Esthetics and Optical Illusion in Dentistry

Mychi Nguyen S1760
Bella Nguyen S1759
Wendan Li S1742

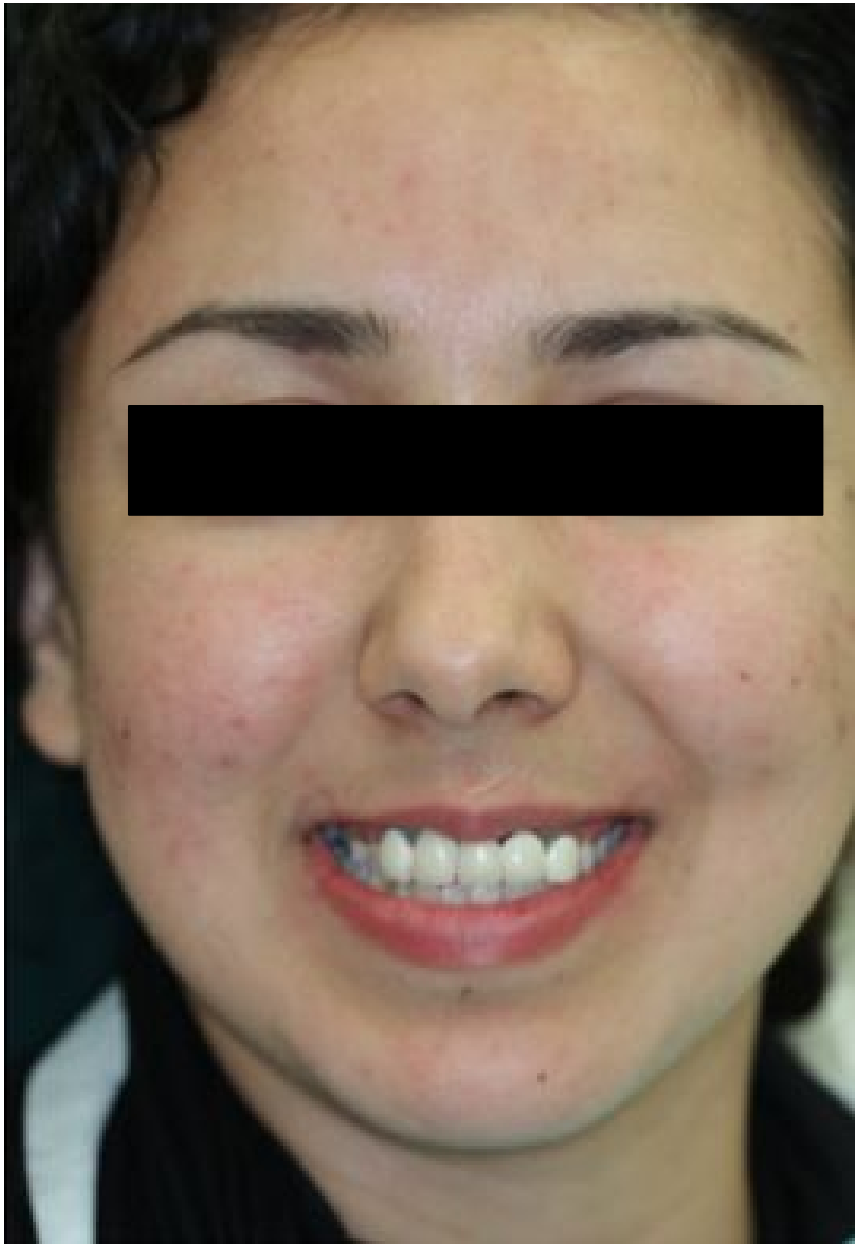
Patient Presentation

24 y.o. female patient

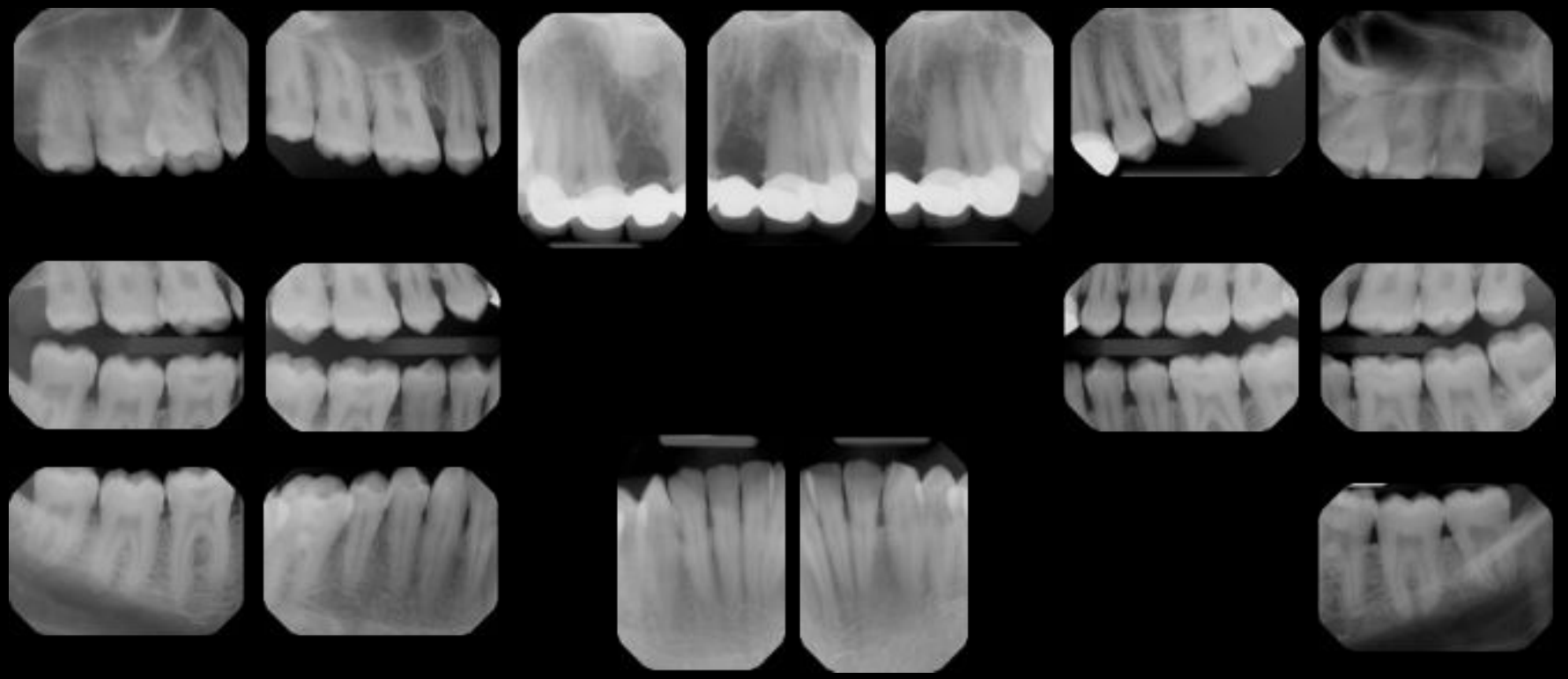
CC: “My front teeth look too big, there are black stuff under my gums, my lower teeth hurt, and I wake up with blood in my mouth.”

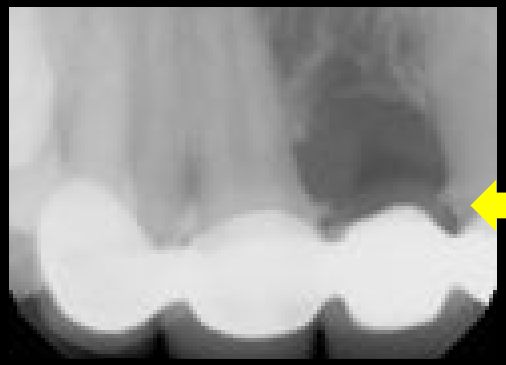
MED HX: Healthy, no meds, NKDA

DENT HX: Pt lost #8 and #9 from an accident when she was 9 years old. Edentulous space decreased due to mesial drifting of teeth, leaving room for only one pontic when #6-#11 bridge was made 5 years later.



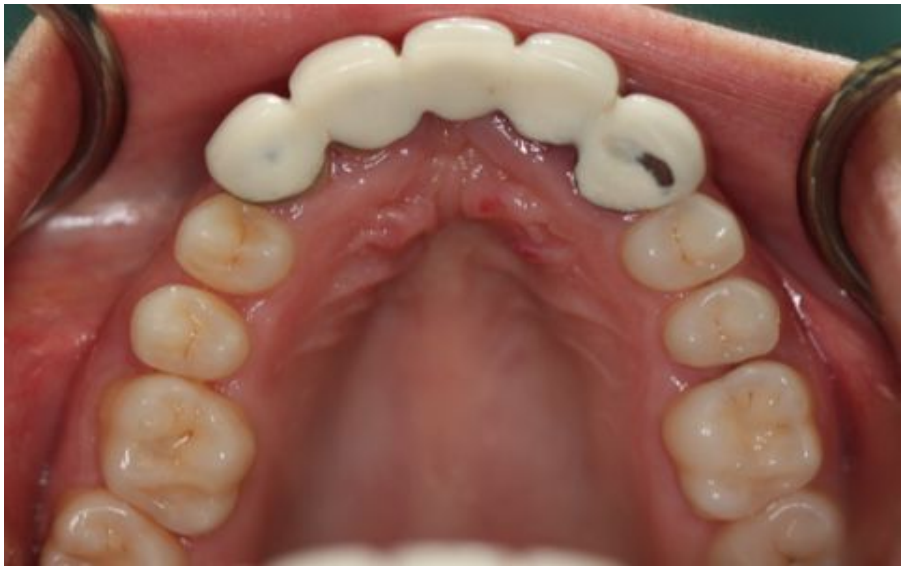
FMX

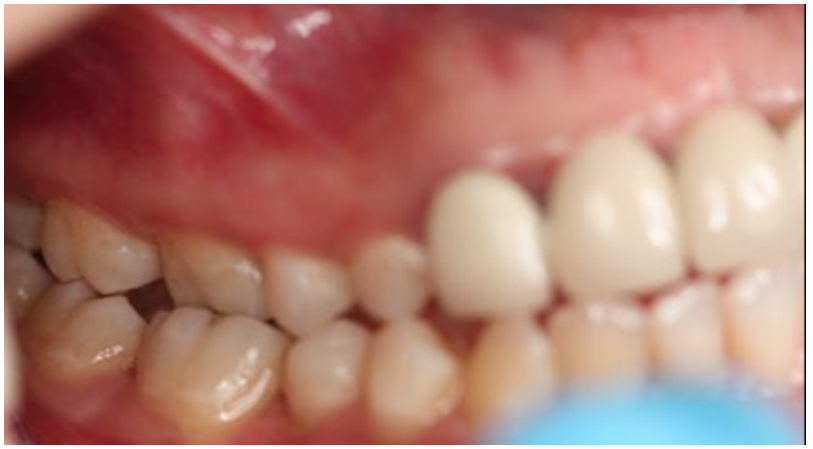


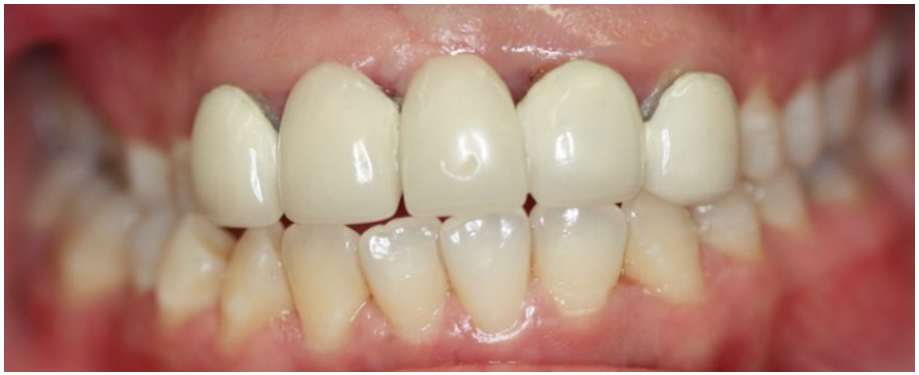


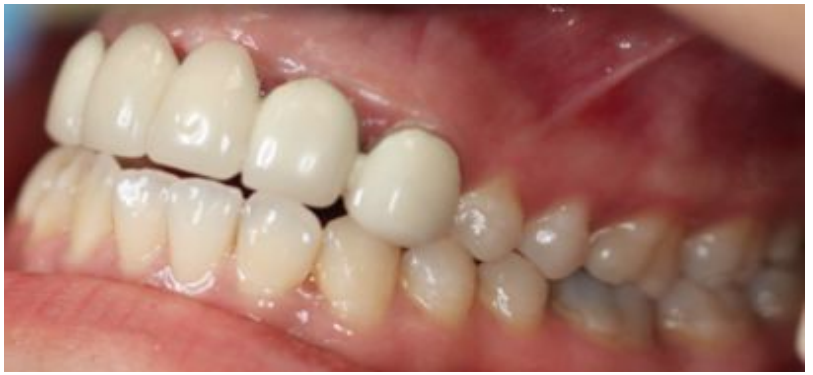
-Heavy calculus under bridge
-Significant bone loss between #7 and #10

Intraoral photos

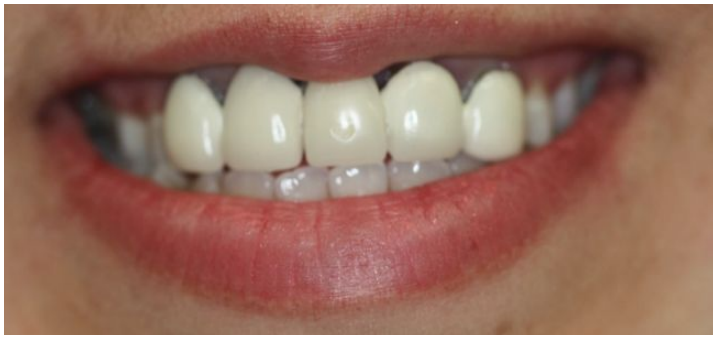








Problem List and Treatment Goals



Problem List:
-Ill-fitting crown margins
-Anterior cross-bite (#6/#27)
-Right posterior crossbite
-Maxillary teeth too large
-Midline discrepancy (missing #8 and #9 but only enough space for 1 pontic)
-Heavy occlusion on lingual #11
-All teeth look to be the same size (no distinction between laterals and centrals)

Goals:
-Replace missing #8 and #9 with one pontic, but maintain esthetics by creating illusion that all centrals and laterals are present.
-Enhance esthetic of smile by creating distinction between size and shape of lateral and central incisors (less like chiclet teeth)
-Change shape of existing right canine to right lateral, R lateral to R central
-Improve midline
-Improve marginal fit of crowns
-Improve gingival and overall oral health

Comprehensive Treatment Plan

Phase I:

-OHI + 4 quads SRP + 1 month recall + Perio maintenance

-Caries risk high. CAMBRA dispensed: 5000 ppm F toothpaste + CHX + FV + Xylitol gum

Phase II:

- Composite restorations on all first, second, and third molars

Phase III:

- Replace anterior bridge (see options on next slide)

Phase IV:

- Recall, PMT every 6 months

Treatment Options for Replacing Anterior Bridge

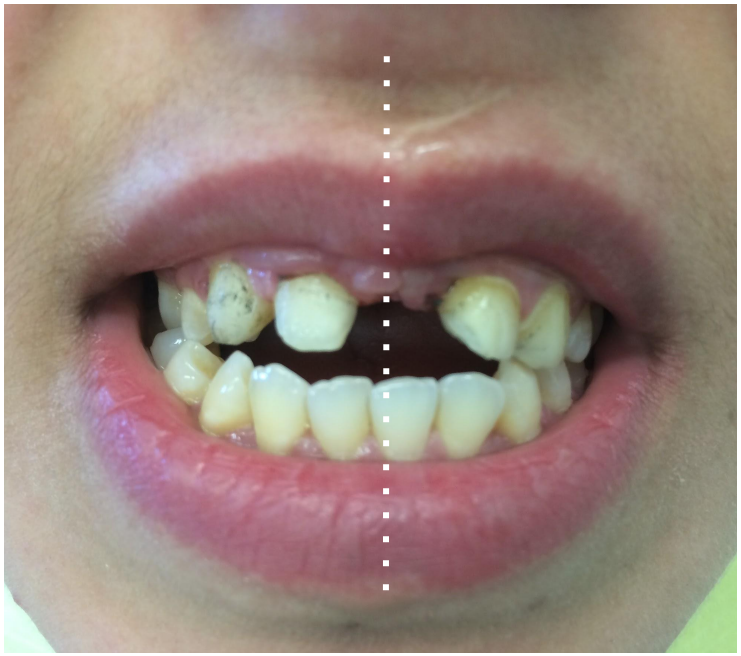
Options	Benefits (Pro's)	Risks (Con's)	Cost	Timeline
Do nothing	Free	-Progression of periodontitis -Recurrent caries under ill-fitting crowns -Poor esthetics	$0	N/A
Replace bridge #7-#10 (#6 and #11 single crowns)	-Potentially better esthetics -Better adaptation of crown margins	-Hygiene (harder to clean under the bridge) -Not as esthetic as implants (emergence profile, no separation between teeth)	$2,250	4-6 appointments
Ortho to widen edentulous space + #8 and #9 implants + Single crowns on #6,7,10,11	-Esthetics -Longevity -Easier to clean	-Expensive -Time -Bone loss at sites #8/#9 may affect implant esthetics -Additional procedures may be necessary (bone augmentation)	>$10,000	>2 years

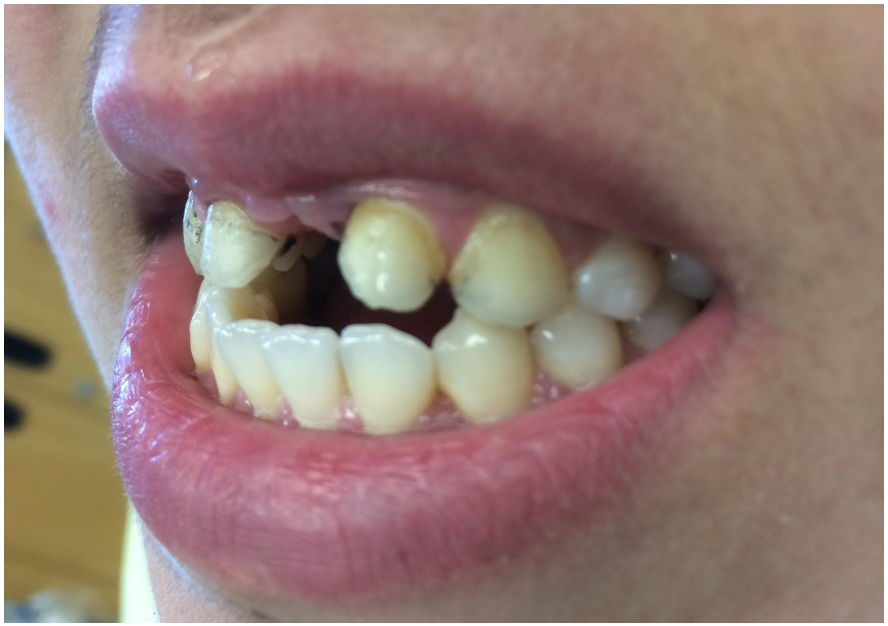
-After bridge removed, it was discovered that abutment teeth were barely prepped

New plan:

-No need for crowns on canines, except to improve esthetics

-Pt did not wish to crown canines and wanted to achieve esthetics through direct composite

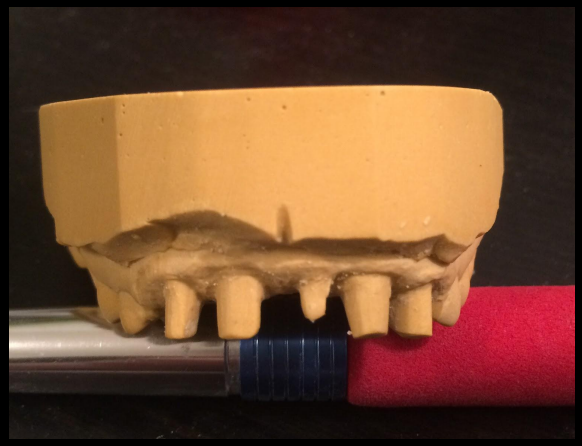


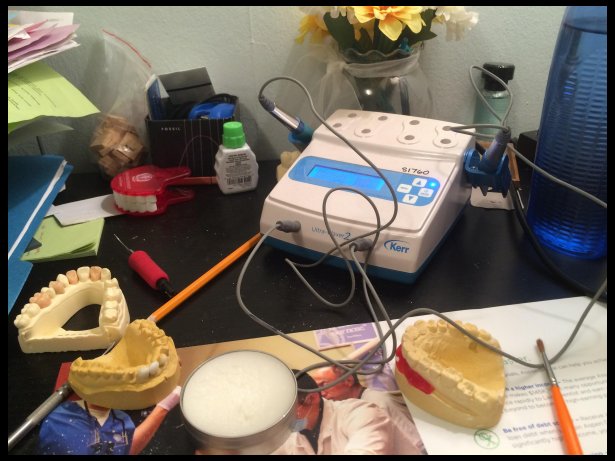


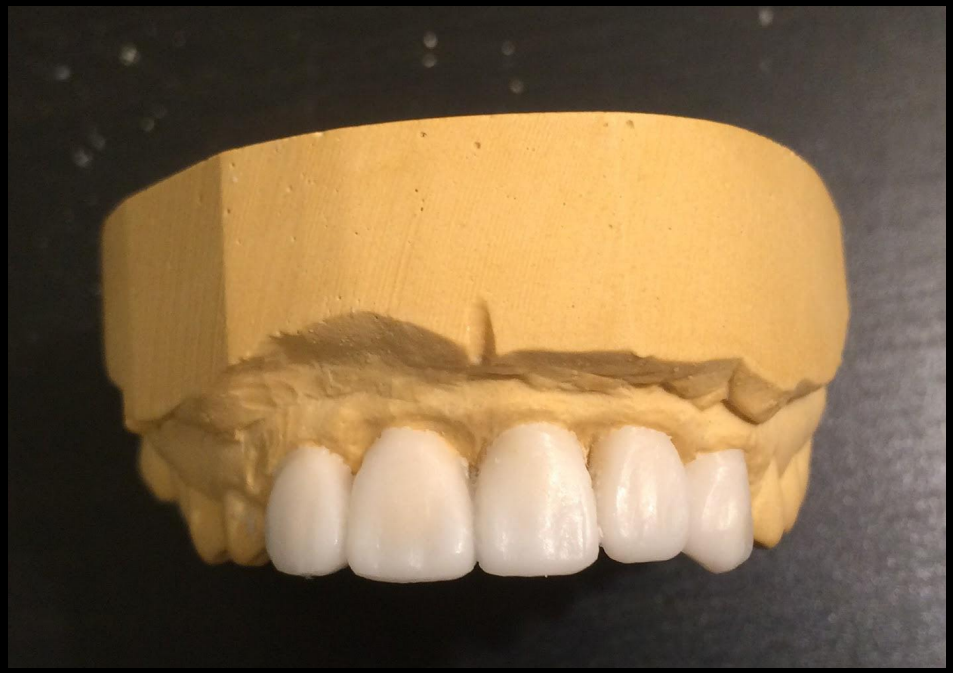
New plan!

Option	Benefits (Pro's)	Risks (Con's)	Cost	Timeline
Bridge #7-#10 **Composite build-up to turn #6 into #7** **Leave #11 alone**	-Conservative -Most affordable option -Shorter treatment time	-Hygiene (harder to clean under the bridge) -Not as esthetic as implants (emergence profile, no separation between teeth)	$1,440	5 appointments

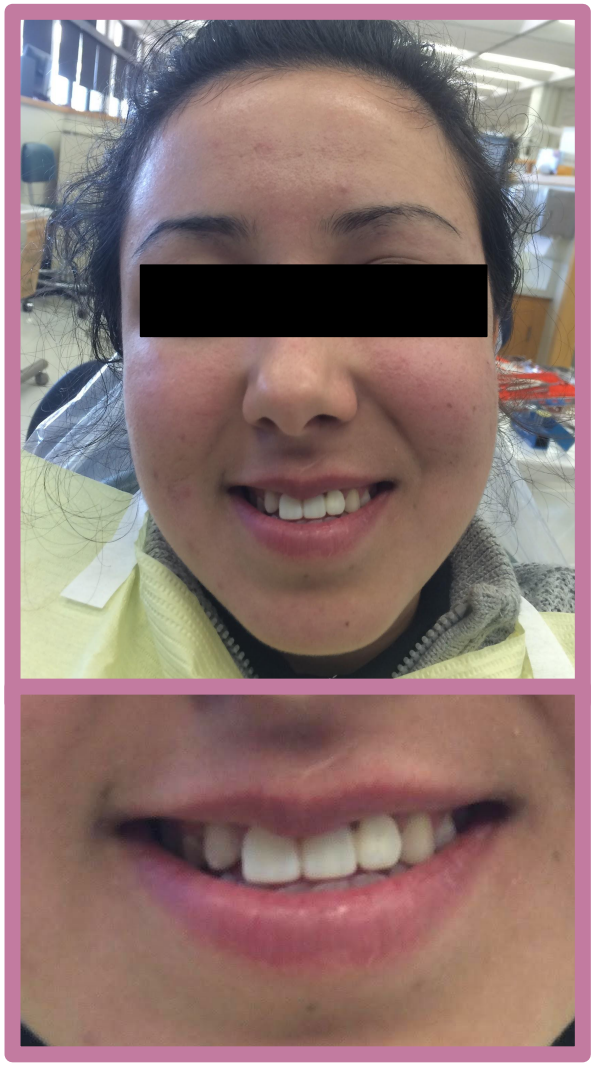
Wax-up for temporary fabrication



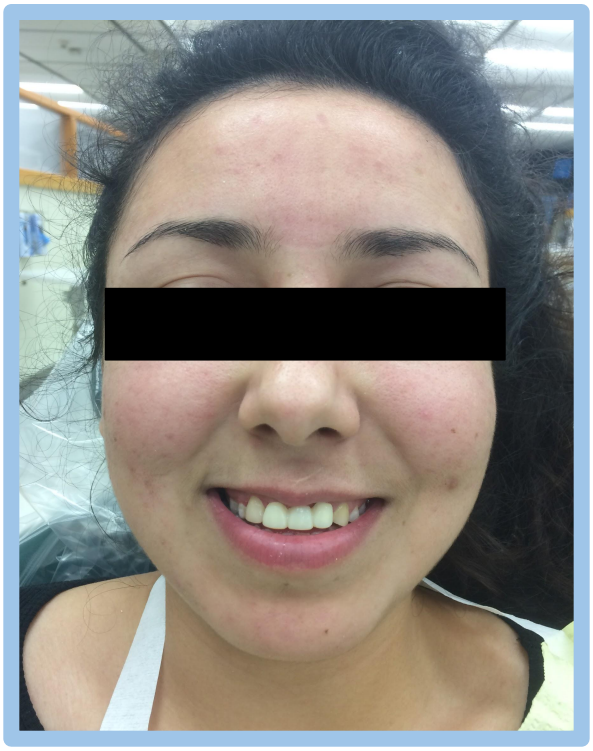




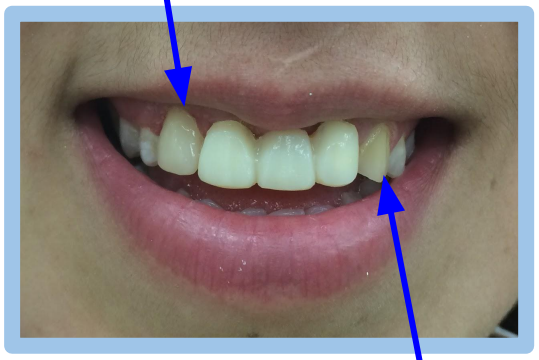
With temporary bridge #7-10 in



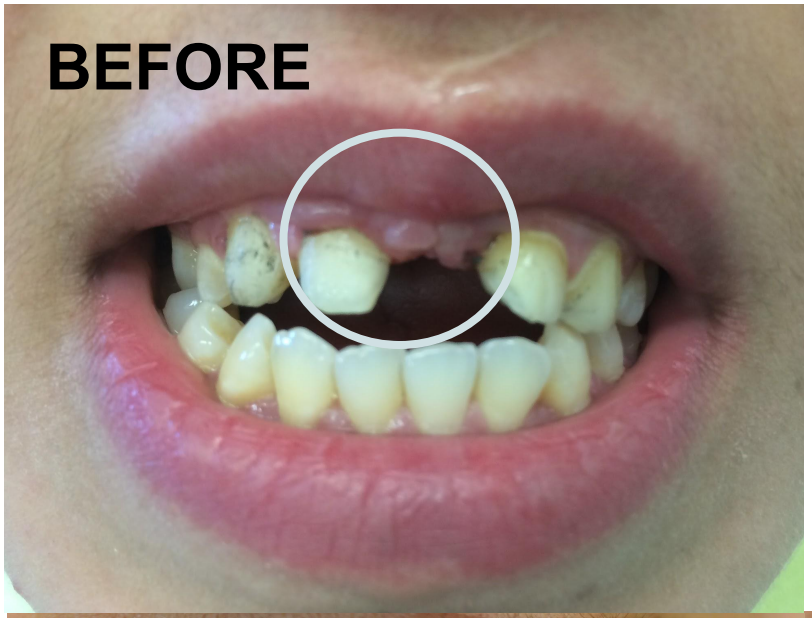
Before
-Smile not esthetically pleasing since #6 still looks like a canine



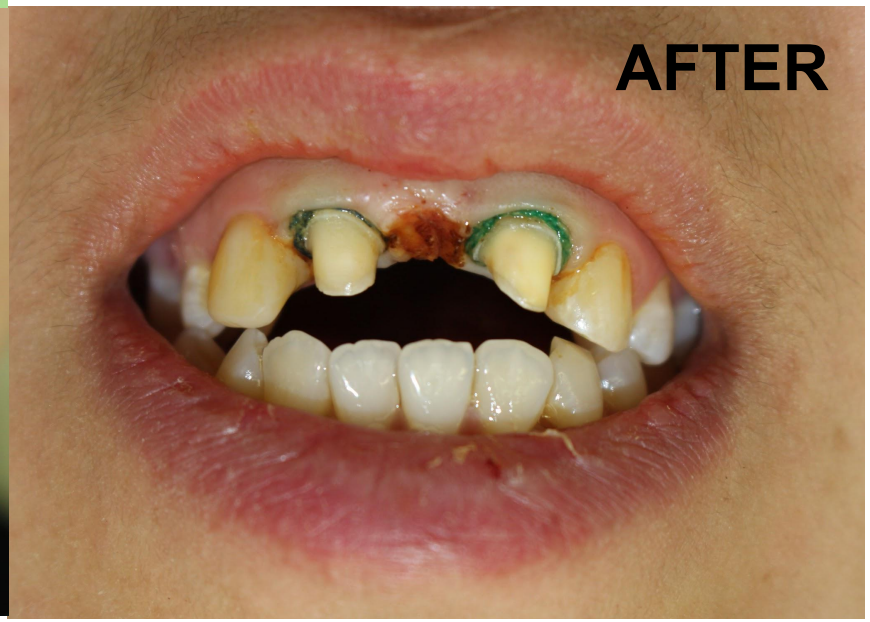
After
Direct composite used to shape canine into a lateral incisor in order to enhance esthetics of smile



Polished #11 to remove stains



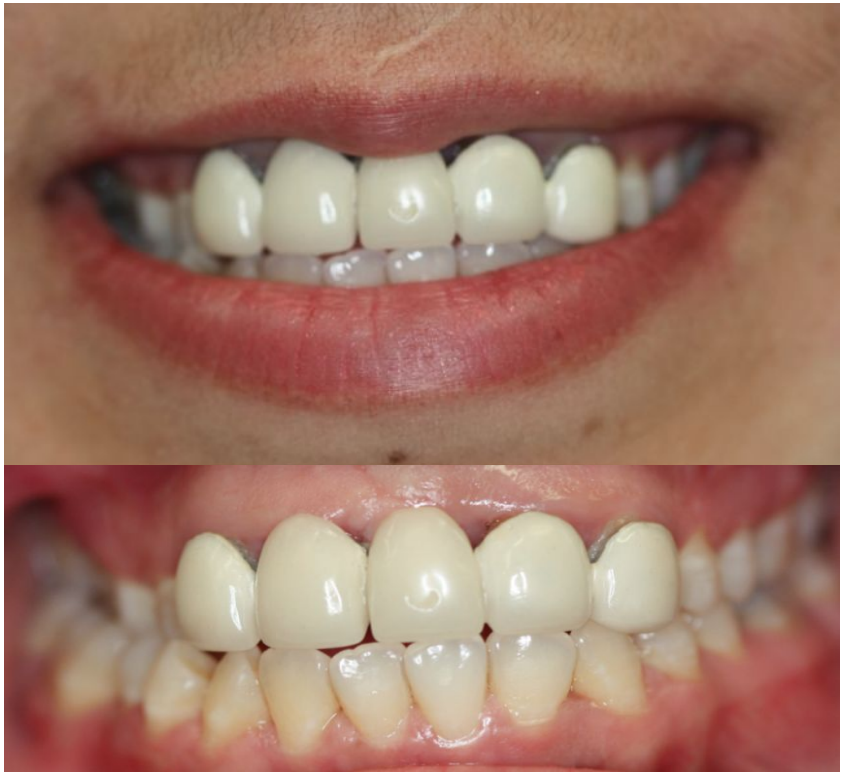
Gingivoplasty to establish better gingival contour for pontic using diamond football bur and 2% Lido with 1:50,000 epi



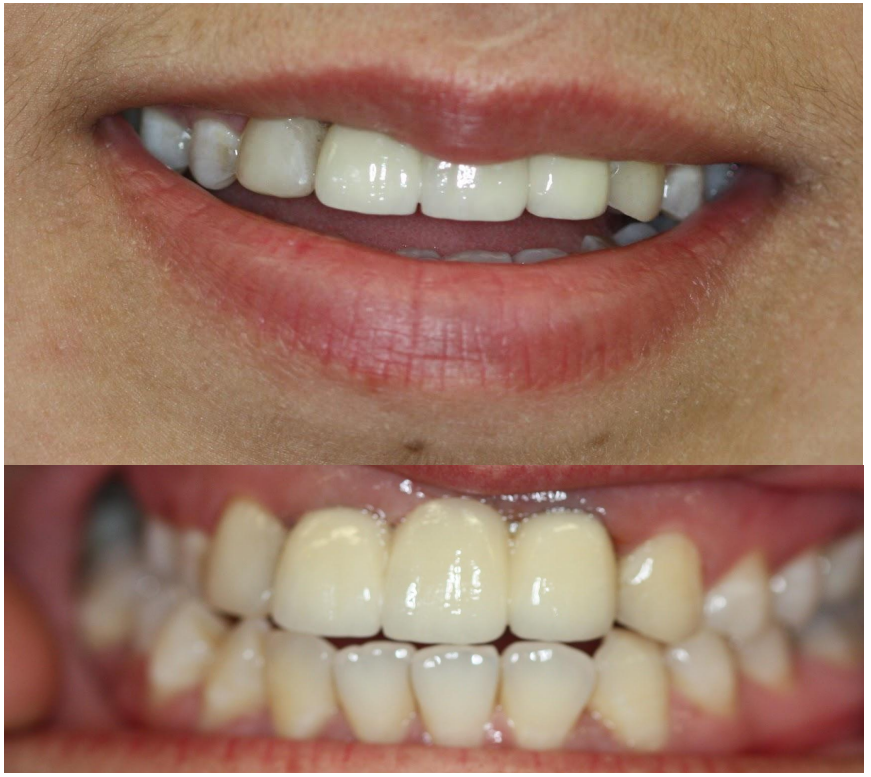
Advanced Emergence Profile Dilemma
Using Laser vs. Bur For Gingivoplasty

Method	PROS	CONS
Laser	-Hemostasis -Reduced the need for suture -Faster healing -More control over tissue removal	-High cost and require training
Carbide bur/football bur technique	-Faster -No need for expensive laser equipment	-Tissue mutilation -Bleeding -Inability to take final impression immediately after the procedure -Delayed tissue development and healing

BEFORE



AFTER



PFM Bridge #7-10:

Shade: A1/A2

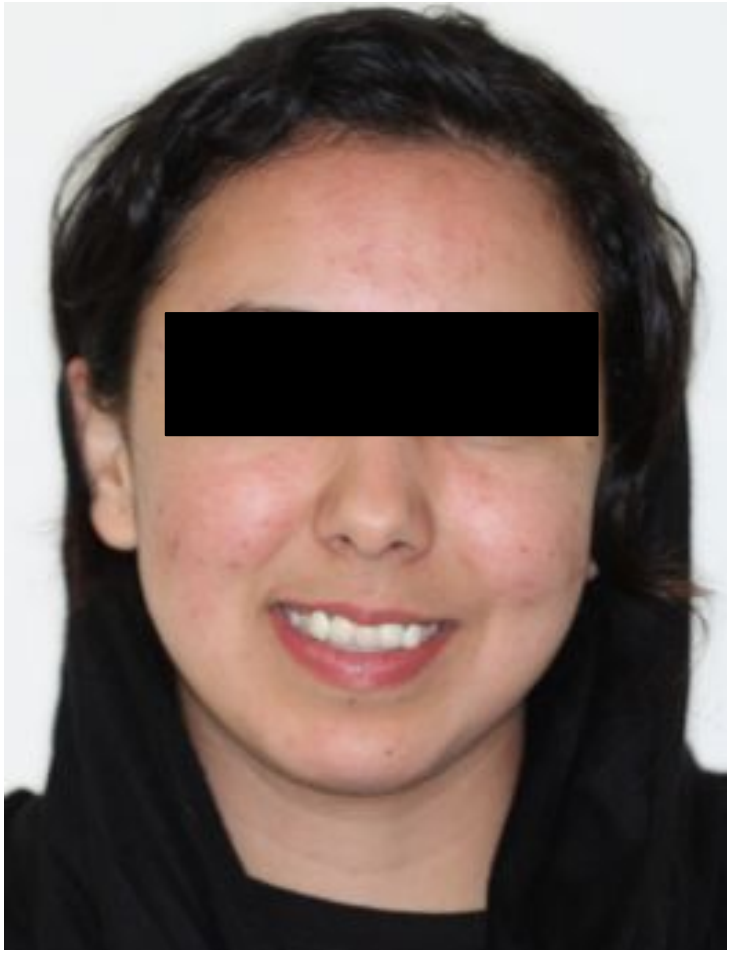
Pontic: Ridge lap

Direct Composite on #6:

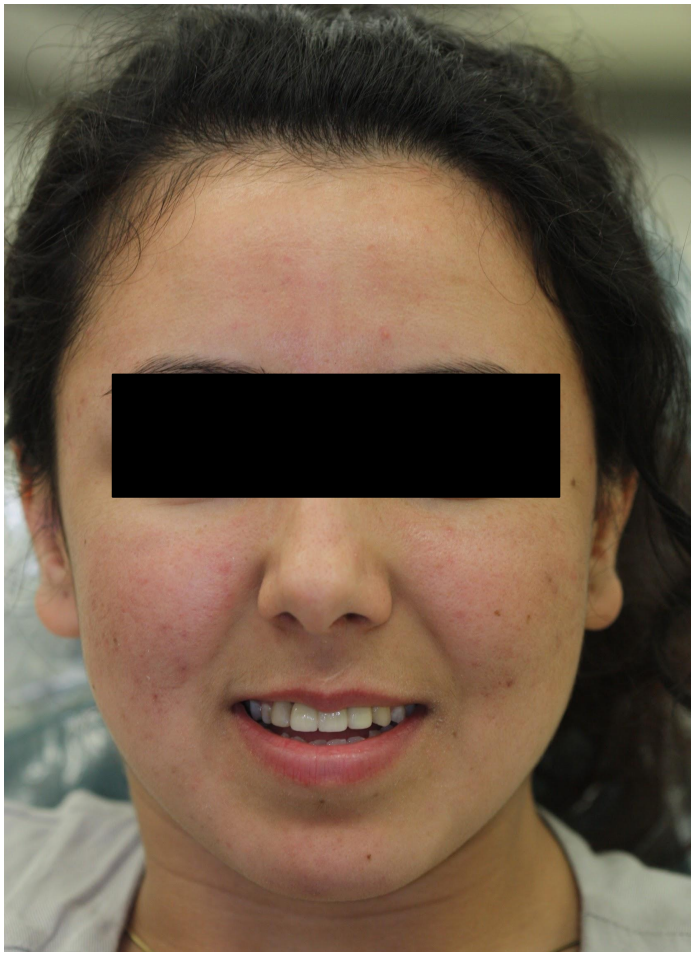
Shade: A1/A2

Polished #11 with carbide bur and soflex discs

BEFORE



AFTER



Outcome of Treatment

What went well:

-Patient is happy and asymptomatic

-No longer has spontaneous bleeding, achieved gingival health

-Improved esthetics of upper anterior teeth

What can be improved:

- Better communication with lab: requested ovate pontic but received ridge-lap pontic, facial contour of bridge is not flushed with existing arch form

Next step:

-Reveneer #6 to match arch form of bridge

-Re-emphasize oral hygiene

Reference

1. Principles and Practice of Laser Dentistry - E-Book. (n.d.). Retrieved May 14, 2017, from https://books.google.com/books?id=pjETBwAAQBAJ&pg=PA97&lpg=PA97&dq=gingivoplasty%2Busing%2Bfootball%2Bbur&source=bl&ots=sNkCClxrxh&sig=LajW34S8LoHWpI4A5rDe5sExsMA&hl=en&sa=X&ved=0ahUKEwia07XCnPDTAhVJzmMKHVn3DcAQ6AEIOjAH#v=onepage&q=gingivoplasty%20using%20football%20bur&f=false

2. Coluzzi, D. (2008). Fundamentals of Lasers in Dentistry: Basic Science, Tissue interaction and Instrumentation . *J Laser Dent ,* 4-10. Retrieved August 14, 2017