MENG DENTISTRY
Esthetic, Restorative & Implants

Treatment of a Severely Worn Dentition utilizing a unique Prosthodontic Modality.

Joe Meng DDS, MS
Private Practice in Prosthodontics, Missoula, MT
www.mtmengs.net

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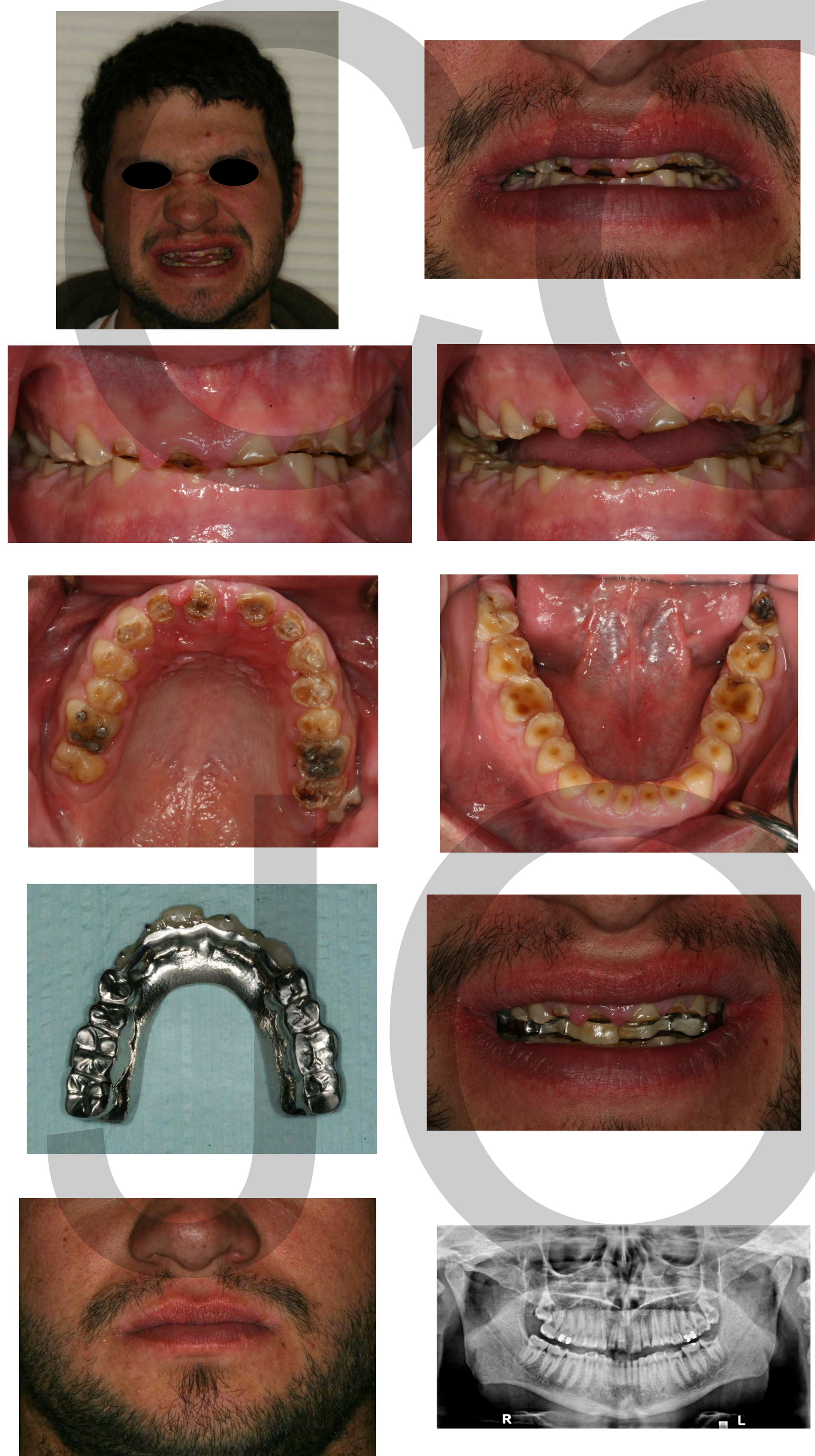
Introduction of Patient

This case report demonstrates treatment of a 27-year old patient with an unrestorable dentition due to caries and severe wear, related to pharmacologic induced bruxism from anti-psychotropic medications. The patient had been treated with a metal base maxillary splint by another practitioner to slow the wear progression. This treatment had failed due to caries under the splint from both high sugar intake and lack of home care, low compliance with follow up, as well as wear of the opposing dentition from the splint.

Initial Presentation



History and Clinical Assessment

- •Unsalvageable maxillary teeth and select mandibular teeth due to caries and pulp involvement.
- •Poor esthetics.
- •Lack of adequate occlusal function.
- •Severe attrition due to medication induced bruxism.
- •Lost vertical dimension of occlusion.
- •Poor oral hygiene, compliance, and failure of previous dental treatment.
- •Poor dietary habits; 12 pack of non-diet soda per day.
- •Casual smoker.

Treatment Considerations

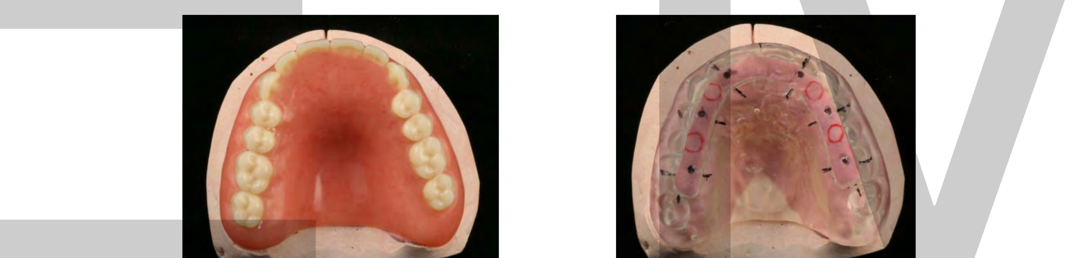
- •Philosophic personality.
- •Major biologic and structural failure given patient's age.
- •Failure (mechanical) of previous dental treatment.
- •Assumed continuation of parafunctional habit/bruxism due to inability to completely discontinue anti-psychotropic medications.
- •Indicators of heavy muscle activity - Low FMA, square facial profile, and buttressing of mandibular angles.
- •Patient has tolerated a removable prosthesis well for several years.

Treatment Plan

- •Full maxillary extraction and selective mandibular extractions (teeth with caries unable to be stabilized and canines).
- •Conservative alveoloplasty with immediate placement of 6 Straumann bone level implants in the maxilla, and 2 bone level implants in mandibular canine sites.
- •Planned prostheses:
  - •Maxilla - Full arch overdenture prosthesis with metal occlusion, supported by a milled implant bar with 4 Zest Locator attachments for retention.
  - •Mandible - Full arch overdenture prosthesis with metal occlusion, supported by remaining teeth, and retained by 2 Zest Locator attachments in canine implant sites.

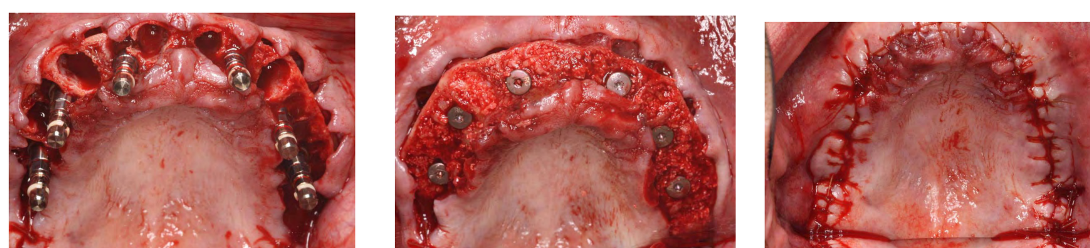
Pre-surgical workup

Determination of ideal aesthetics and occlusal plane position with a wax setup.

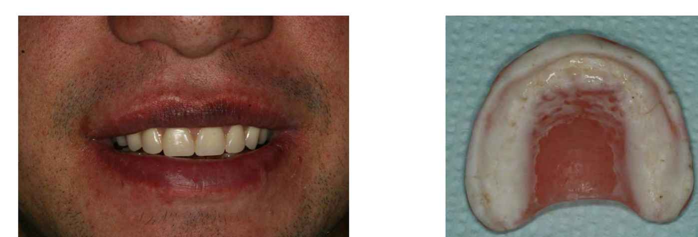


Immediate maxillary "Healing Denture" and surgical template to guide alveloplasty and implant placement with respect to projected future tooth position.

Surgical Treatment



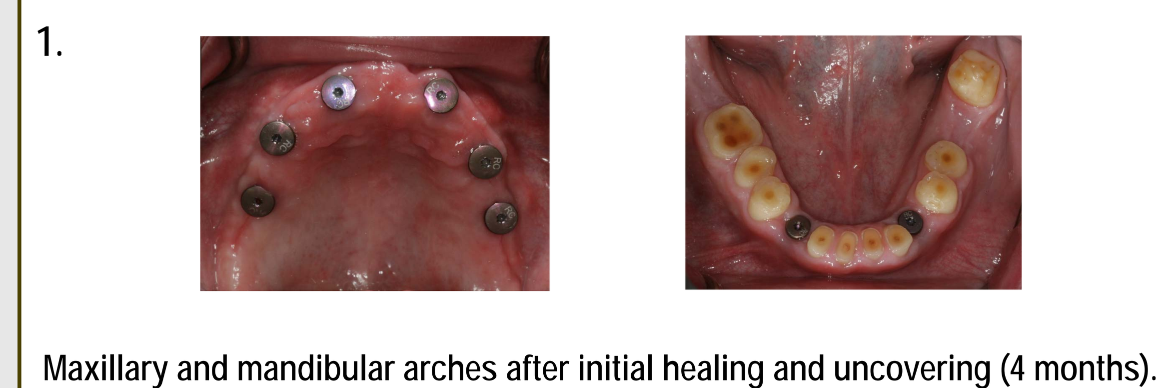
Maxillary and mandibular extractions and implant placement (Straumann Bone Level) by Dr. Jack Remien, Periodontist (Missoula, MT).



Immediate maxillary denture delivery with tissue conditioner.

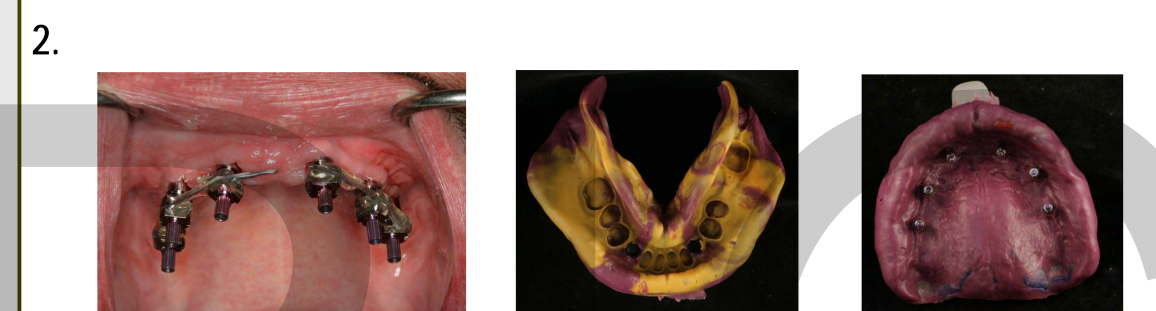
Restorative Treatment

1.



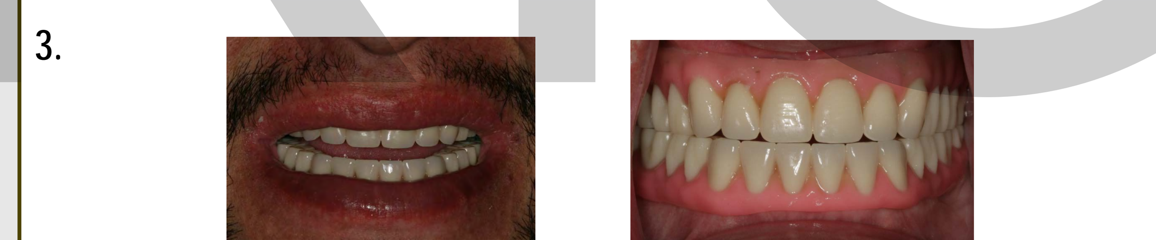
Maxillary and mandibular arches after initial healing and uncovering (4 months).

2.

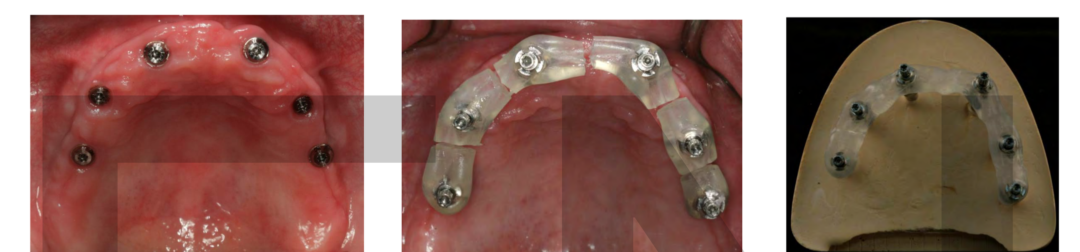


Fixture level (open tray) impression posts were placed in maxillary implants and splinted with a wire and light cured resin. Final Locator abutments were placed in mandibular implants, and impression copings placed. VPS impressions were made.

3.

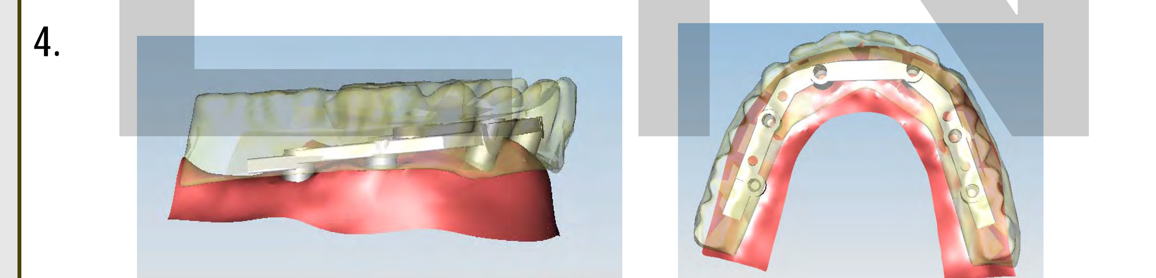


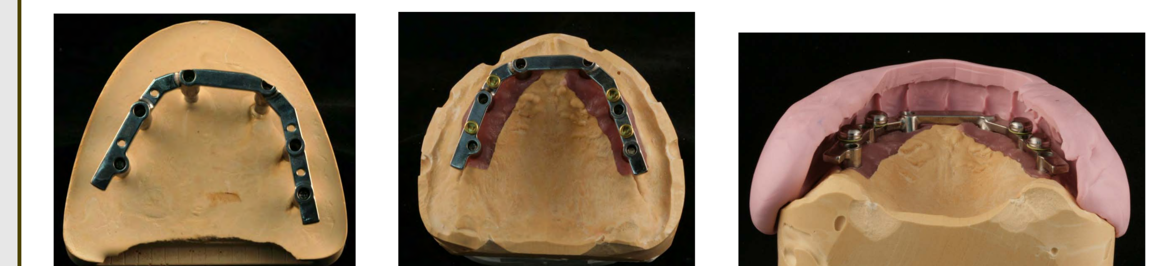
Wax setup indicating final aesthetics and occlusal scheme was verified.



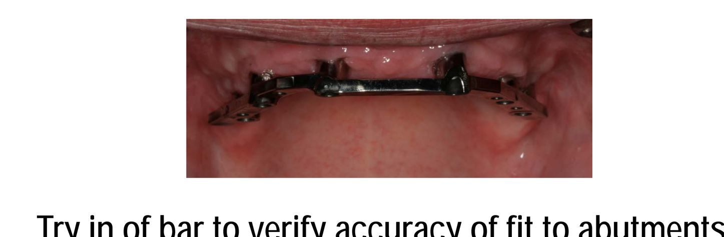
Pre-selected Straumann Multibase abutments were placed. Implant verification jig was luited intraorally with a light cured resin, and a abutment level cast was poured using the jig- final milling would be done using this cast for best accuracy and fit of bar.

4.





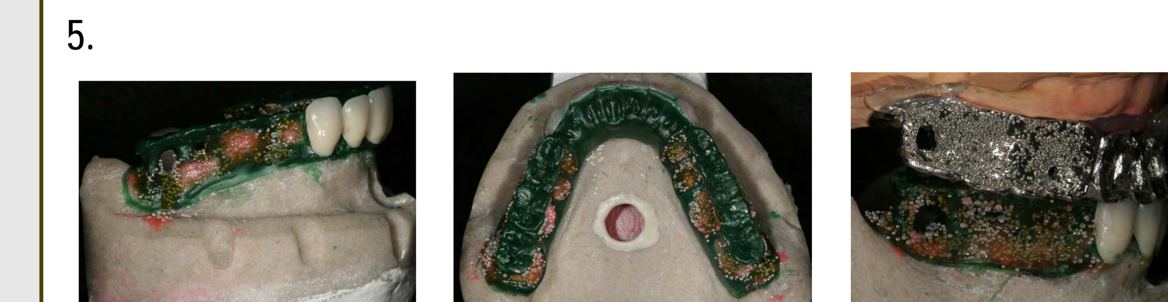
A "virtual" bar design was generated by CAD using the master cast and wax setup utilizing a double scan technique. Upon slight modification and approval, a grade V titanium alloy bar was fabricated via a CAM process (AccuFrame) by Cagenix (Memphis, TN).



Try in of bar to verify accuracy of fit to abutments.

Restorative Treatment

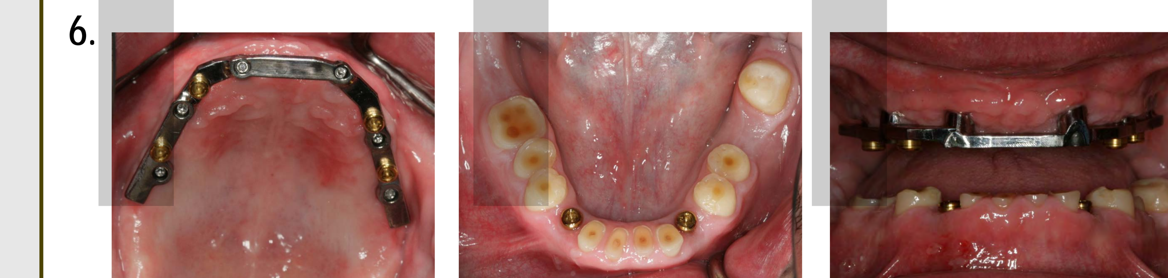
5.



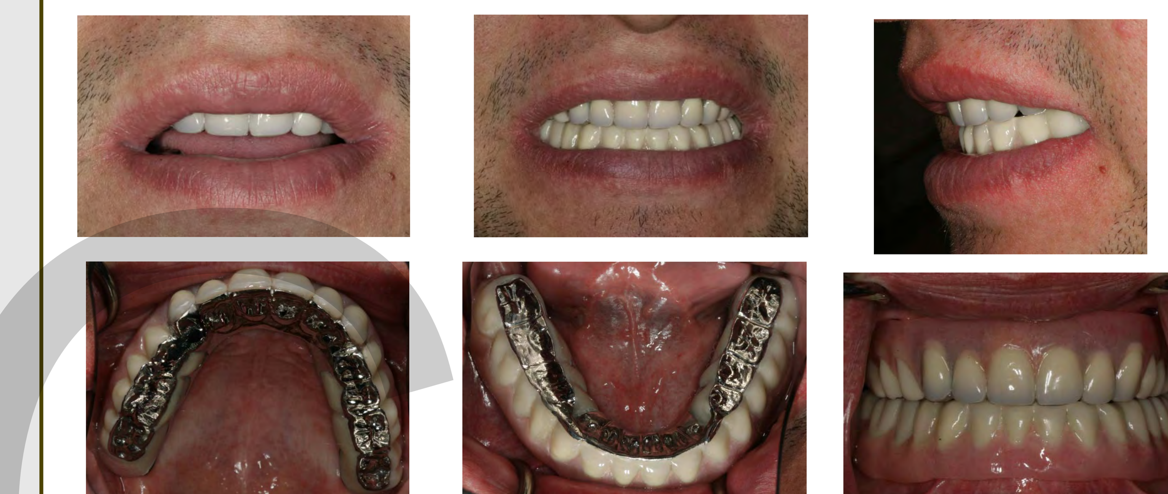
Case was sent to lab for fabrication. Indices of master casts allowed accurate transfer of anterior denture teeth to refractory models for framework design. (Fabrication by Dental Masters Laboratory, Santa Rosa, CA)

Frameworks were fabricated with a cobalt-chromium alloy. Posterior teeth sculpted with cold cured acrylic resin.

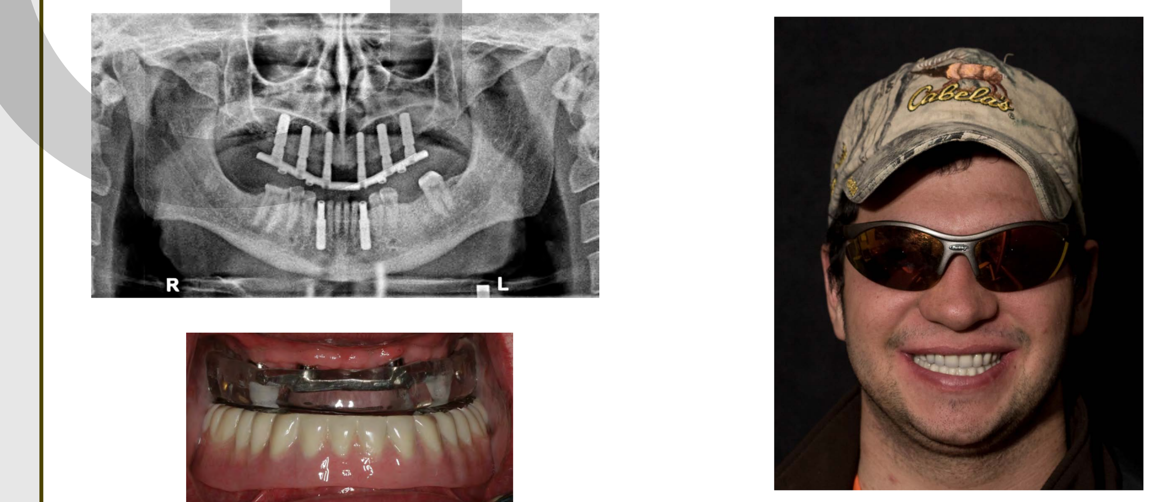
6.



Milled bar and mandibular Locator abutments in place.



Final prostheses in place.



Nocturnal occlusal guard for bruxism

Final Prostheses/Comments

- •Patient has very broad mandibular function/parafunction; occlusion per following:
  - -Flat occlusal anatomy; all occlusal contact on metal.
  - -Even "long" CR contact in posterior with no incisal vertical overlap or coupling.
  - -Group Function in lateral excursion; canine/premolar prutrusive disclusion.
- •RC Straumann Bone Level implants used; wide diameter used where possible.
- •Maxillary bar provided due to high risk for implant overload.
- •Deep implant placement on mandible to allow for alveloplasty and bar placement should failure of lower dentition occur in the future.
- •Occlusal guard prescribed to oppose lower prosthesis with fluoride gel placement during sleep.
- •Dietary counseling (soda pop habit) and smoking cessation.
- •Regular maintenance and follow up prescribed.