Restoring Form & Function with Single & Multi-Unit Implant Prosthetics

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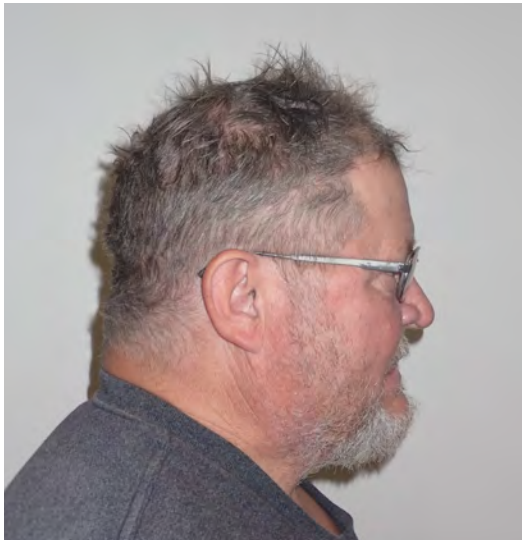
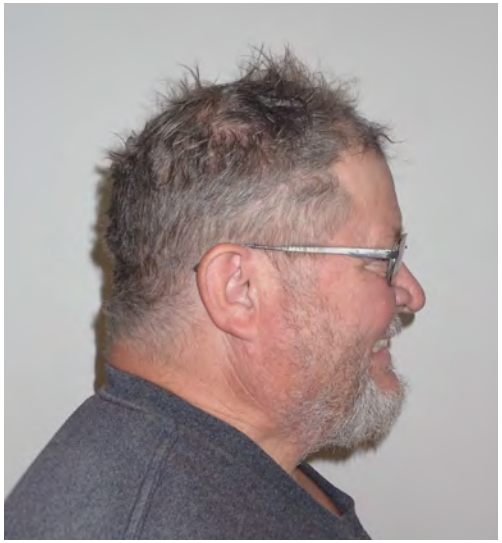
AEGD // 2022-2023

Patient Overview

63M	Chris Long	Patient with Union City since 2019
CC	“I want back teeth, I do not wear or like my denture”	Patient does NOT wear RPD, previously treatment planned for multiple posterior implants on maxilla
MH	Hypertension, Kidney stones, Neuropathies, Arthritis	• History of hip replacement, bone marrow transplant, lymphoma, gallbladder removal • Allergies: Bleomycin, Cocaine
Rx	Polypharmacy	• Metoprolol, Atorvastatin, Losartan, Hydrochlorothiazide, Tamulosin, Finasteride
DH	Heavily restored Mild periodontitis	• Maxillary partially edentulous • Mandibular complete dentition
SH	Works in carpentry, construction Denies smoking, recreational drugs, admits alcohol use	• Health Plan of San Mateo

Extraoral Photos

Extraoral Photos

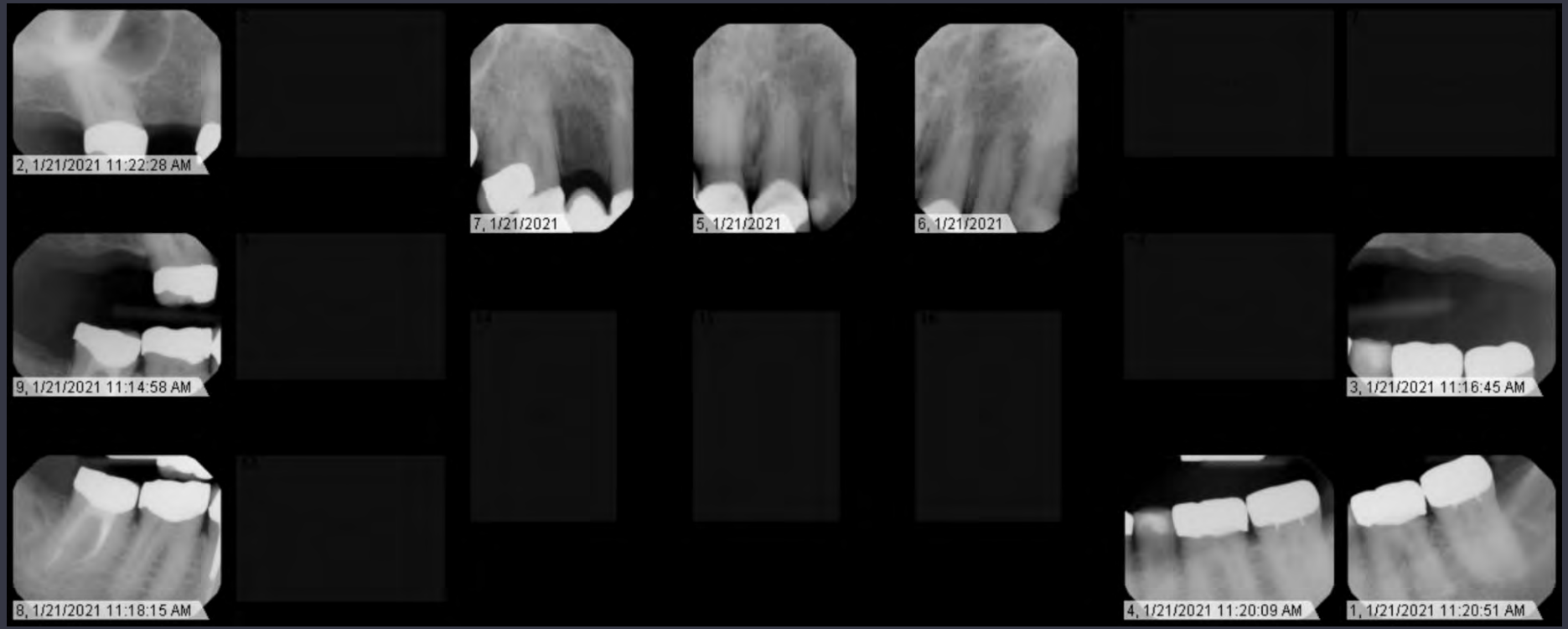




Intraoral Photos

Intraoral Photos

Panoramic - 11/6/2019

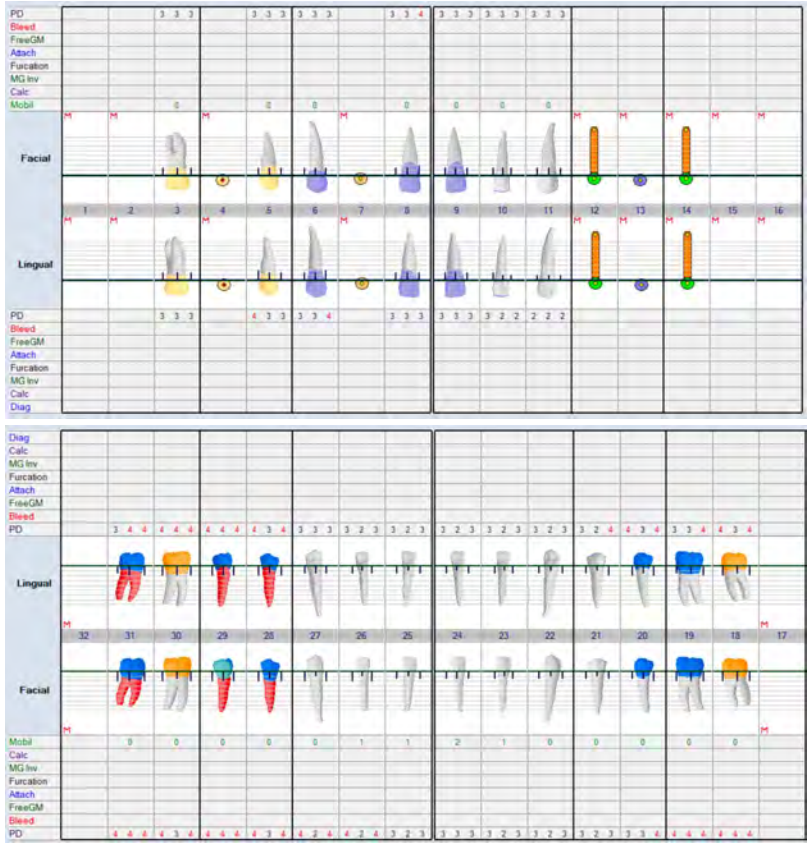
FMX - 1/21/2021


2, 1/21/2021 11:22:28 AM
7, 1/21/2021
5, 1/21/2021
6, 1/21/2021
9, 1/21/2021 11:14:58 AM
3, 1/21/2021 11:16:45 AM
8, 1/21/2021 11:18:15 AM
4, 1/21/2021 11:20:09 AM
1, 1/21/2021 11:20:51 AM

BWX & Select PAs - 1/4/2022

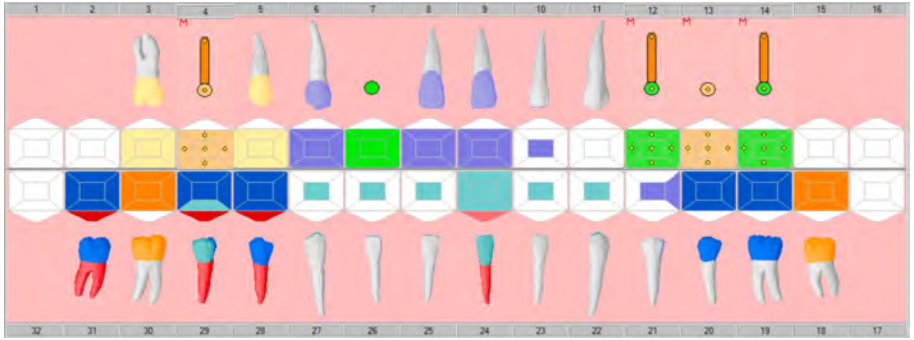
Periodontal Charting & Diagnosis

Assessment	• PD: 2-4 mm • Attachment loss: 1-3 mm generalized • Mobility: I on #23, 25, 26, II on #24
Etiology	• Primary: bacterial plaque with susceptible host • Secondary: furcation involvement, calculus, exposed roots
Diagnosis	• Generalized mild chronic periodontitis • Stage II Grade B
Prognosis	• Good throughout • Guarded on #24 due to bone loss, mobility



Hard Tissue/Restorative Charting & Findings

Findings	• #2, 5 PFM crown • #6-8 Porcelain bridge • #9 Porcelain bridge • #10-L amalgam • #18 Gold crown • #19, 20 Porcelain crown • #21-DO amalgam • #22-I, 23-I GI • #24 RCT, GI BU • #25-I, 26-I, 27-I GI • #28 RCT, Porcelain crown • #29-B GI patch, RCT, Porcelain crown • #30 Gold crown • #31 RCT, Porcelain crown
CRA	• Recent restorations • Irregular oral hygiene • Exposed roots • Frequent snacker • Overall risk: High



Etiology	• History of previous restorations • Infrequent dental visits
Diagnosis	• Missing teeth • FDP porcelain chip
Prognosis	• Good throughout

Ideal Treatment Plan

Urgent Phase	• N/A
Disease Control Phase	• N/A
Restorative Phase	• FDP Repair • #4 Implant/Implant Crown • #12-14 Implant Bridge
Maintenance Phase	• Nightguard
Total Cost	$10,500
Time of Treatment	8 months

Risks	Benefits
• May need bone graft upon implant placement • FDP porcelain fracture may refracture • Expensive • Takes time for implants to osseointegrate	• Completely fixed option

Next Steps
• CBCT • Implant placement planning

Alternative Treatment Plan

Urgent Phase	• N/A
Disease Control Phase	• N/A
Restorative Phase	• FDP Repair • UA RPD
Maintenance Phase	• Nightguard
Total Cost	$2,500
Time of Treatment	2 months

Risks	Benefits
• Removable option	• Less surgically invasive • More affordable

Next Steps
• Preliminary impressions

Anterior FDP Esthetic Repair

Anterior FDP Chip

Anterior FDP Chip

- Potential etiology of chip
  - Overclosed VDO
  - Bruxing habits
  - Lack of posterior occlusion
- Material considerations
  - PFM bridge placed 5+ years ago
  - Margins sealed
- Procedural considerations[1]
  - HF and/or air abrasion treatment to chipped surface
  - Silane application
  - Conventional resin application

1: (Kimmich et al., 2013)

#4, 12, 14 Implant Planning

Patient Case Selection for Implants

- Patient systemic factor considerations[2]
  - ASA II
  - No DM
  - No bisphosphonate usage
  - No active chemotherapy/radiation
  - No smoking/alcohol/drug abuse
  - Immunocompetent
  - **Bruxism[3]**
  - **Moderate periodontitis[4]**
- Aggregate risk/maintenance
  - Low risk (<6 points)
  - Regular six month recall

2: (Aghaloo et al., 2019)
3: (De Angelis et al., 2017)
4: (Renvert, 2015)

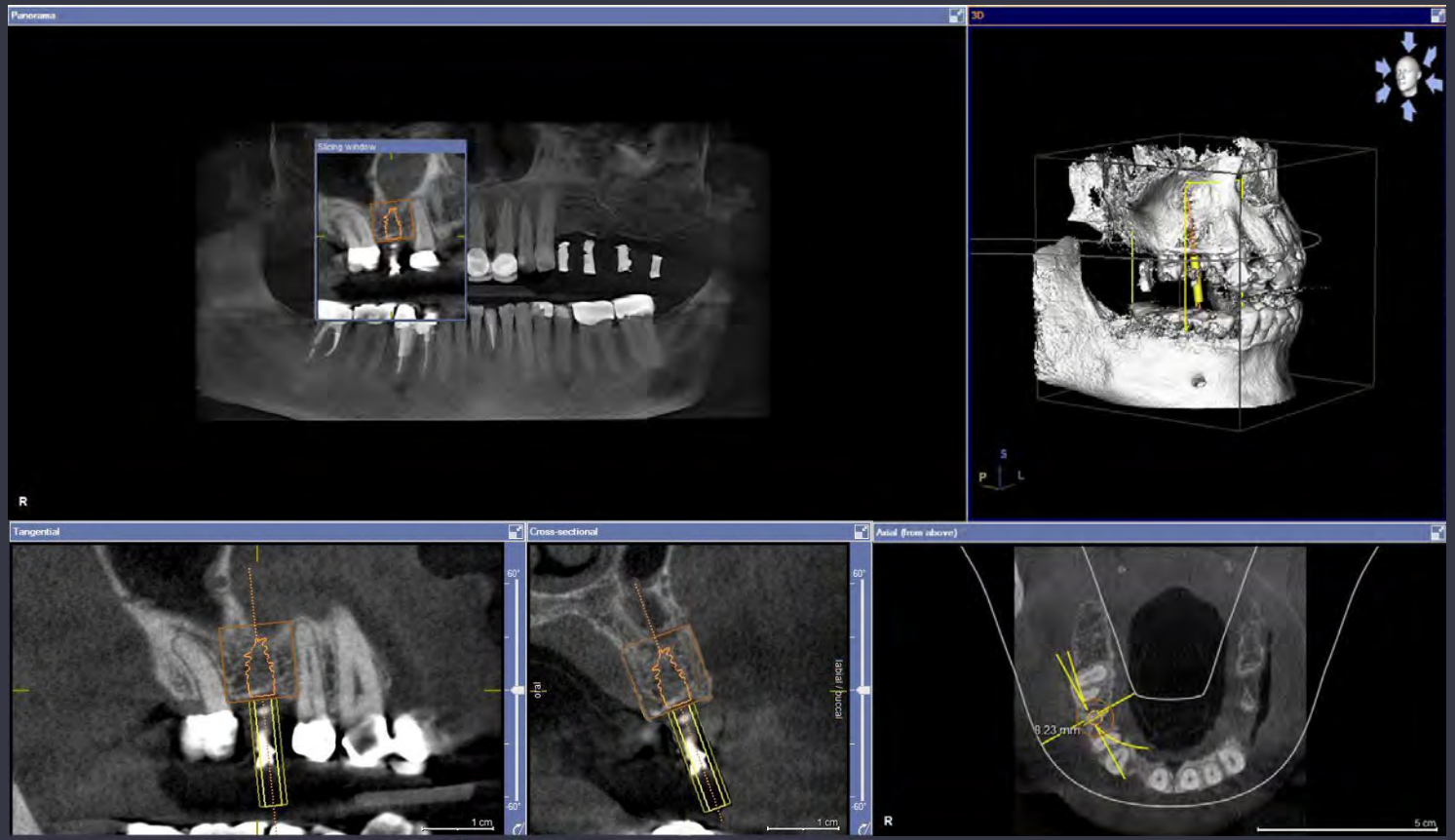
Treatment Planning Considerations Site #12, 13, 14

- Comparison of longevity of three non-splinted implants, three splinted implants, implant supported fixed partial denture
  - Implant supported fixed partial denture had superior longevity in comparison to two other options[5]
- Factors to consider
  - Bone quality/quantity
  - Sinus proximity
- Given patient's finances, patient elected implant supported FDP

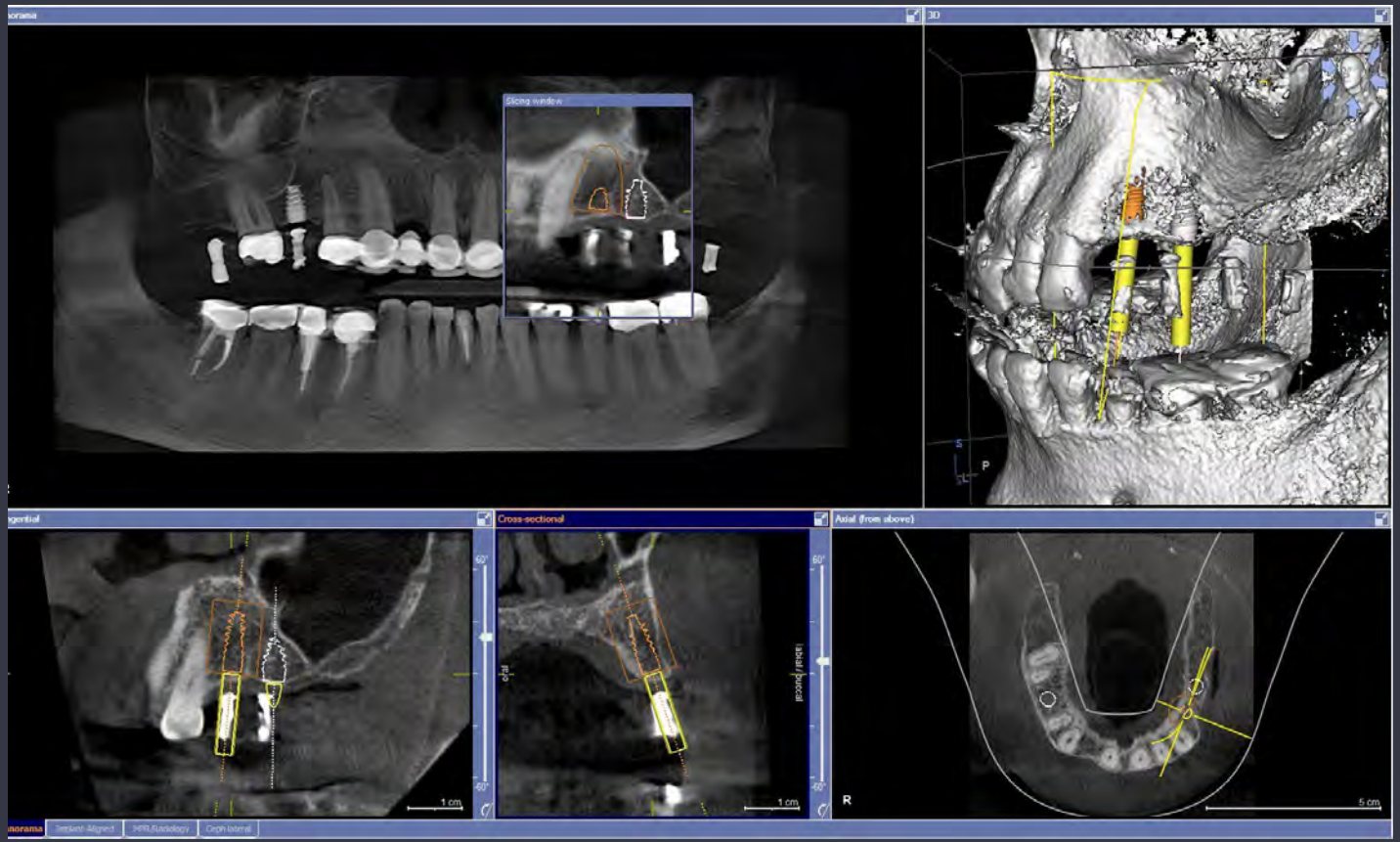
5: (Ravida et al., 2019)

Panoramic - 11/6/2019

CBCT - #4 Implant 4.3 x 8.5 mm



CBCT - #12 Implant 3.5 x 11.5 mm



CBCT - #14 Implant 4.3 x 8.5 mm

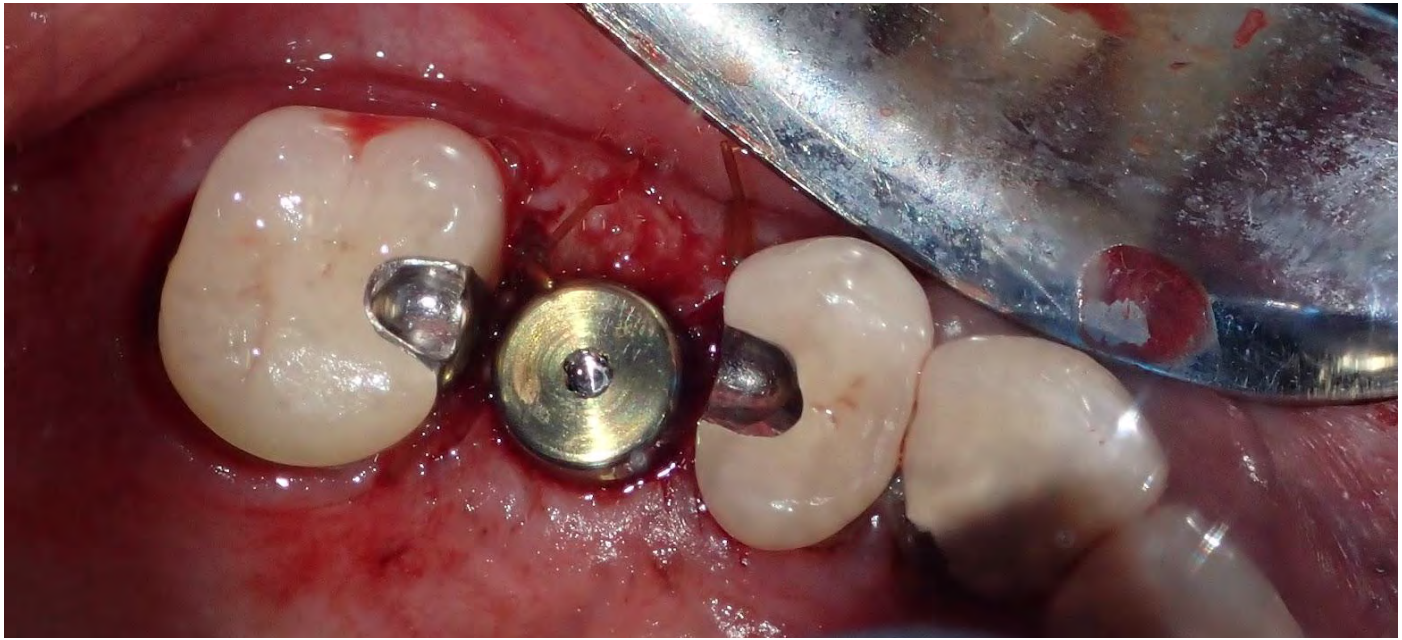
Implant Considerations

- #12
  - Limited buccal plate and bone in bucco-lingual direction
    - Ideally 4.3 RP for premolar
    - Radiographically 3.5 NP would fit more favorably
  - Surgical plan
    - Place 3.5 RP implant and graft if necessary
    - Length of implant is not as much of a concern due to lack of proximity of sinus
- #14
  - Close proximity to the sinus
    - Potentially opt for a sinus lift
    - Surgically plan to go mesial to sinus drape to maximize bone engagement
    - Even if sinus in involved, a minimum of 2 mm overall cortical bone thickness is recommended for optimum primary stability[6]

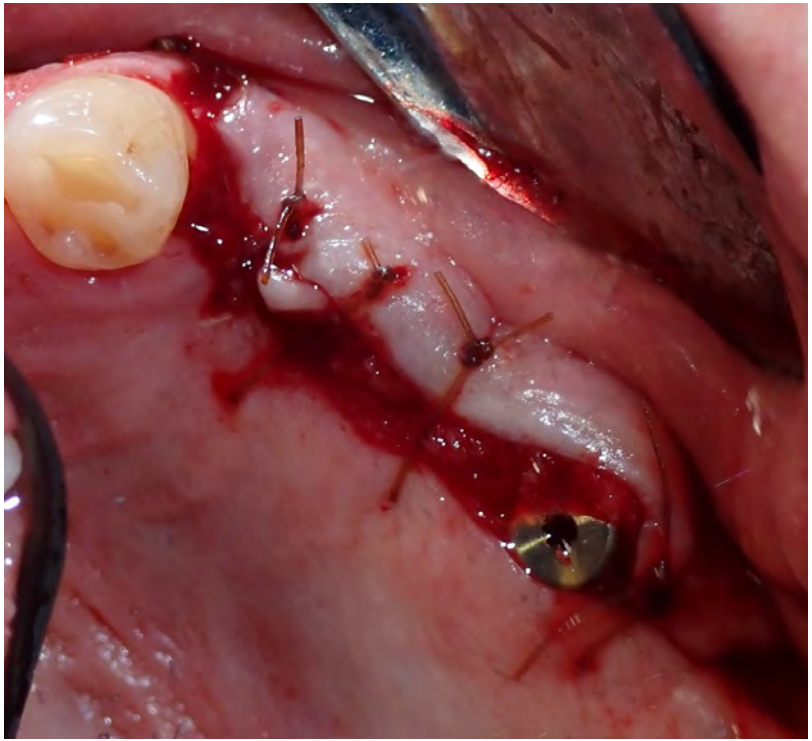
6: (Rues et al., 2021)

#4, 12, 14 Implant Placement

#4 Implant Placement



#12, 14 Implant Placement

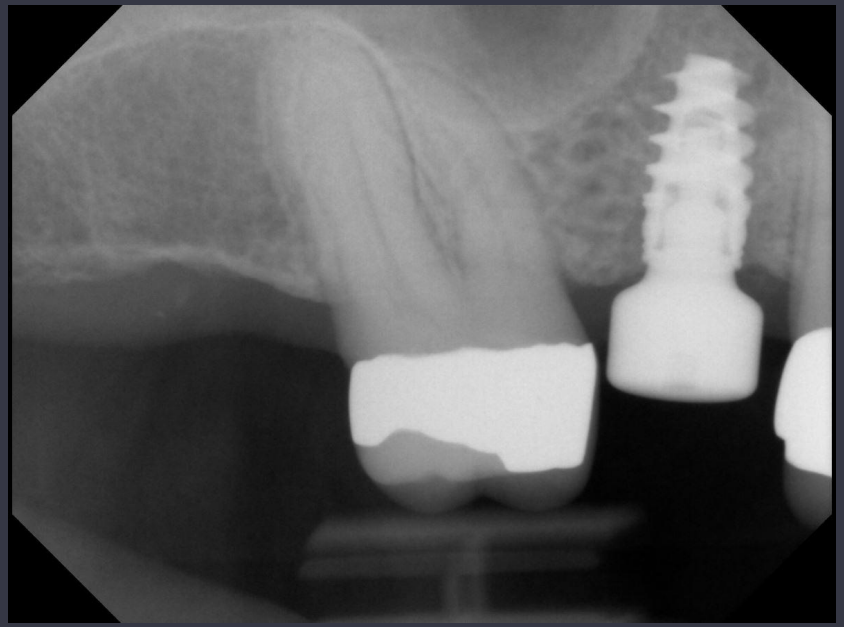


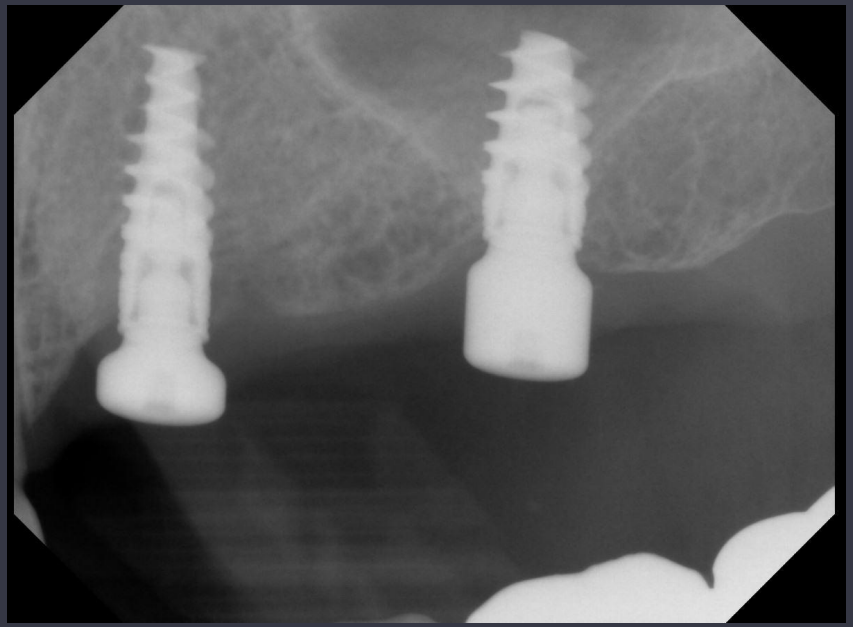
Panoramic - 10/19/2022

#4, 12-14 Implant Crown/Bridge Restorations

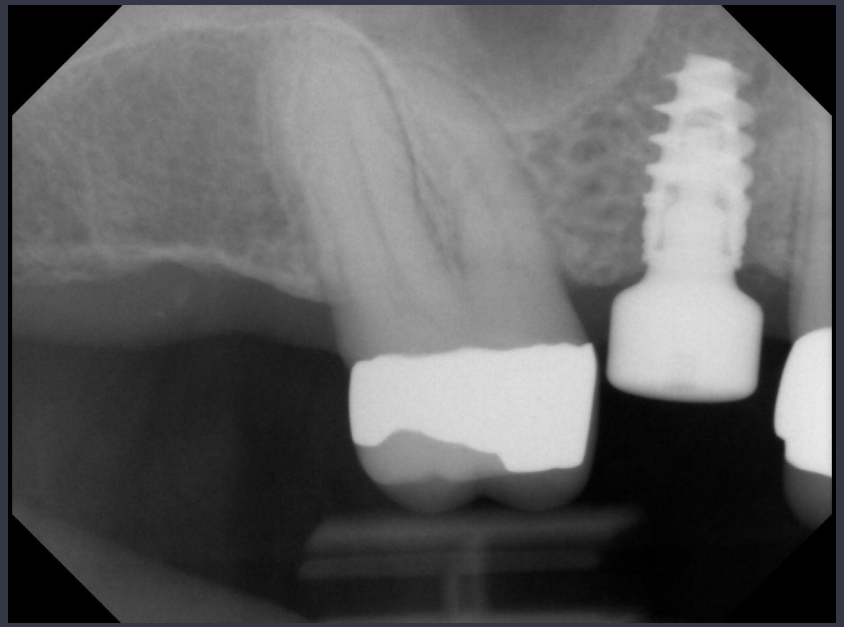
#4, 12, 14 Osseointegration Check

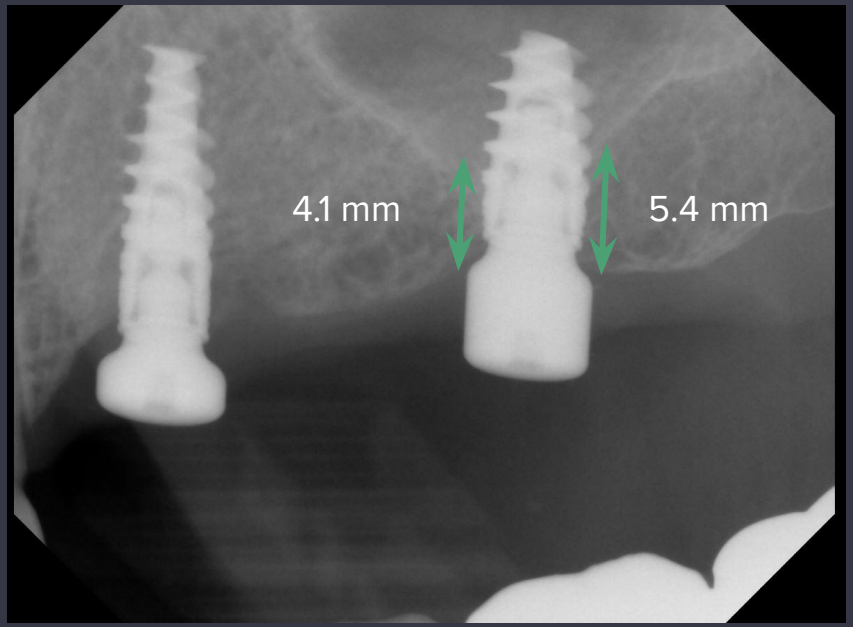
#4, 12, 14 Osseointegration Check - 2/13/2023





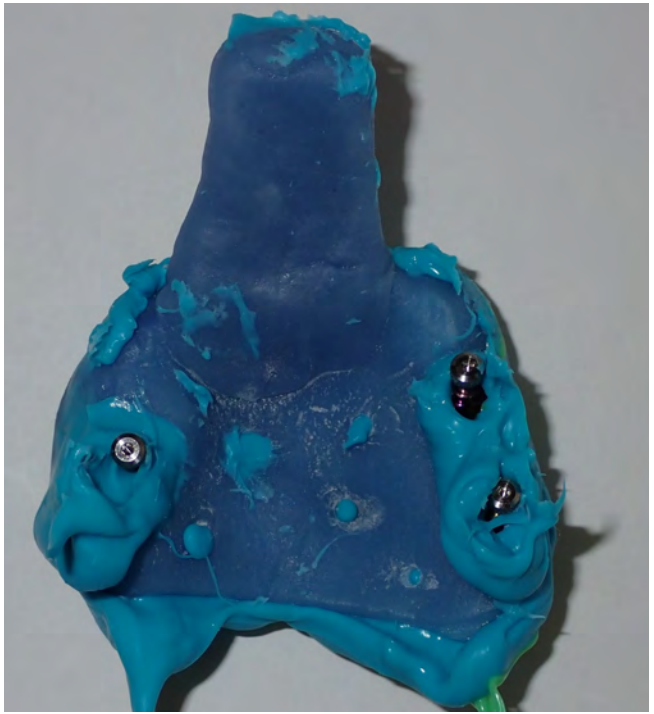
#4, 12, 14 Osseointegration Check - 2/13/2023

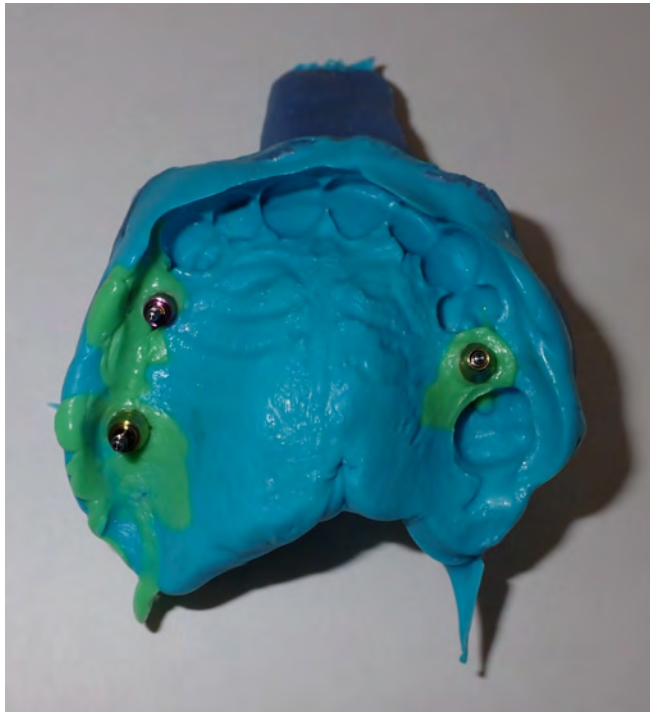




#4, 12, 14 Open Tray Impression Copings for PVS Final Impression

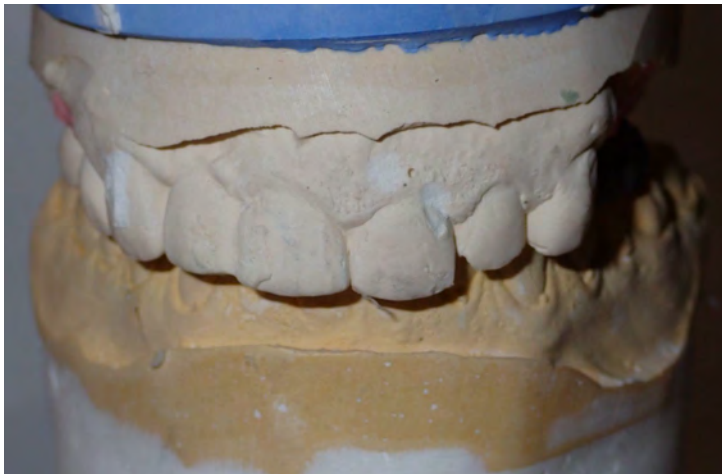
#4, 12, 14 Open Tray PVS Final Impression





#4, 12, 14 Putty Bite Registration with Healing Abutment for Tripodization

#12-14 Metal Bridge Framework Try-In



#12-14 Metal Bridge Framework Try-In

#4 Implant Crown & #12-14 Implant Bridge Restoration

#4 Implant Crown & #12-14 Implant Bridge Restoration

#4 Implant Crown & #12-14 Implant Bridge Delivery



Before & After

Before & After

Reflection

- Surgical planning and placement of #14
  - Able to maximize bone engagement and achieved optimal torque upon placement
  - Study the debate behind rationale for sinus lift if optimal bone stability can be achieved with 2 mm bone thickness[6]
  - In the future, either plan for two non-splinted single units more mesial or sinus lift first to maximize bone engagement
- Patient esthetics
  - Would have liked to restore #10 with indirect restoration, but challenging to match #6-8 bridge
- Overall the restorative workflow went smoothly
  - Interested to compare digital workflow for fewer appointments/patient convenience

6: (Rues et al., 2021)

References

Aghaloo, Tara, et al. “The Effects of Systemic Diseases and Medications on Implant Osseointegration: A Systematic Review.” *The International Journal of Oral & Maxillofacial Implants*, vol. 34, 2019, https://doi.org/10.11607/jomi.19suppl.g3.

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Thank You!

Questions?

OKU Sutro Excellence Day Project Cover Sheet

(ONE Cover Sheet per project)

Project Title: Restoring Form & Function with Single & Multi-Unit Implant Prosthetics

Award Category: Residents - AEGD

List names of all contributors to this project:

1. Student Name: Mali McGuire #989 134967
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8. Enter your abstract text here (300 word max) :

Enter abstract text here...As patients age and live longer, patients' demand for non-removable options to replace teeth grows. In this particular case study, I evaluated and formulated a comprehensive treatment plan to restore form and function in a partially edentulous patient. Considering the patient's preference for a fixed implant treatment option, I assessed the risks and benefits contributing to the long-term success of implants for this patient. I developed a surgical and restorative plan for implant placement involving both single unit and multi-unit implant prostheses. From implant planning, placement and restoration, I gained a greater understanding for similarities and differences between workflows for single unit and multi-unit implant prostheses. Thank you to my mentors Dr. Allen Wong, Dr. Debra Woo, Dr. Bill Lee, Dr. Michael Beckley and the whole AEGD faculty team for their support and guidance.

Thank you for filling out the OKU Sutro Excellence Day Project Cover Sheet!Please merge this Cover Sheet with your Final Project Materials (ie, research poster, clinical case, paper, or other creative production) before uploading to the Final Project Submission Form.