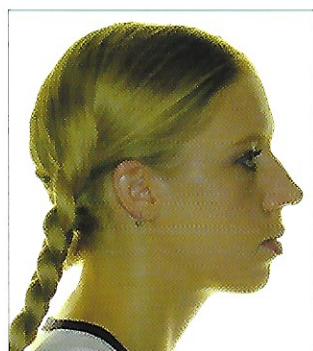


PRE-TREATMENT

How would you treat this malocclusion?

Case V.W. 23 years, 8 months



PROFILE



FRONTAL RELAXED



FRONTAL SMILING

PRE-TREATMENT
FACIAL PHOTOS



RIGHT BUCCAL



FRONTAL



LEFT BUCCAL

HISTORY

This 23-year-old female presents with a chief complaint of "I can't get my front teeth to touch," and "When I smile I can't stand to see my new crown placed in the upper left sticking out." The medical history was non-contributory and she has a history of routine visits to the dentist, including a recent crown placed on #14 and a composite on the disto-incisal of #8. A clinical TMJ evaluation displayed normal range of movement, no pain, and no popping or clicking. The patient appears to have low tongue posture but a tongue thrust on swallowing was not noted. The patient visited our office for a second opinion and was very motivated to begin treatment. The first orthodontist she visited recommended four bicuspid extraction.

EXTRAORAL FINDINGS

On the frontal facial photo, the patient appears symmetric, with full lips and 2mm interlabial gap at rest. On smiling, the patient displays 80% of her maxillary incisors and has a narrow maxillary arch with prominent buccal corridors. Her

smile is slightly asymmetric with more dental display on the left side due to increased lip activity. On the lateral photo, she displays a convex profile and a long lower face height with strong chin projection.

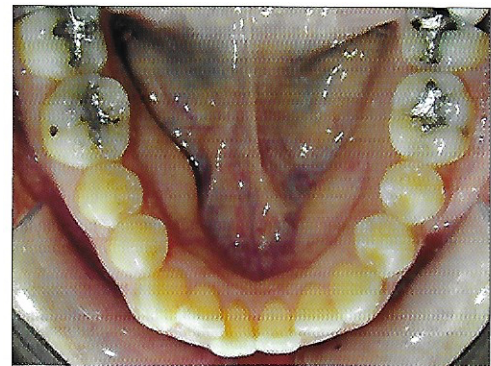
INTRAORAL FINDINGS

The patient presents in the permanent dentition with fully erupted third molars. Her maxillary midline is on with the mid-sagittal plane and is coincident with the lower midline. The maxillary arch is "V" shaped and irregular. There is 4-5mm of arch length discrepancy. The mandibular arch is "U" shaped and symmetric. There is 2-3mm of arch length discrepancy. There is a 2mm anterior openbite from canine to canine, with the openbite slightly smaller near the right canine and slightly greater at the left canine. She has unilateral left posterior crossbite and 1mm overjet. On the right side she is one-quarter cusp Class III canine and molar. On the left side she is Class I canine and molar. Clinically, centric relation and centric occlusion appeared coincident.

CASE REPORT



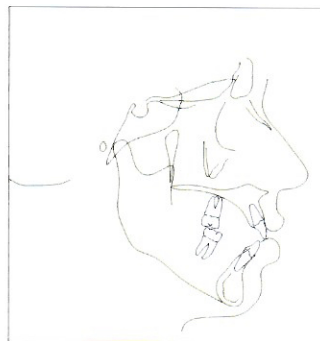
MAXILLARY OCCLUSAL



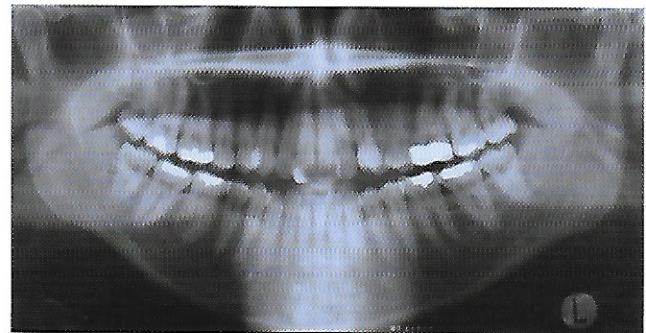
MANDIBULAR OCCLUSAL



LATERAL CEPH



LATERAL CEPH TRACING



PRE-TREATMENT PANOREX

RADIOGRAPHIC FINDINGS

Cephalometric evaluation reveals a slightly increased sagittal jaw relationship due to mild mandibular retrognathia. A hyperdivergent skeletal pattern is noted with a steep mandibular plane angle and normal inclination of the upper and lower incisors.

The panoramic radiograph reveals general symmetry of the right and left condyles and mandible. The sinuses were clear and no pathology was noted. The patient has a history of restorative care and fully erupted upper and lower third molars.

TREATMENT OPTIONS

1. Extraction of all four 1st bicuspid followed by full fixed appliances upper and lower second molar to second molar and placement of a transpalatal bar to control vertical relationship and broaden the maxillary arch. Close space with class III and anterior elastics.
2. Non-extraction with placement of full fixed appliances, followed by a two-piece maxillary Le Fort I osteotomy with posterior impaction and expansion.
3. Non-extraction with full fixed appliances, posterior cross-elastics and anterior triangle elastics as needed.

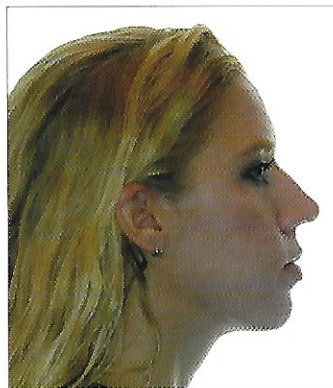


	PRE-TX	MEAN
SNA	88.0	82
SNB	81.7	80
ANB	6.3	2
MP-SN	38.3	33
U1-NA	16.1	22
U1-NAmm	4.0	4mm
LI-NBmm	8.9	4mm
LI-NB	34.2	30
LI-MP	95.1	90

For Post-Treatment of Case V.W., see page 40.

POST-TREATMENT

POST-TREATMENT
FACIAL PHOTOS



PROFILE



FRONTAL RELAXED



SMILING

How would you treat this malocclusion?

CASE: V.W. 25 years, 0 months

TREATMENT PLAN

The treatment option of non-extraction with posterior cross-elastics and anterior triangle elastics was chosen. In this case, non-extraction therapy was selected to aid in the development and expansion of the narrow maxillary arch. This plan was contingent on excellent elastic compliance from a highly motivated patient. Posterior edge-to-edge cusp contact appeared to be contributing to the openbite and arch coordination would be used to decrease the anterior openbite by improved posterior interdigitation. Orthognathic correction was not needed due to excellent elastic compliance.

The case was bonded with full fixed Damon .022 appliances from second molar to second molar with the

exception of the upper left 1st molar, which was banded. She was referred to an Oral Surgeon for extraction of all four third molars and treatment was initiated with .014 CuNiti wires. After six weeks, hygiene was checked and she received upper and lower .016 CuNiti wires. At her next visit, in eight weeks, it was noted that her upper arch was still narrow in relation to her lower arch, therefore, upper 2nd bicusps and 1st molars had lingual buttons placed and posterior cross elastics (3/16th inch/ 3 oz) were initiated. She was instructed to wear the elastics full time. The following visit, eight weeks later, she was given upper and lower 14 x 25 CuNiti wires and posterior cross elastics were maintained at nights. In six more weeks, she was given an upper 18 x 25 CuNiti wire and a lower 16 x 25 CuNiti wire. Posterior cross elastics were



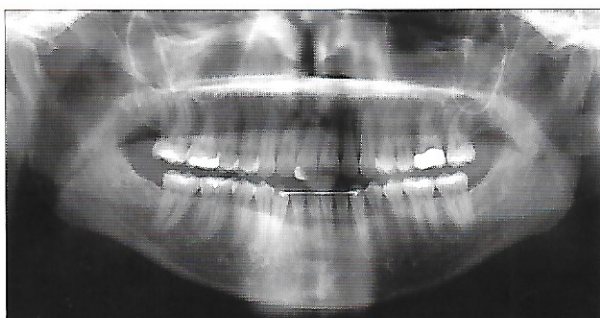
RIGHT BUCCAL



FRONTAL



LEFT BUCCAL



POST-TREATMENT PANOREX



POST-TX LATERAL CEPH



POST-TX LATERAL CEPH TRACING

CASE REPORT

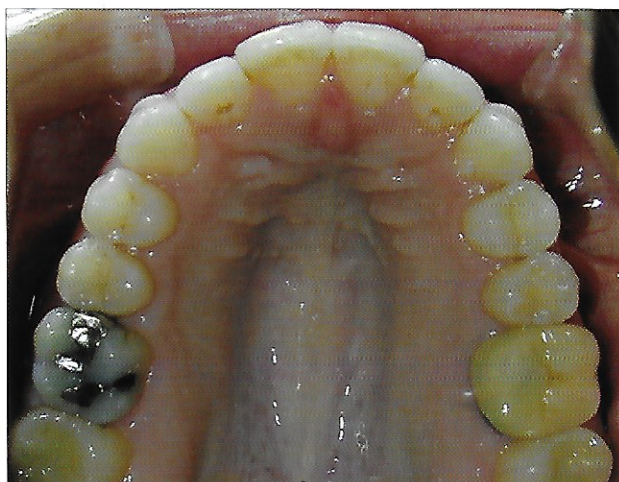
discontinued at this visit and anterior triangle elastics (3/16th inch/ 3 oz) from the upper canines to the lower canine and 1st premolars were started full time. She had a panoramic radiograph taken six weeks later to evaluate bracket positioning and no repositioning of brackets was needed at this time. A 19 x 25 SS posted wire was placed on the maxillary arch and a 16 x 25 SS posted wire was placed on the lower arch. Her triangle elastics were maintained full time. Eight weeks later, tie backs were placed on her maxillary arch from the posts on the upper wire to the upper 1st molars to close mild posterior spacing. Her triangle elastics were maintained full time. Her following visit, eight weeks later, upper and lower 19 x 25 TMA wires were placed and the maxillary and mandibular arches were detailed. At this stage in treatment, the patient informed us that she was accepted at a school in Hawaii and she would be moving in the next month.

Since she had only been in treatment for one year and we were concerned about relapse, we had the patient maintain her full fixed appliances for three months

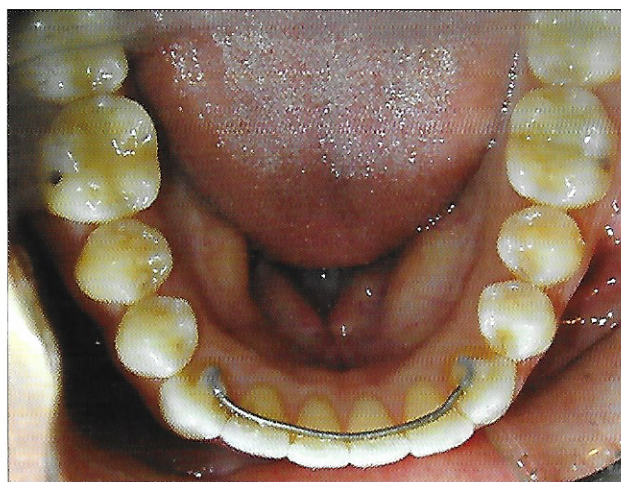
until her next trip back from Hawaii. She was instructed to return to the office at her first vacation for retainer impressions, including a bonded lower canine-to-canine retainer (.027 TMA wire only bonded at the canines) and an upper circumferential retainer, followed by braces removal one week later. She returned three months later, at which point her retainer impressions were taken and her braces were removed. During treatment several of her amalgam fillings were replaced with composites. The exact timing of these restorations is not known.

RESULTS ACHIEVED

The total treatment time was 15 months (12 months before her move to Hawaii) and 12 office visits with one emergency appointment for a poking wire. Dental esthetics were greatly improved. The maxillary arch is significantly broader with improved dental alignment of the upper and lower teeth. A functional Class I canine and molar relationship was attained with correction of her unilateral posterior crossbite. Facial balance was maintained. Canine guidance on her left side is minimal



MAXILLARY OCCLUSAL

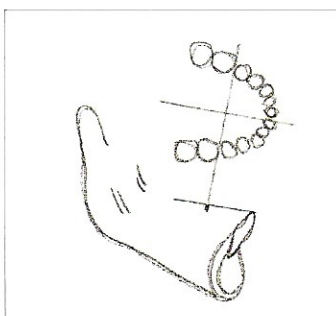


MANDIBULAR OCCLUSAL

SUPERIMPOSITION
BLACK: INITIAL
RED: FINAL



MAXILLARY SUPERIMPOSITION



MANDIBULAR SUPERIMPOSITION



GENERAL SUPERIMPOSITION

CASE REPORT

	PRE-TX	POST-TX	MEAN
SNA	88.0	87.8	82
SNB	81.7	82.7	80
ANB	6.3	5.1	2
MP-SN	38.3	37.5	33
U1-NA	16.1	17.8	22
U1-NAmm	4.0	4.2	4mm
LI-NBmm	8.9	8.6	4mm
LI-NB	34.2	31.2	30
LI-MP	95.1	93.0	90

due to light undercorrection of her upper left canine alignment. Her upper midline is .5mm to the right of her lower midline as well. Canine guidance on the right side and anterior disclusion on protrusive movements were noted. Centric stops and good occlusal interdigitation were noted on finish. A cant of the upper central incisors is noted facially and in the panoramic radiograph. Unfortunately, the patient's move to Hawaii limited the number of detailing appointments to address all of the functional and esthetic issues.

This is a great example of the ease and speed of which the arch develops with self-ligating braces. No recession of the upper and lower posterior segments were noted after treatment.

EDITOR'S COMMENTS

Given the complexity of the malocclusion, it is quite remarkable what result was achieved in 12 office visits and 15 months. With proper interdigitation of the posterior teeth and vertical elastics, the open bite was corrected. Part of the open bite closure was achieved by extrusion of the upper incisors and part by apparent counterclockwise rotation of the mandibular plane, presumably by interdigitation of the posterior teeth since the molars didn't move much. When comparing the pre-and post-treatment maxillary occlusograms, the maxillary archform broadened significantly in the premolar area with no apparent gingival attachment loss. From a facial perspective, her profile didn't significantly change and if it did the lower facial height may have been reduced slightly. I am sure many clinicians would have treated this case with either option #1 or option #2. In both of these treatment scenarios the treatment time would undoubtedly have been longer and in the case of the surgical treatment plan there would have been the usual surgical risks.



Dr. Phelps

Dr. Eric Phelps received his undergraduate degree from California Polytechnic State University in San Luis Obispo in 1997 with a Bachelor of Science Degree in Engineering. In 2001, he earned his Doctor of Dental Surgery and Master of Science Degree in Oral Biology from UCLA. He completed his Orthodontic training at UCLA in 2003, and is currently in private practice in San Jose.

Dr. Jason Cohen received his undergraduate degree from Tufts University in Medford, MA, in 1996 with a Bachelor of Science in Mechanical Engineering. In 2001, he earned his Doctor of Dental Surgery from UCLA. Dr. Cohen received his Orthodontic specialty training from UCSF in 2004, and is currently in private practice in San Jose.



Dr. Cohen

PCSO Case Report Editor:
Andrew Harner, DDS, MS
Huntington Beach, CA

For Pre-Treatment of Case V.W., see page 34.