jaw in order to create space to pull back her front teeth under her top teeth.



Upper canines were pulled back into alignment following the removal of the bicuspids while the lower front teeth were all shifted back behind the upper teeth to provide ideal overjet & overbite. Note the new arches fit together front to back while the upper teeth no longer lean.



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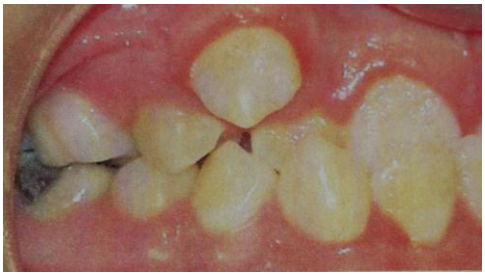
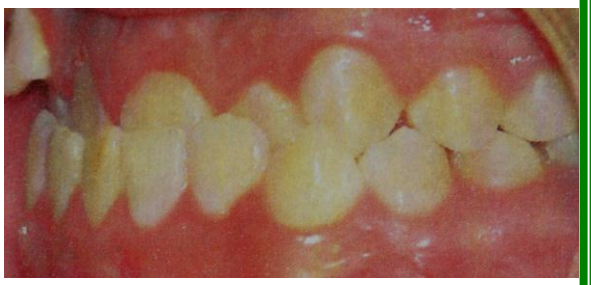
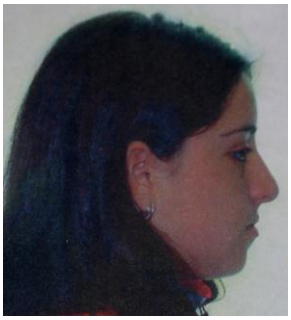
Underbite with Severe Crowding, Expansion (RPE) with Braces and 4-bicuspid Extraction

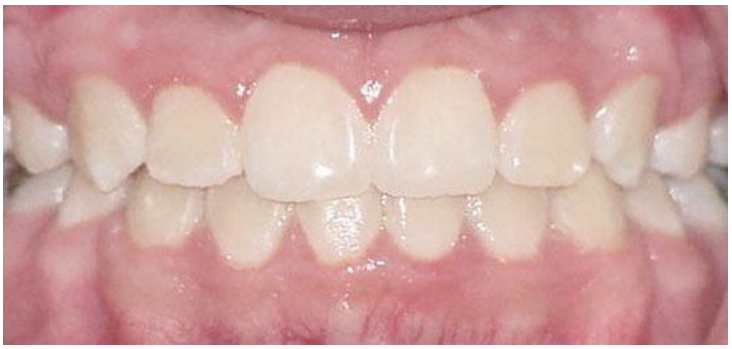


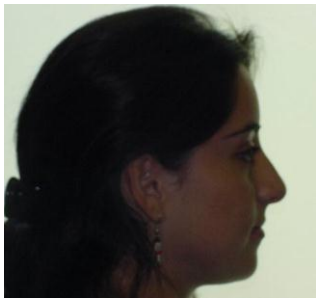


This 13 year old presented with a full underbite and severe crowding with a completely blocked out upper right cuspid.



Treatment involved expansion of her upper arch along with limited headgear to help improve the upper lip support. Full braces were added to start alignment and all four 1st bicuspids were removed to make space forthe remaining teeth. Extraction space was closed as lower incisors were pulled back under the upper teeth.





Now, **2 years after removal of braces at age 17,** you can see the bite remains corrected with all space closed from the previous extractions.

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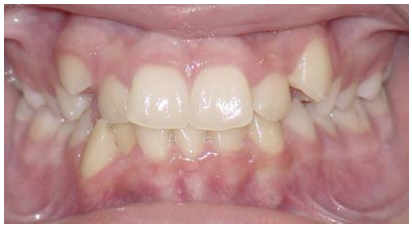
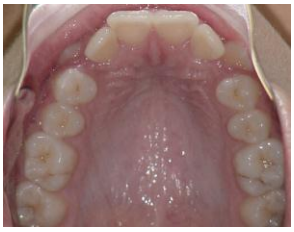
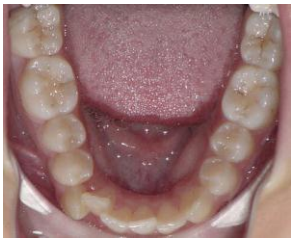
Severe Crowding Corrected with Bicuspid Extraction Therapy

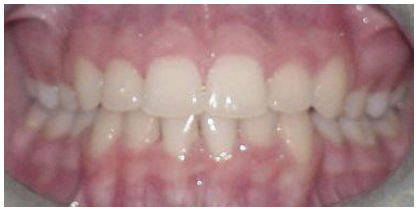


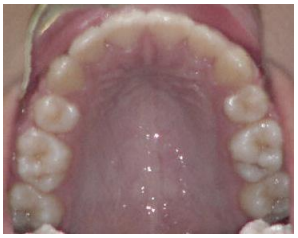


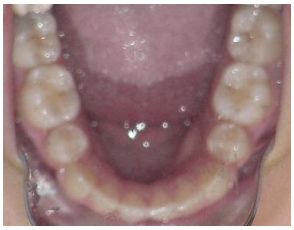


This 12 year old presented with severe crowding which blocked the eruption of both her upper canines and lower right canine. Her lower midline is off nearly an entire tooth to her right side.

All four 1st bicuspids were removed and braces were used for 24 months. The extractions were necessary to balance the collective size of the teeth v. the size of the jaw bones.







All space was closed following removal of the bicuspids while all canine were brought back into the respective arches. The lower midline was corrected and a stable arch form was established. These follow-up pictures were taken 12mo post-orthodontic treatment.

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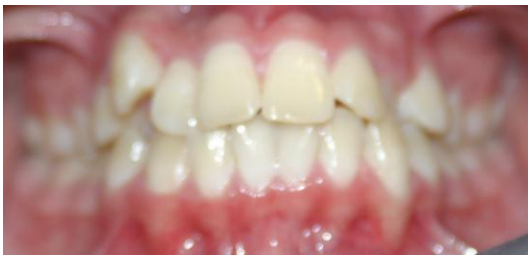
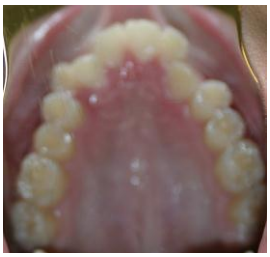
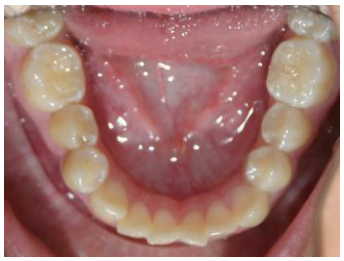
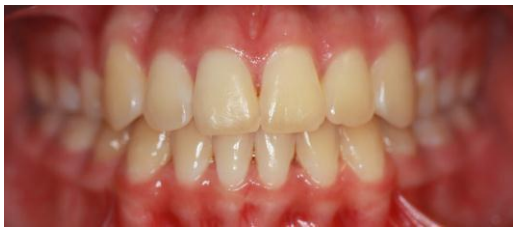
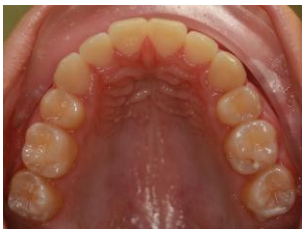
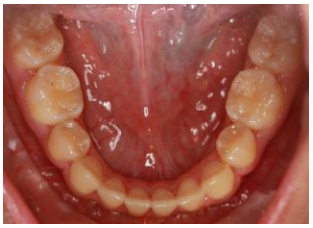
Severe Crowding with Crossbite

Full Braces with RPE and 4 bicuspid extractions

13y 9mo Initial Photos showing severe crowding with ectopic eruption (palatal and buccal) of upper cuspids as well as a narrow maxilla.

16y 3mo Photos taken 3 months after removal of braces. Note all extraction spaces remain closed and the upper cuspids were brought back into the upper arch. A rapid palatal expander (RPE) was initially used to widen the maxilla allowing for ideal buccal occlusion. Without extractions, the teeth would be leaning outward causing recession and eventual relapse.

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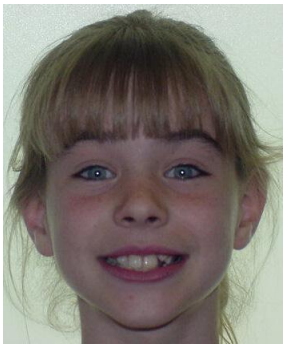
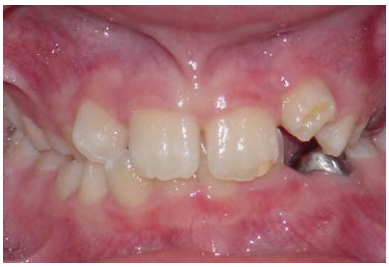
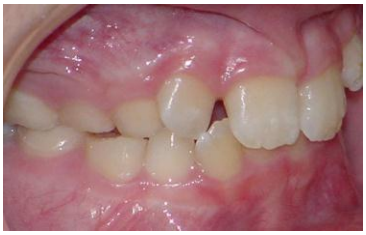
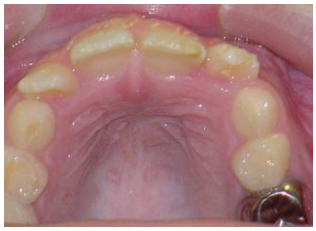
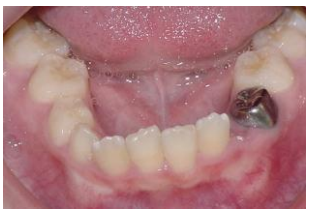
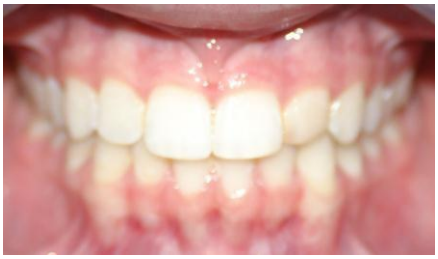
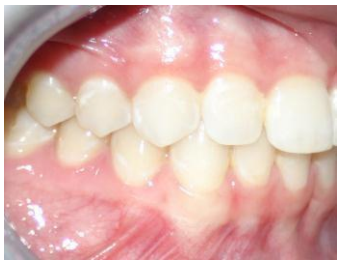
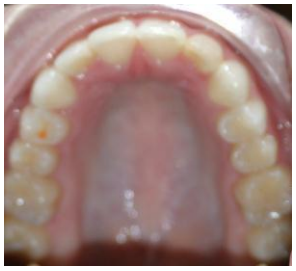
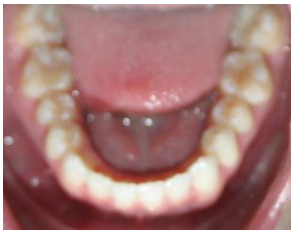
Adolescent with Posterior Crossbite, Crowding and Canted Occlusion with Irregular Incisal Edges

This **10 year old** presented with a posterior crossbite, deepbite and severe crowding with a canted lower occlusal plane and no room for canines.

A bonded RPE (expander) was used to correct the posterior crossbite by widening the patient's maxilla. This increased the circumference which opened space for the upper canines and reduced constriction to the lower teeth. Full braces were added following eruption of teeth and the occlusal plane leveled. Overjet and overbite were corrected to ideal and arches were coordinated.

Finally**, 2 years after removal of braces**, the pictures below reveal the stability of the overall correction including a beautiful wide smile with ideal interdigitation of teeth. I also re-shaped the irregular edges for esthetics.

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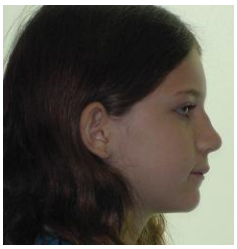
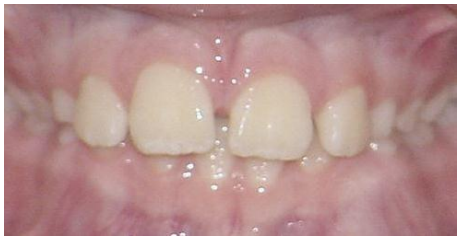
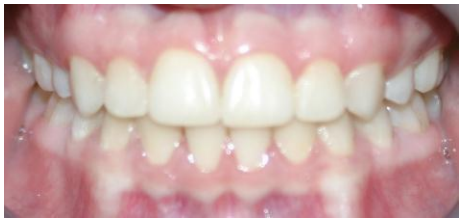
Class II Phase Treatment with Braces and 4-bi Extractions

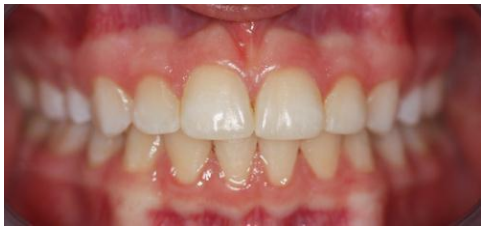
9y 6mo Initial Photos, note the lower jaw position and narrow buccal corridors with deepbite.





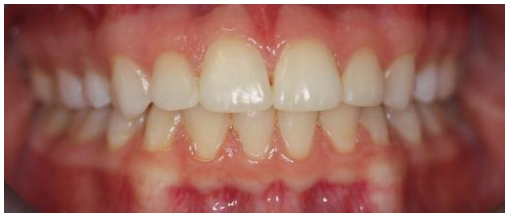
14y 5mo 6mo Post-Treatment; following early Phase I expansion then full braces with removal of 1st bicuspids.





15y 6mo 18mo after removal of braces, note the stable lower jaw position and stability of her full smile.





16y 6mo At 2 ½ years post-braces, Note the stability of space closure and the solid Class I occlusion.

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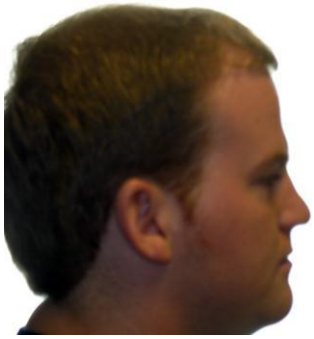
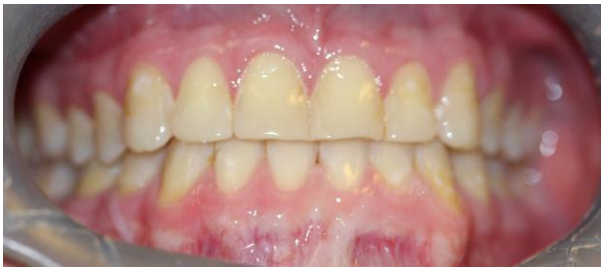
Class III Underbite Corrected with Extractions

(Typical Malocclusion with Down's Syndrome)



17y 0mo Initial Photos showing complete underbite (note how the upper arch is not visible).

24y 0mo Photos taken a full ***4 years after removal of braces***. Note the spaces remain closed from the extraction of lower 1st bicuspids and the underbite has remained corrected without additional wear to the edges. No surgery was required.

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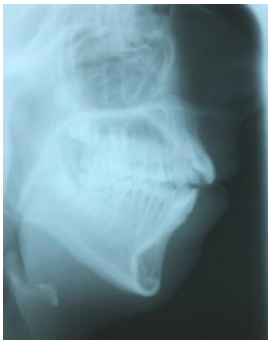
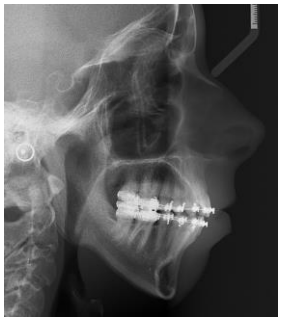
Surgery Case (Marfan's Syndrome)

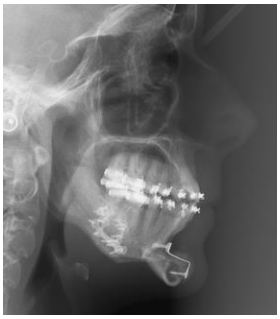
Severe Class II with Mandibular Retrusion and Openbite treated with braces and Chin Advancement only

Initial Photos **16y 0mo**. Note severe mandibular retrusion, narrow maxilla & anterior openbite.

Now 12 months later at **17y 0mo**, patient is ready for surgery. The decision was made to expedite treatment by advancing the chin as well as rotating the body of the mandible; the more ideal treatment would have been to remove two lower teeth, retract lower incisors to create excessive overjet then advance the entire mandible forward; but chin advancement saved 12mo.

Photos taken **18y 0mo**, surgery was completed and the braces removed. Profile was greatly enhanced from the chin advancement and the bite was closed. Fixed screws placed at surgeryprovide stability.

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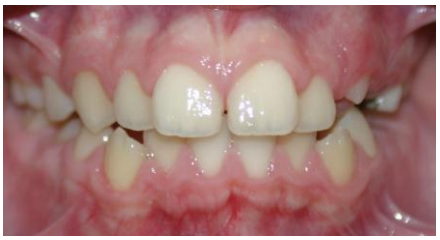
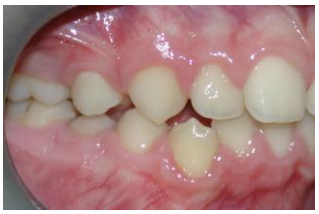
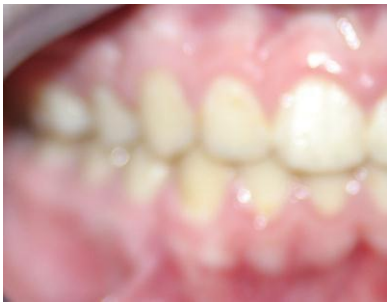
Unilateral Bicuspid Extraction from Ectopic Molar Eruption

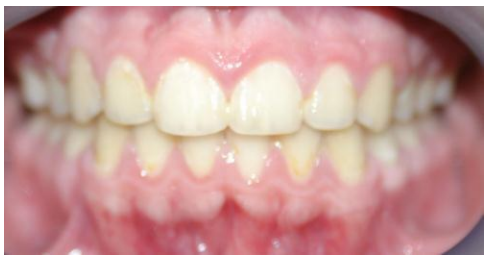
This **11y6mo young man** presented with anupper right molar that erupted forward, blocking the eruption of the adjacent 2nd bicuspid. Instead of working to open space for the blocked out bicuspid, we decided to remove the bicuspid and close remaining space by dragging the molar the rest of the way forward. Note the initial poor inter-cuspation on the patient's right side

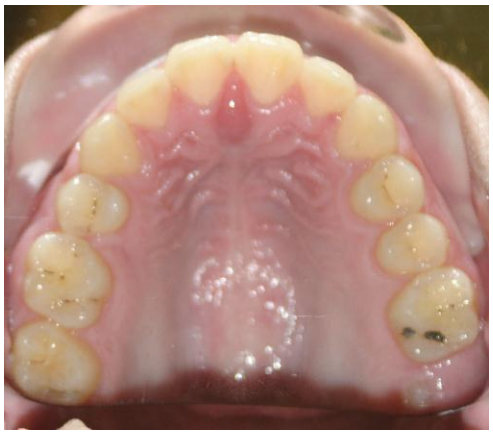




Now at age 14, one year following deband. Note we have removed the upper right 2nd bicuspid and brought his upper right molars forward into ideal occlusion. Also note that through careful manipulation of forces we were able to maintain the midlines to each other and the face while holding space closed. On the occlusal view, you can see one bicuspid on the patient's right and two on the patient's left however in the frontal and even side views, you would be hard-pressed to realize there was a tooth removed.







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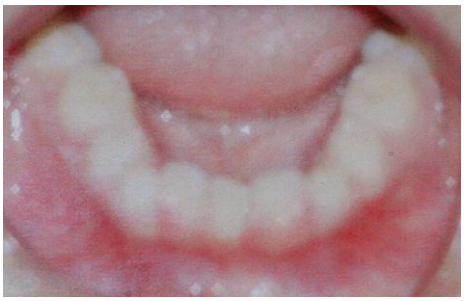
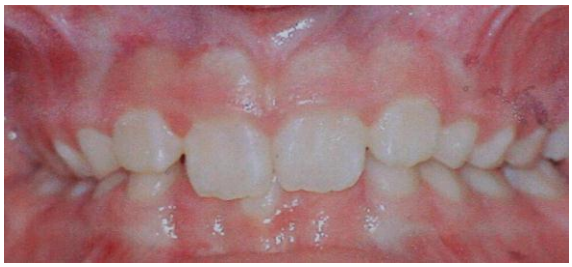
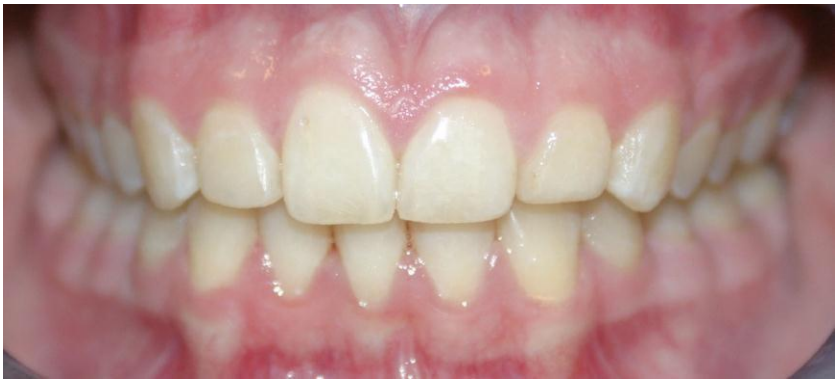
Early Treatment of Congenitally Missing Lower Incisor





This **10 year old young lady** was born missing a lower incisor. This causes a discrepancy in arch forms between upper and lower teeth as the lower arch is now 5 to 6mm smaller. Above, you can see the deepbite created fromthe now smaller lower arch. Front incisors folded back as well.



Now after early intervention with limited braces, we have finished the Phase II full braces and the same young lady is back 12months following removal. Note the deepbite has been resolved and upper incisors aligned.

Occlusion was restored to ideal, despite the missing tooth, by reshaping between upper teeth to make up for missing lower tooth structure. One would be hard-pressed to detect the missing tooth now.

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