Implants in a Periodontally Compromised Patient

1A-5, 10/14/2020

Rounds Team

- Group Leader: Dr. Smithy
- Specialty Leader: Dr. Brunner
- Project Team Leader: Kendal Lane
- Project Team Participants: D1 Kimberly Padron; D2 Aliyah Howell; D3 Brandon Coppersmith

Patient: *[de-identified]*

- 72 y/o
- Male
- White
- CC: “I chew like a rodent”

Medical History

- Heart attack in 1988, atrial fibrillation
- Pt has defibrillator
- Previous 1 pack/day smoker, quit 12 years ago
- Medications: atorvastatin, metoprolol, irbesartan, aspirin, Xarelto, sotalol, metformin, digoxin
- Medical consults sent to cardiologist and PCP regarding clearance and Xarelto
- Pt held Xarelto 2 days prior to surgery

Dental History

- Periodontal disease
- Caries
- Extractions
- Bone grafting
- Scaling and root planning
- RCTs

Radiographs

Radiographs

Radiographic Findings

- Maxillary sinus in close proximity to remaining bone
- #12 RCT underfill
- Generalized bone loss

Clinical Findings

- Furcation involvement #18, 19, 30
- Mobility #4, 7, 8, 9, 10, 11, 18, 19, 23, 24, 25, 26, 30
- #12 fractured at the marginal gingiva
- Wear and erosion #23, 24, 25, 26
- Abfractions #20, 21, 28, 29
- Missing #1, 2, 3, 5, 12, 13, 14, 15, 16, 17, 31, 32
- Well-defined white hyperkeratosis on attached gingiva B #30 and LR edentulous area

Specific Findings

- Missing #3, 5, 13, 14
- #12 fractured at the marginal gingiva and underfilled RCT
- Maxillary sinus in close proximity to remaining bone

Periodontal Charting

			1			2	1		1	1	1						MOBILITY
																	FURCA
		P	P P		P P P	P P P	P P	P P	P P P	P							PLAQUE
																	BOP
			4 4 4		3 3 3	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4							MGJ
		1 1 1	9 7 7		5 4 4	6 4 4	5 2 3	3 2 2	2 2 2	4 2 4							CAL
		1 1 1	4 2 3		3 2 3	4 2 3	3 1 3	3 1 2	2 1 2	4 1 3							P.D.
			5 5 4		2 2 1	2 2 1	2 1 0	0 1 0	0 1 0	0 1 1							FGM
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
			4 3 3		2 1 0	2 2 1	0 1 0	0 1 0	0 0 0	1 2 2							FGM
		1 1 1	3 2 3		2 1 4	4 2 3	3 1 2	3 1 2	2 1 2	3 2 3							P.D.
		1 1 1	7 5 6		4 2 4	6 4 4	3 2 2	3 2 2	2 1 2	4 4 5							CAL
																	MGJ
																	BOP
			P P		P P	P P P	P	P	P P	P							PLAQUE
																	FURCA
																	PROGNOSI

																	PROGNOSI
													1	1			FURCA
		P	P P	P P	P P	P P	P P P	P P P	P P P	P P	P P	P P	P P P	P P P			PLAQUE
																	BOP
		4 4 4	3 3 3	3 3 3	3 3 3	2 2 2	2 2 2	2 2 2	2 1 2	2 2 2	5 5 5	6 6 6	6 6 6	6 6 6			MGJ
		5 3 5	5 4 5	4 3 4	3 2 3	3 3 3	3 3 4	4 3 3	2 2 2	3 2 3	4 3 4	4 4 4	5 4 6	6 5 5			CAL
		3 2 3	3 2 3	3 2 3	2 1 2	2 1 2	2 1 3	3 1 2	2 1 2	2 1 2	3 2 3	3 2 3	3 2 4	4 3 3			P.D.
		2 1 2	2 2 2	1 1 1	1 1 1	1 2 1	1 2 1	1 2 1	0 1 0	1 1 1	1 1 1	1 2 1	2 2 2	2 2 2			FGM
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17		
		2 2 2	3 4 3	2 3 2	0 0 0	1 1 1	2 3 2	2 3 1	1 2 1	1 1 1	3 4 3	2 3 2	1 1 3	1 2 2			FGM
		3 2 3	3 1 2	3 1 2	2 1 2	3 1 3	3 1 2	3 1 4	3 1 2	2 1 2	3 1 3	3 2 3	4 2 3	3 2 3			P.D.
		5 4 5	6 5 5	5 4 4	2 1 2	4 2 4	5 4 4	5 4 5	4 3 3	3 2 3	6 5 6	5 5 5	5 3 6	4 4 5			CAL
		4 4 4	2 2 2	3 3 3	5 5 5	6 6 6	4 4 4	5 5 5	3 3 3	4 4 4	2 2 2	3 3 3	3 3 3	3 3 3			MGJ
																	BOP
		P	P P	P P		P P P	P P P	P P P	P P P	P P	P P	P P	P P P	P P P			PLAQUE
		1											2	2			FURCA
		1				1	1	1	1				1	1			MOBILITY

Diagnosis

- ADA Stage IV- Advanced Chronic Periodontitis
- AAP Stage IV, Grade B
- Medium caries risk
- Medium oral cancer risk

Problem List

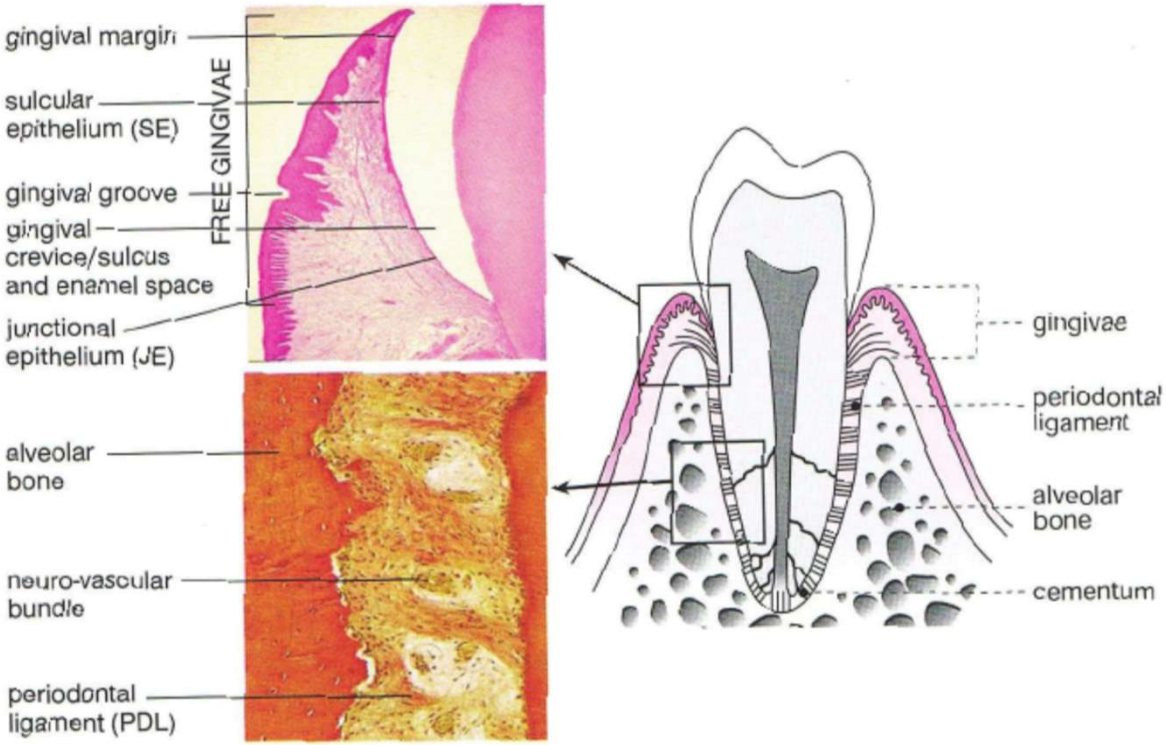
- Fractured tooth
- Missing teeth
- Periapical radiolucency
- Periodontal disease

Appropriate Clinical Photographs

Appropriate Clinical Photographs

What is the Periodontium?

- *The Periodontium is a functional support system of tissues that surround and attach teeth to bone. It is formed by four main tissues: gingiva, cementum, periodontal ligament, and alveolar bone.*



I., U. Madukwe. "Anatomy of the Periodontium: A Biological Basis for Radiographic Evaluation of Periradicular Pathology." *Journal of Dentistry and Oral Hygiene*, vol. 6, no. 7, 2014, pp. 70–76., doi:10.5897/jdoh2014.0119.

What can cause the loss of the interdental papilla ?

When delivering implant surgery, an implant with the best prognosis should be chosen that will work well with the patient's bone as the healing and long-term outcome of the implant and surrounding tissues depend on this. The trauma and change to the bone will play an effect on the dental papilla heights, widths, and health. After an implant is placed, there is no natural bone. The bone in this area will also be at risk for resorption. If there is resorption, thinning of the bone, and or prolonged healing time for the soft tissue around the implant without gingival regrowth, it can lead to dental papilla loss.

How can we prevent this loss?

To combat this, bone or soft tissue grafts are used. Adding in a bone graft will help to stabilize the site and the underlying bone, while the soft tissue grafts aid the gums and tissue in healing.

Ensuring appropriate healing in the bone and dental papilla contribute to the longterm function of dental implants.

FRIZZERA, Fausto et al. Treatment of peri-implant soft tissue defects: a narrative review. *Braz. oral res.* [online]. 2019, vol.33, suppl.1 [cited 2020-09-29], e073. Available from: <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1806-83242019000200603&lng=en&nrm=iso>. Epub Sep 30, 2019. ISSN 1807-3107. http://dx.doi.org/10.1590/1807-3107bor-2019.vol33.0073.

D_3 PICO

- **Clinical Question: Does two single implants on either side of a natural tooth or a two implant supported three-unit bridge have a higher success rate?**

PICO Format

P: A patient with two edentulous spaces on each side of a natural tooth

I: Two single implants

C: Extract a natural tooth and place a three unit implant supported bridge

O: Higher success rate

PICO Formatted Question

In a patient with two edentulous spaces on each side of a natural tooth, does two single implants or extracting the natural tooth and placing a three unit implant supported bridge have a higher successs rate?

Clinical Bottom Line

Search Background

- **Date(s) of Search:**
- **Database(s) Used:**
- **Search Strategy/Keywords:**

Search Background

- **MESH terms used:**

Article 1 Citation, Introduction

- Citation: Authors, Title, Journal, Date, Volume, Page Numbers.
- Study Design:
- Study Need / Purpose:

Article 1 Synopsis

- 1-2 slides
- Method
- Results
- Conclusions
- Limitations

Article 1 Selection

- 1 slide
- Reason for selection
- Applicability to your patient
- Implications

Article 2 Citation, Introduction

- Citation: Authors, Title, Journal, Date, Volume, Page Numbers.
- Study Design:
- Study Need / Purpose:

Article 2 Synopsis

- 1-2 slides
- Method
- Results
- Conclusions
- Limitations

Article 2 Selection

- 1 slide
- Reason for selection
- Applicability to your patient
- Implications

Levels of Evidence

☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
☐ **1b** – Individual RCT
☐ **2a** – Systematic Review of Cohort Studies
☐ **2b** – Individual Cohort Study
☐ **3** – Cross-sectional Studies, Ecologic Studies, "Outcomes" Research
☐ **4a** – Systematic Review of Case Control Studies
☐ **4b** – Individual Case Control Study
☐ **5** – Case Series, Case Reports
☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
☐ **7** – Animal Research
☐ **8** – In Vitro Research

Double click table to activate check-boxes

Strength of Recommendation Taxonomy (SORT)

☐	**A** – Consistent, good quality patient oriented evidence
☐	**B** – Inconsistent or limited quality patient oriented evidence
☐	**C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening

Double click table to activate check-boxes

Conclusions

- 1 slide
- D3: how does the evidence apply to this patient?
- D4: how will you advise the patient?

Discussion Questions

- 1-2 slides
- List posted discussion questions
- Questions may also be from Group Leader

Discussion Questions