ROUNDS FALL 2020

PERIODONTICS

10/28/2020

ROUNDS TEAM

- Group Leader: Dr. Derderian
- Specialty Leader: Dr. Kassab
- Project Team Leader D4: Christine Shi
- Project Team Participants:
  - D3: Zach Huybrecht
  - D2: Raj Patel
  - D1: Ryan Nemeh

PATIENT C.V.

- 31 years old
- Asian
- Female
- CC: “I want Marquette to be my new dental provider.”

MEDICAL HISTORY

- No medications
- Allergies: alcohol wipes - rash
- Smokes 2-3 cigarettes per day
    - Not interested in quitting
- Ezcema

DENTAL HISTORY

- Last visit to the dentist prior to her first visit at Marq (2019): 1-2 years ago (2017)
- Sensitive to cold and sweets
- Clicking of the jaw upon opening
- Brush: 2x/day
- Floss: 1x/week
- Clenches teeth

FMX


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11, 4/17/2019

LOWER ANTERIORS

LOWER RIGHT QUADRANT

CLINICAL PHOTOS

CLINICAL PHOTOS

*After treatment

SPECIFIC FINDINGS

- #25: mid lingual 5mm PD, deep subgingival calculus, periodontal abscess
- Pt had a tongue piercing, but not anymore
- #30 lingual: Class II furcation with subgingival calculus

PERIODONTAL CHART

																PROGNOSI
																FURCA
																PLAQUE
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				B			B	B				B				BOP
																PLAQUE
																FURCA
																MOBILITY

DIAGNOSIS

- 2019: Advanced Chronic Periodontitis
- 2020:
  - Stage III: Severe periodontitis with potential for add. tooth loss
  - Grade C: Rapid rate of progression

PROBLEM LIST

- Caries
- Defective restoration
- Perio disease
- Sensitivity

What are Osteoclasts and Osteoblasts?

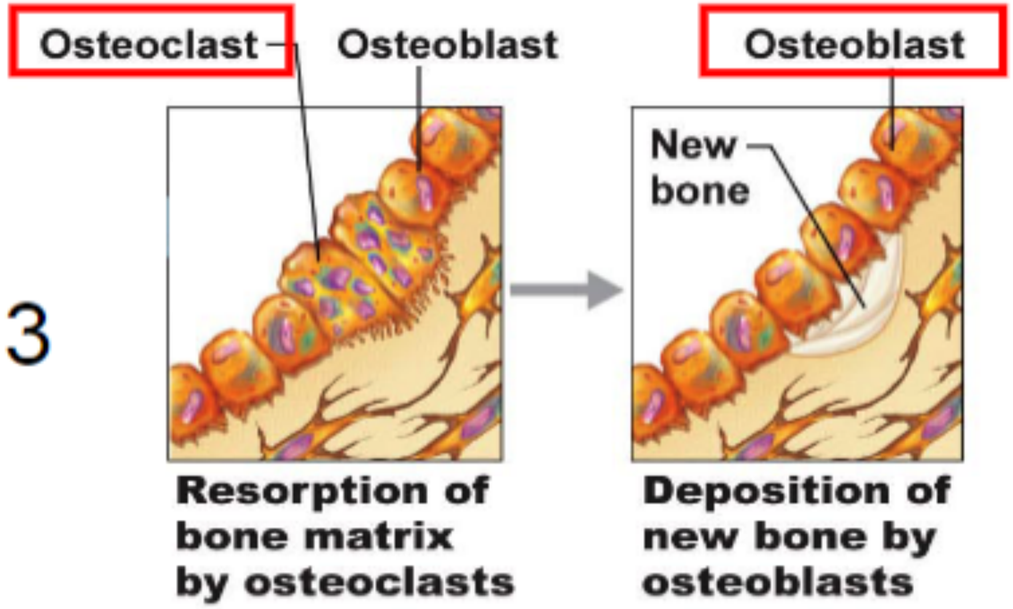
-These are the two main cells involved in building and breaking down bone.

What are Osteoclasts? What do they do?

- Various cells that are derived from monocytes circulating in the blood are fused together to form Osteoclasts.
- Osteoclasts are a type of cell found in the Howship Lacunae (small depressions on the bones surface).
- Osteoclasts maintain a critical function in humans. This core function is primarily resorbing mineralized bone, dentine, and calcified cartilage.

What are Osteoblasts? What do they do?

- Upon osteogenic cells differentiation in the periosteum, osteoblasts are formed.
- Osteoblasts are found to be extremely active where new bone is being formed.
- Osteoblasts contain a core function of building new bone. The very opposite of osteoclasts.



D2 PATHOLOGY: HOW DOES SMOKING AFFECT THE PERIODONTIUM?

- Higher periodontitis risk in smokers than non-smokers
- Quitting lowers risk to that of non-smokers
- Periodontitis in smokers: Gingival inflammation has less bleeding with more fibrotic tissue
- Lower blood flow due to vasoconstriction and smaller blood vessels causing slower wound healing
- Altered inflammatory response:
    - Altered function of neutrophils

D2 PATHOLOGY CONTINUED

- Decrease in immunoglobins, PMNs and lymphocytes
  - Leads to more dangerous plaque on teeth with P.gingivalis and T. forsynthia
  - More difficult to remove from periodontal pockets
- Upregulation of interleukins
  - Increase in bone resorption
  - Increased oxidative stress from smoking
- Treatment complications: lower PD and CAL reduction, tissue grafting complications, peri-implantitis

Reference citation(s): Guentsch, Arndt. "Smoking and Periodontics."
-Leite FRM, Nascimento GG, Baake S, Pedersen LD, Scheutz F, López R. Impact of Smoking Cessation on Periodontitis: A Systematic Review and Meta-analysis of Prospective Longitudinal Observational and Interventional Studies. Nicotine Tob Res. 2019 Nov 19;21(12):1600-1608. doi: 10.1093/ntr/nty147. PMID: 30011036.
-Leite FRM, Nascimento GG, Scheutz F, López R. Effect of Smoking on Periodontitis: A Systematic Review and Meta-regression. Am J Prev Med. 2018 Jun;54(6): 831-841. doi: 10.1016/j.amepre.2018.02.014. Epub 2018 Apr 12. PMID: 29656920.
-https://angelamw.weebly.com/chronic-periodontitis-article.html

D3 PICO

- Clinical question: What are the treatment options for patients with tongue rings and/or experiencing chronic trauma to the periodontium?

PICO FORMAT

- P: patients with vertical bone loss and recession due to intramural tongue piercings
- I: guided tissue regeneration
- C: mucogingival surgery
- O: increased probing depth reduction and clinical re-attachment

PICO FORMATTED QUESTION

- In patients with vertical bone loss and recession due to intraoral tongue piercings, does guided tissue regeneration (GTR) in comparison to mucogingival surgery promote better probing depth reduction and clinical re-attachment?

CLINICAL BOTTOM LINE

- Patients need better information on the potential complications associated with tongue piercings.
- If their recession and/or bone loss doesn’t respond well to non-surgical SRP the surgical treatment of choice is conventional mucogingival surgery, specifically, a subepithelial connective tissue graft with a coronally advanced flap

SEARCH BACKGROUND

- **Date(s) of Search:** 10/12/20, 10/17/20
- **Database(s) Used:** PubMed.gov
- **Search Strategy/Keywords:** searched systematic reviews and meta-analyses on PubMed using keywords: tongue piercing, oral, gingival recession, guided tissue regeneration, mucogingival, complications

SEARCH BACKGROUND

- **MESH terms used:** gingival recession, oral, piercing, guided tissue regeneration

ARTICLE ONE

- Citation: Hennequin-Hoenderdos, N., Slot, D., & Van der Weijden, G. (2015). The incidence of complications associated with lip and/or tongue piercings: a systematic review. International Journal of Dental Hygiene, 14(1), 62–73.

- Study Design: Systematic Review

- Study Need / Purpose: To obtain information concerning the incidence of complications related to lip and tongue piercings

ARTICLE ONE SYNOPSIS

- **Methods:**
  - Conducted in accordance with the Cochrane handbook for systematic reviews of interventions using 3 internet sources to identify papers that satisfied the study purpose: MEDLINE-PubMed, Cochrane-CENTRAL, and EMBASE.
  - Databases searched for studies conducted through Jan 2015.
- **Results:**
  - An independent screening of 1580 unique titles and abstracts revealed 15 publications that met the eligibility criteria.
  - The incidence of gingival recessions appeared to be 44% in subjects with a tongue piercing
  - For tongue piercing, the tooth injury RR was 2.77 with a 95% CI ranging from 1.99 to 3.85 (P = 0.00001)

ARTICLE ONE SYNOPSIS

- **Conclusions:**
  - A significant relative risk was revealed between tongue piercings and an increased incidence of enamel fissures, enamel fractures and gingival recessions (especially in the lingual region of the mandibular incisors).
  - Both lip and tongue piercings are highly associated with the risk of gingival recession, and tongue piercings are also associated with tooth injuries.
- **Limitations:**
  - Non-randomized studies are likely to have a greater potential risk of bias than randomized studies.

ARTICLE ONE SELECTION

- To provide background on complications commonly seen in patients with tongue rings.
- Directly applies to our patient.

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
- X **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

ARTICLE TWO

- Chambrone, L., Sukekava, F., Araújo, M. G., Pustiglioni, F. E., Chambrone, L. A., & Lima, L. A. (2010). Root-Coverage Procedures for the Treatment of Localized Recession-Type Defects: A Cochrane Systematic Review. Journal of Periodontology, 81(4), 452–478. doi:10.1902/jop.2010.090540

- **Study Design:** Systematic Review

- **Study Need / Purpose:** To evaluate the options and effectiveness of different root-coverage procedures in the treatment of recession-type defects

ARTICLE TWO SYNOPSIS

- **Methods**
  - Conducted through the Cochrane Central Register of Controlled Trials using MEDLINE and EMBASE. Searched through Oct 2008
  - Only RCTs with a duration ≥6 months were included and resulted in 24 RCT studies that met their inclusion criteria
- **Results**
  - With respect to gingival recession (GR) change, there was a statistically significantly greater reduction in GR for subepithelial connective tissue grafts (SCTG) compared to guided tissue regeneration (GTR) bioabsorbable membrane sites ($P = 0.0041$)
  - Regarding clinical attachment level changes, all comparisons failed to demonstrate significant differences among procedures.

ARTICLE TWO SYNOPSIS

- **Conclusions**
  - SCTGs, a CAF alone or associated with grafts or biomaterials and GTR may be used as root-coverage procedures for the treatment of recession-type defects.
  - In cases where both root coverage and gain in the width of keratinized tissue are expected, the use of SCTG seems to be more adequate.
- **Limitations**
  - It was difficult to combine data from these trials because of a great variability of comparisons between the various procedures and the lack of a gold-standard control group
  - Few studies reported a follow-up period >12 months
  - Accuracy of results affected by bias due to authors questionnaires or lack of another requirement
  - Studies including Miller Class III or IV were not included

ARTICLE TWO SELECTION

- The article does a review and statistical analysis of the treatment options for our patient
- Implications
  - The statistical results may help with the decision making process for the best treatment option for our patient

LEVELS OF EVIDENCE

- X **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
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- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

ARTICLE THREE

- Al-Hamdan, K., Eber, R., Sarment, D., Kowalski, C., & Wang, H.-L. (2003). Guided Tissue Regeneration-Based Root Coverage: Meta-Analysis. Journal of Periodontology, 74(10), 1520–1533. doi:10.1902/jop.2003.74.10.1520

- Study Design: Meta-Analysis

- Study Need / Purpose: to determine whether GTRC provides significantly improved clinical outcomes compared to conventional periodontal surgical approaches for tx of marginal tissue recession

ARTICLE THREE SYNOPSIS

- **Methods**
  - Conducted by using the National Library of Medicine computerized bibliographic database, MEDLINE from January 1990 to October 2001
  - Meta Analysis was performed using the weighed means for each group (GTRC vs CMGS) and a paired t-test was performed w/ 95% CI
- **Results**
  - Both CMGS and GTRC resulted in significant gains of clinical attachment (2.7 ± 1.2mm and 3.1 ± 1.3mm, respectively, $P<0.05$), but there was no difference between the two groups.
  - Compared to GTRC, CMGS resulted in significantly ($P <0.05$) increased KG (2.1 mm vs. 1.1 mm), root coverage (81% vs. 74%), and percent- age of defects with complete root coverage (55% vs. 41%).

ARTICLE THREE SYNOPSIS

- **Conclusions**
  - Guided tissue regeneration-based root coverage can be used successfully to repair gingival recession defects with good success
  - Conventional mucogingival surgery, however, resulted in statistically better root coverage, width of keratinized gingiva, and complete root coverage
- **Limitations**
  - Publication bias and English language bias were present
    - Non-English papers or unpublished data was not included
  - If a larger number of studies, with increased numbers of subjects, were available, the results of this meta-analysis would be more reliable

ARTICLE THREE SELECTION

- Directly answers our PICO question
- Compares the surgical treatment options for gingival recession defects that our patient currently presents with

LEVELS OF EVIDENCE

- X **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
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STRENGTH OF RECOMMENDATION TAXONOMY (SORT)

☐	**A** – Consistent, good quality patient oriented evidence
X	**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

CONCLUSIONS: D3

How does the evidence apply to this patient?

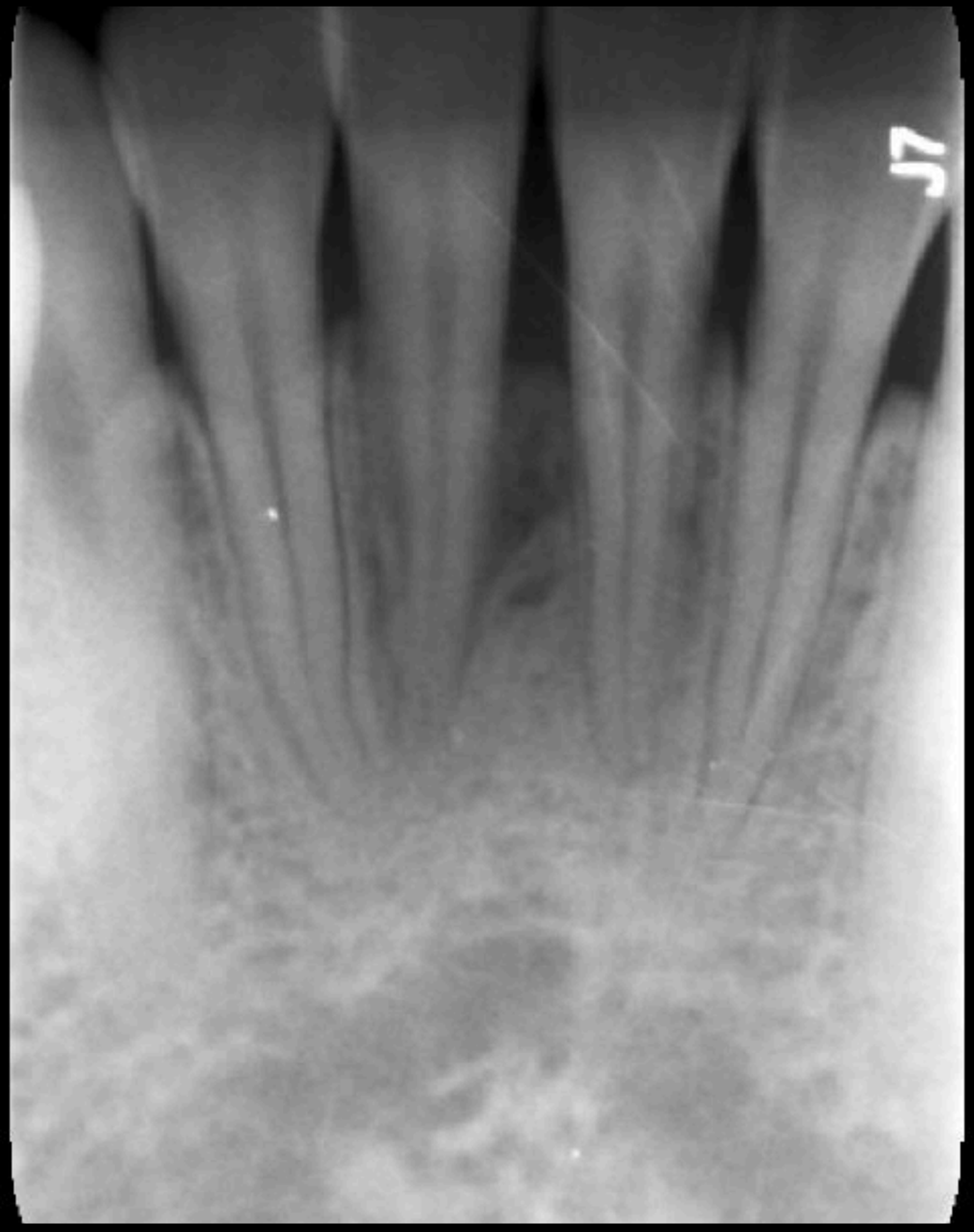
- This patient will need a thorough treatment plan in order to address her recession/bone loss due to the tongue piercing and this evidence applies directly to the recommended treatment options
- Recommend non-surgical SRP to see if any clinical attachment gain/ probing depth reduction
- If non, or not significant would recommend patient be seen with Periodontics for connective tissue graft with coronally advanced flap surgery

CONCLUSIONS: D4

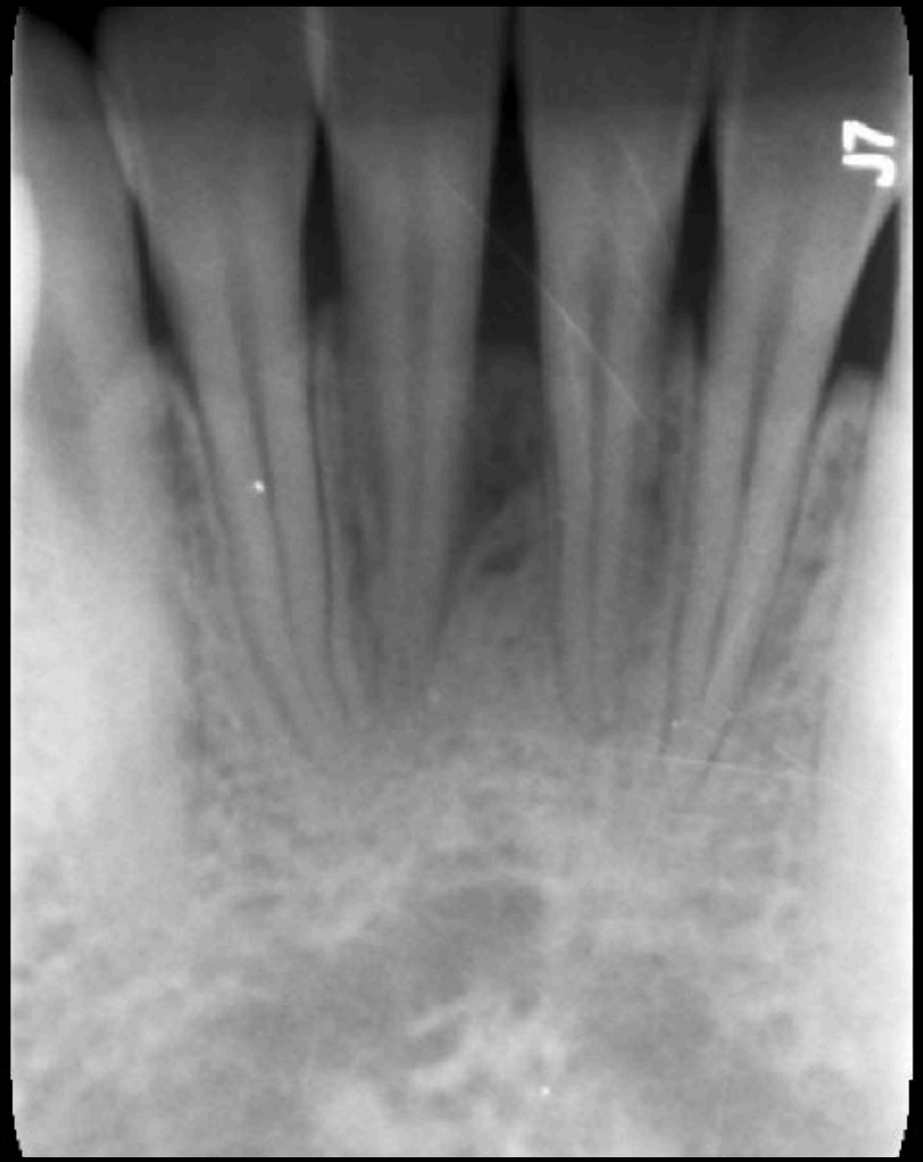
- Based on your D3's bottom line recommendations, how will you advise your patient?
  - Discontinue tongue piercing
  - S/RP; maintain oral hygiene
  - Perio tx is currently unnecessary
- How will you help your patient?
  - 6 m.o. recalls

LOWER ANTERIORS

FEB 2020



Before S/RP



After S/RP

THANK YOU!

DISCUSSION QUESTIONS?