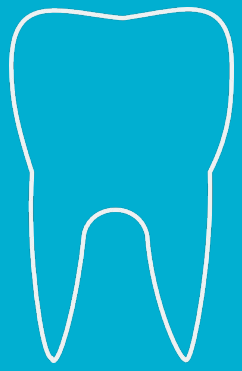
Odonto- and Onco-: A presentation of two -ologies

Evidence Based Dentistry Rounds
Specialty: Collaborative Care
Group: 10
Team: A1
Date: 11/11/2020



Rounds Team

- **Group Leader:** Dr. Yray
- **Specialty Leader:** Dr. Khaled and Dr. Yale
- **Project Team Leader:** Scarlett Young
- **Project Team Participants**
  - **D3: Olivia Nguyen**
  - **D2: Lucas Peppler**
  - **D1: Eddy Park**

Patient

- Age: 68 yo
- Gender: Female
- Ethnicity: Caucasian
- Chief Complaint: “My tooth broke, not giving me any pain.”

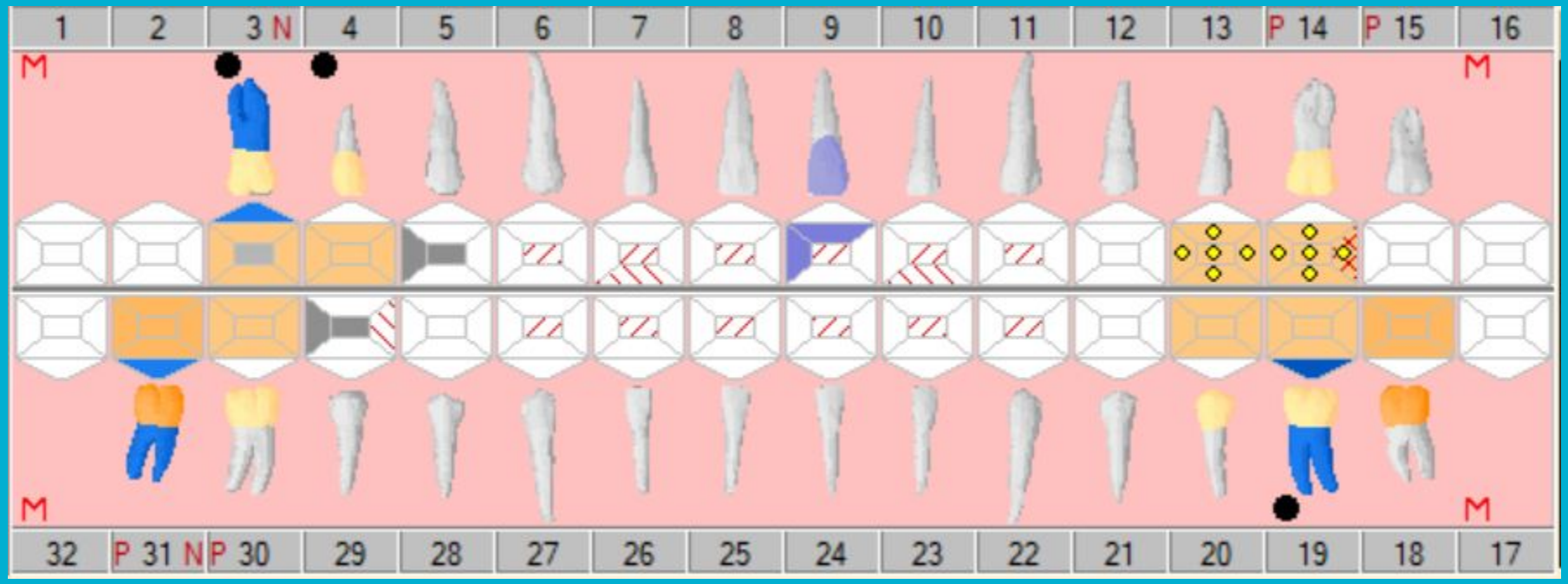
Medical History

- Non-Hodgkins Lymphoma
  - Follicular lymphoma
  - Stopped chemotherapy in 2017
  - Check-up with her oncologist every 6 months (Next appointment 12/2020)
- Osteoarthritis and GERD (after spicy meals)
- Allergies: Seasonal allergies, metal jewelry (nickel/chrome), shrimp (rxn: itchy throat), Arithromycin (rxn: itching)
- Medications: Sulfamethoxazole-trimethoprim (400-80 mg dose 1x daily)

Dental History

- Caries excavation
- Core build-up
- RCT
- Crowns
- Restorations
- Crown lengthening
- Biopsy
- CBCT & x-rays

Odontogram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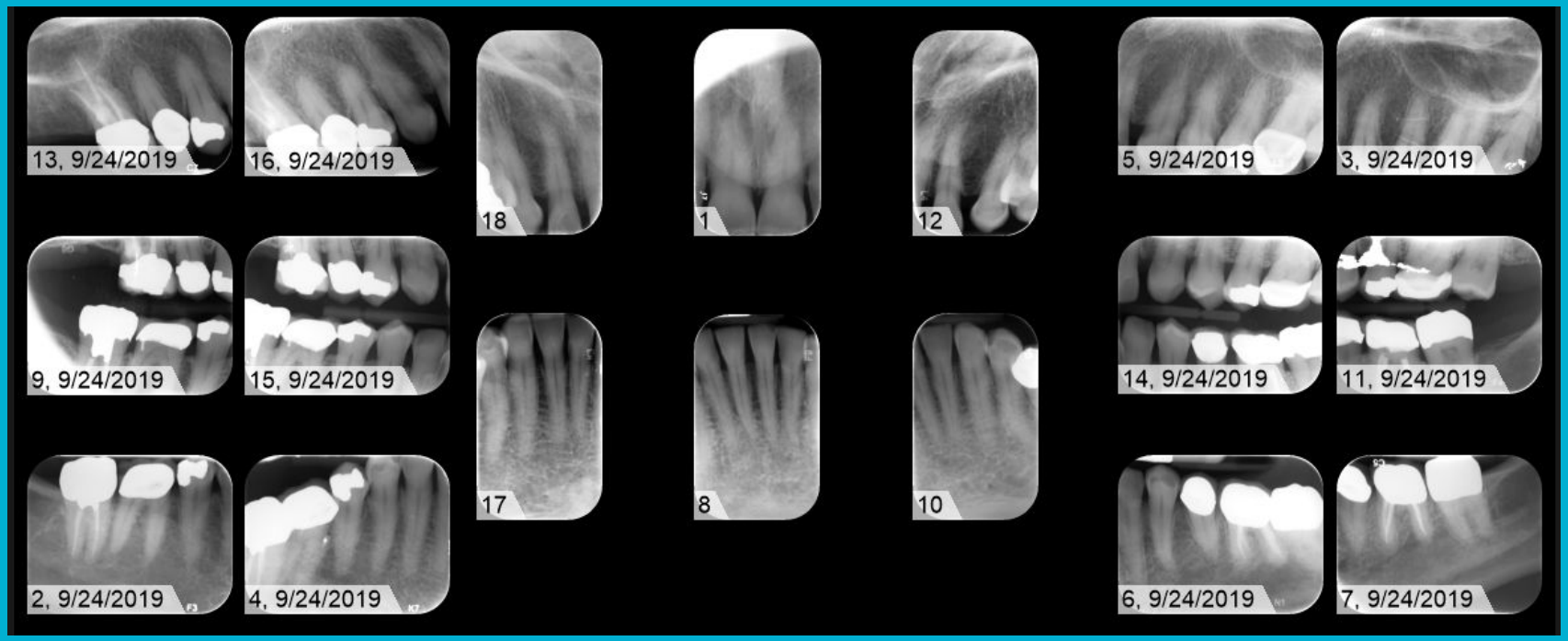
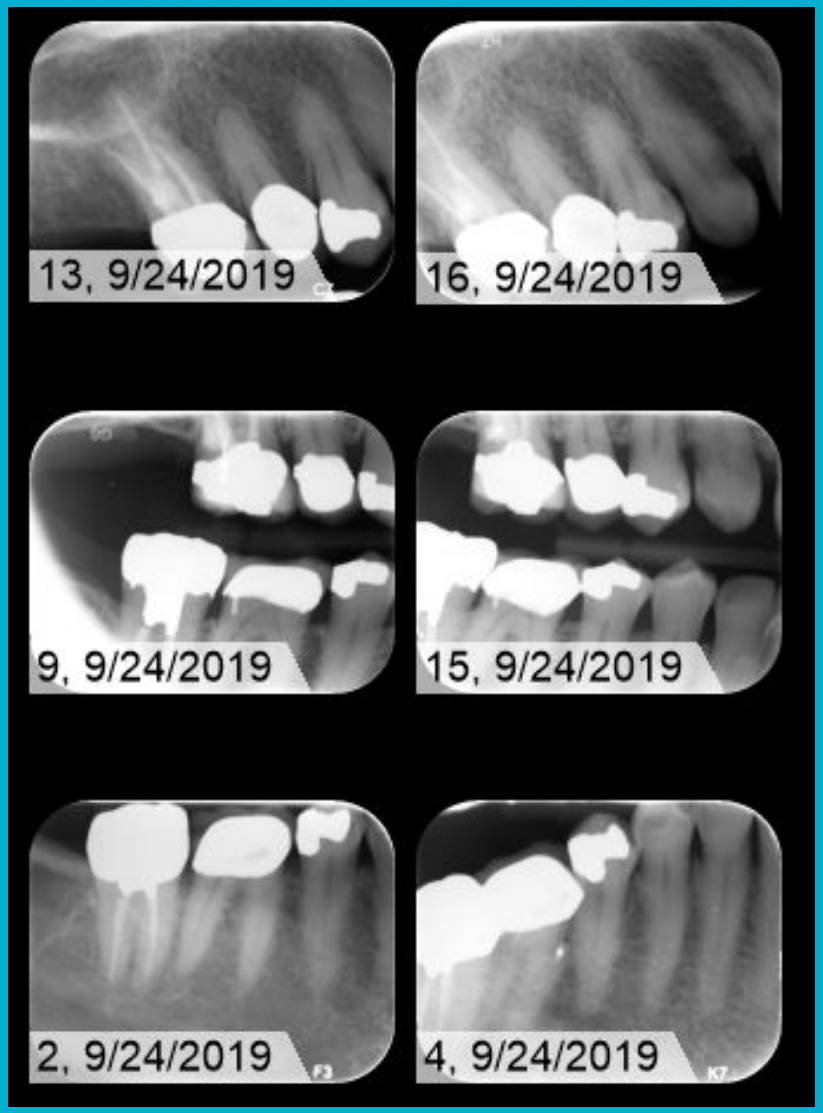
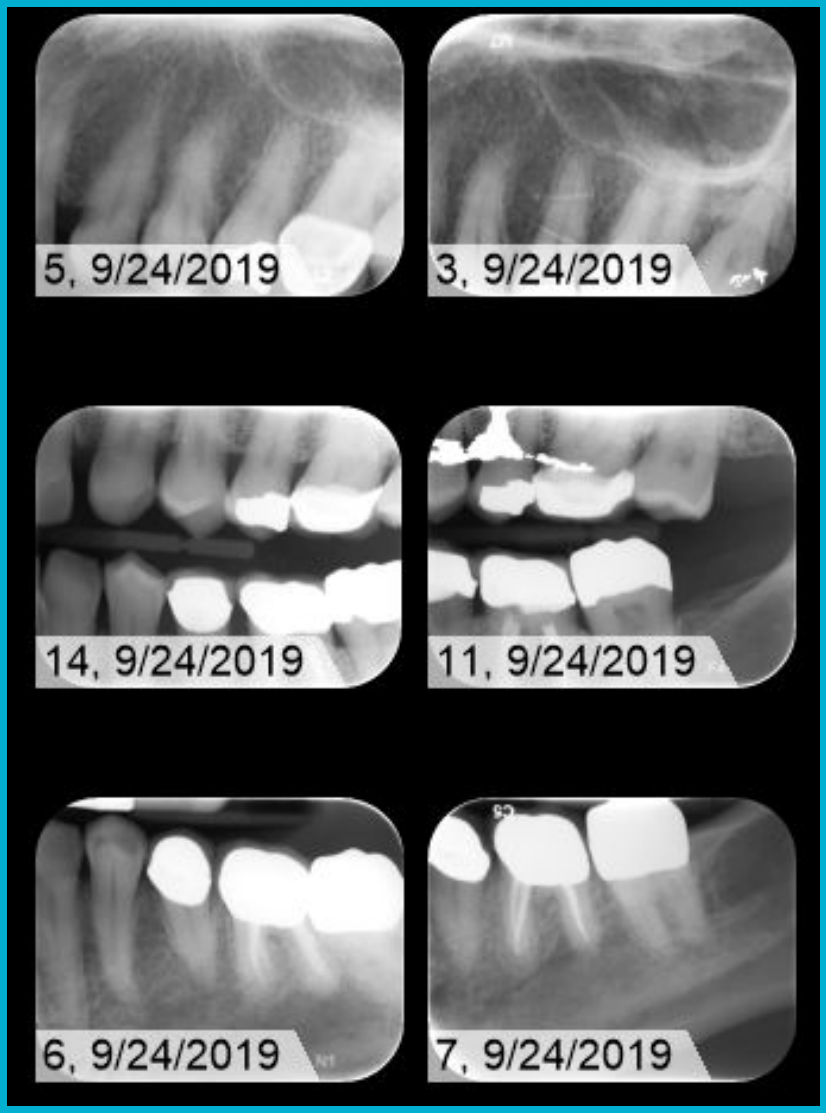
Radiographs

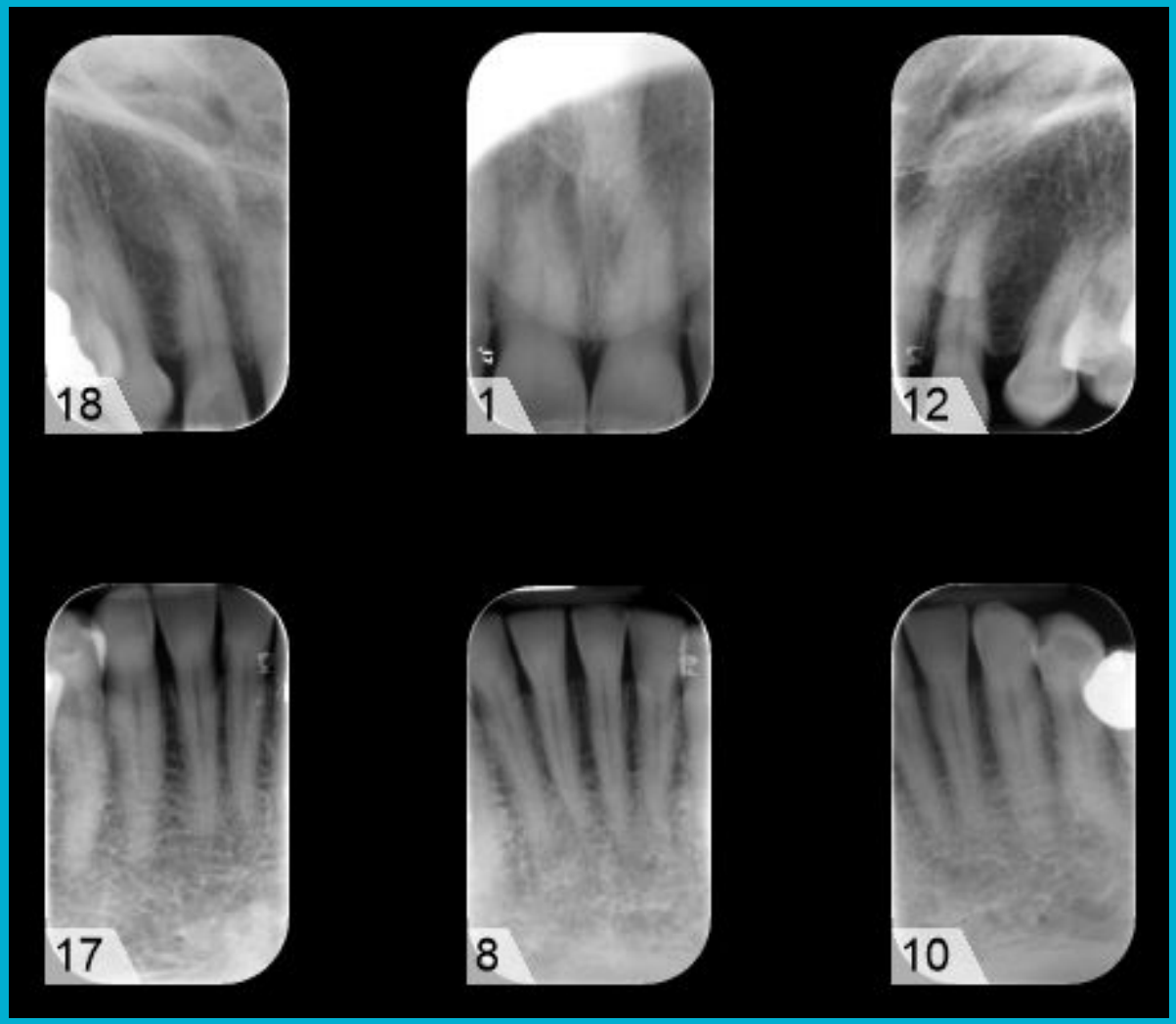


Radiographs





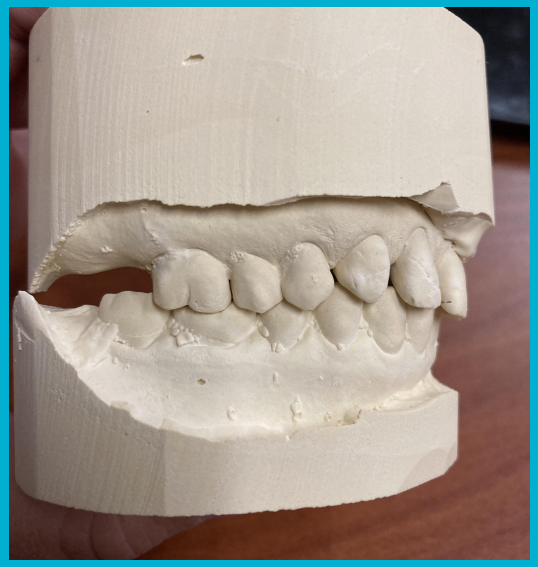
Radiographs

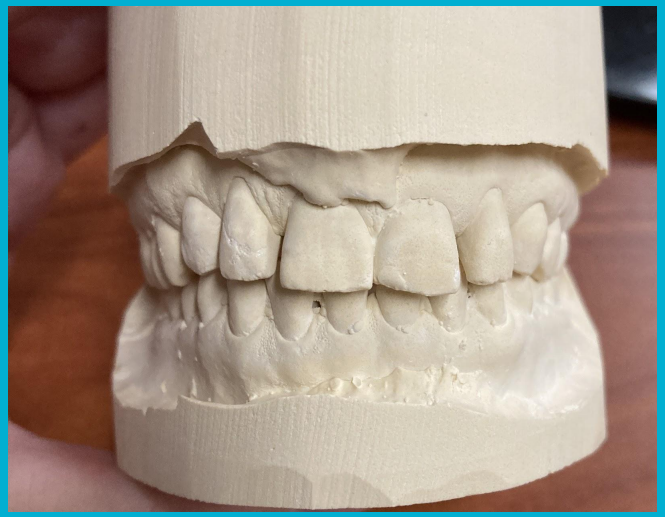


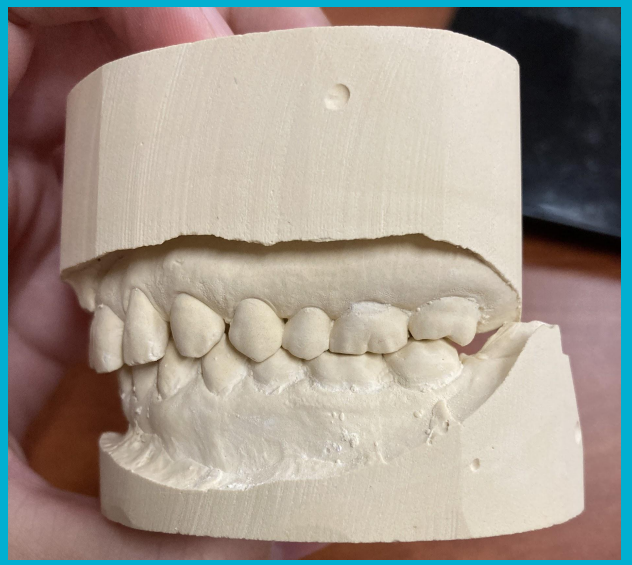
Radiographic Findings

- PARLs #3, 4, 19
- Radiographic bone height <2mm
- Recurrent decay/defective restoration on D of #14

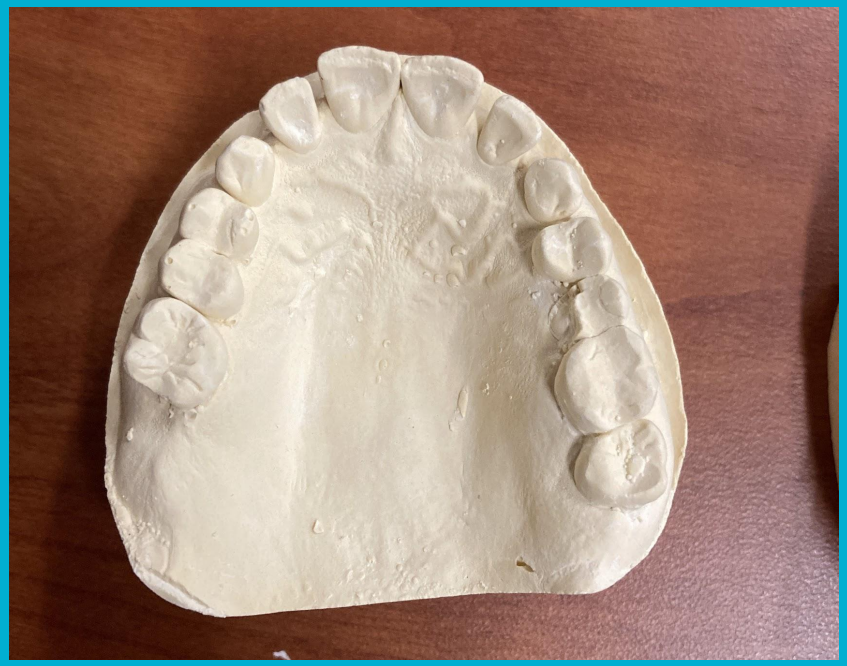
Clinical Findings

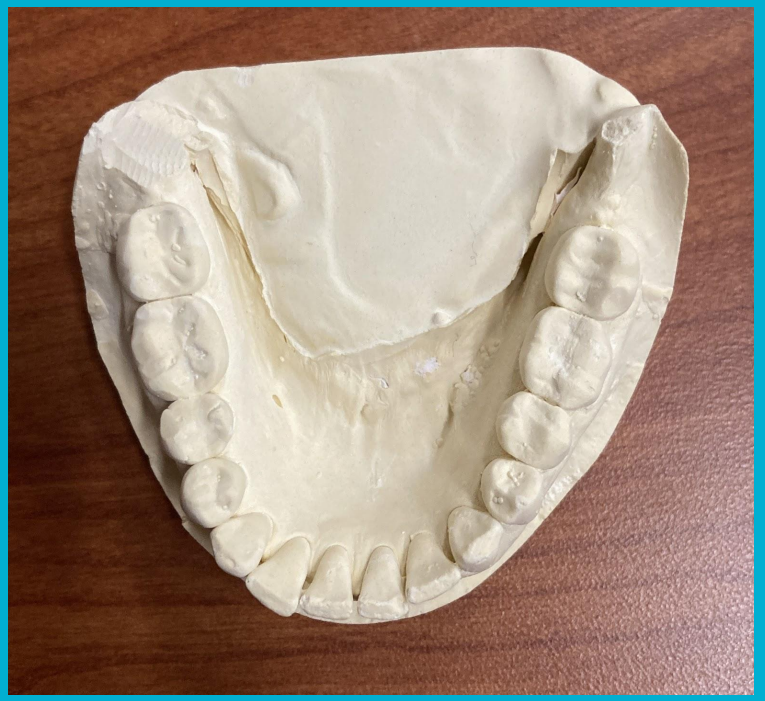






Clinical Findings





Clinical Findings

- POE and recall with previous student 9/24/19
  - PARL on #4, fordyce granules on buccal mucosa, 2x2mm apthous ulcer on right side of maxillary posterior ridge, fracture lines on mesial of both #13 and #29
- ACC with Dr. Yray 6/24/20
  - Fractured palatal cusp of #13, amalgam intact
  - Discussed with patient need for new restoration and assigned to me
- Transfer exam, POE and recall 9/8/2020
  - Incipient caries L of #7, #10 L
  - Recurrent decay/defective restoration D of #14
  - Abrasion on I of #6, 7, 8, 9, 10, 11, 22, 23, 24, 25 ,26, and 27
  - Fractured L cusp on #13

Specific Findings

- Overdue recall
  - Great oral hygiene - all PD < 3mm besides ML of #15 - 4 mm (pseudopocket/inflammation)
- #13 - Fracture
  - take out amalgam, caries excavate, core build-up, crown
- #14 - Defective restoration and recurrent decay on D
  - History of monitoring open margin since 9/2018
  - Clinical “stick” and discussed with patient about we could monitor but best treatment option is crown removal, caries excavation, core build-up and new crown

Perio Chart

																MOBILITY
																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	PLAQUE
																BOP
		5 5 5	5 5 5	5 5 5	4 4 4	5 5 5	5 5 5	4 4 4	4 4 4	5 5 5	5 5 5	6 6 6	5 5 5	5 5 5		MGJ
		4 2 3	4 2 4	3 2 4	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 4	3 2 3	3 2 4	4 3 4	3 3 3		CAL
		3 1 2	3 1 3	2 1 3	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 3	2 1 2	2 1 3	3 1 2	2 1 2		P.D.
		1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 2 2	1 2 1		FGM
1	2	3N	4	5	6	7	8	9	10	11	12	13	14	15	16	
		1 2 1	1 2 1	1 2 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1		1 2 2	1 1 1		FGM
		3 2 3	3 2 3	3 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 2	2 1 3	4 2 3		P.D.
		4 4 4	4 4 4	4 3 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	2 1 2	3 3 5	5 3 4		CAL
																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		PLAQUE
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	5 5 5	5 5 5	6 6 6	5 5 5	4 4 4	5 5 5	5 5 5	5 5 5	5 5 5	4 4 4	5 5 5	5 5 5	6 6 6	6 6 6		MGJ
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32	31N	30	29	28	27	26	25	24	23	22	21	20	19	18	17	
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	5 4 5	5 3 4	3 3 3	3 3 3	3 3 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 2 3	3 3 3	3 3 4		CAL
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	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
																FURCA
																MOBILITY

Diagnosis

- Perio: I: Gingivitis
- Restorable #13 and #14
  - Good prognosis

Problem List

- Incipient caries/watches
- Abrasion
- Fractured tooth
- Defective restoration
- Recurrent decay
- PARLs

Clinical Question

- How would the patient's case be managed by a dental provider if she was getting chemotherapy treatment for Non-Hodgkins Lymphoma *or if patient was terminal?*

D1 Basic Science: What are the types of lymphocytes and their functions?

- **What are lymphocytes?**
  - Immune cells involved in the adaptive immune response
    - Slow to develop
    - Antigen specific
    - Create memory for recurrent infections
  - Arise from stem cells present in bone marrow
  - Two main types of lymphocytes
    - T cells
    - B cells

Cano, E., & Lopera, D. (2013). Introduction to T and B Lymphocytes. NCBI National Library of Medicine. https://www.ncbi.nlm.nih.gov/books/NBK459471/

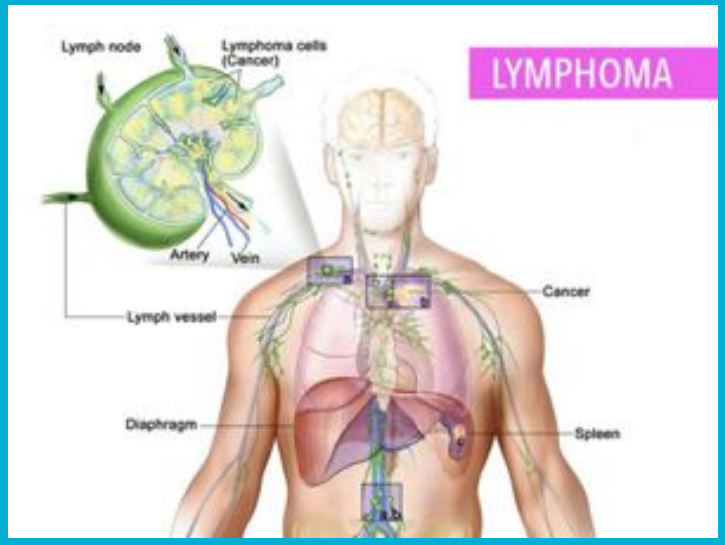
D1 Basic Science: T cells vs. B cells

- **T cells**
  - CD4+ T cells
    - T helper 1 cells: Cytokine release (IFN gamma, IL-2)
      - IFN gamma (Interferon γ): Macrophage activation
      - IL2 (Interleukin-2): CD8+ T cell activation → cytotoxic T cells
    - T helper 2 cells: Cytokine release (IL4, IL5)
      - IL4, IL5 (Interleukin 4 and 5): B cell activation
  - CD8+ T cells
    - Cytotoxic T cells: Eliminate virally infected host cells
- **B cells**
  - Plasma cells: Antibody formation and release

Klockow, L. (2020). Microbiology: Adaptive Immunity [Slides]. Marquette University PPT. https://d2l.mu.edu/d2l/le/content/410590/viewContent/3076651/View

D2 Pathology: What is Non-Hodgkin's lymphoma?

- Abnormal lymphocyte proliferation in nodes and extra nodal sites resulting in neoplam
- Hodgkin - only B cell origin, Reed Sternberger cells
- Mostly older adults over 55
- Classified by cell of origin
  - B cell, T cell, NK cell
  - B cell more common - different oral manifestations
- Classified by rate of progression
  - Low Grade, High Grade



D2 Pathology

- Follicular lymphoma most common low grade
  - Slow growing
  - Doesn't respond well to chemo
- Diffuse Large B Cell Lymphoma most common high grade
  - Fast growing
- HIV, Epstein Barr Virus
  - Higher risk

Abed, H., Nizarali, N., & Burke, M. (2019). Oral and Dental Management for People with Lymphoma. *Dental Update*, *46*, 133–150. https://doi.org/10.12968/denu.2019.46.2.133

Napeñas, J. J. (2017). *Oral Manifestations of Systemic Diseases, an Issue of Atlas of the Oral & Maxillofacial Surgery Clinics, E-Book*. Elsevier Health Sciences.

D3 PICO

- **<u>Clinical Question</u>:** How would the patients case be managed by a dental provider if she was getting chemotherapy treatment for her Non-Hodgkin's Lymphoma?

PICO Format

P: Patients with Non-Hodgkins Lymphoma

I: Chemotherapy treatment

C: No treatment

O: Differ in treatment planning

PICO Formatted Question

In patients with Non-Hodgkins lymphoma, how does the dental treatment plan differ in patients seeking chemotherapy versus no treatment?

Clinical Bottom Line

How would the treatment plan be different?

- More prophylactic treatment
- Questionable teeth prognosis - extract
- Would we do Stage II?

Search Background

- **Date(s) of Search:** November 2 - 6th,
- **Database(s) Used: PubMed**
- **Search Strategy/Keywords:** chemotherapy, lymphoma, oral side effects, oral mucositis, oral infection, dental management

Search Background

- **MESH terms used:** chemotherapy, oral complications, osteonecrosis of the jaw, oral mucositis

Article 1

- **Citation:** Poulopoulos A, Papadopoulos P, Andreadis D. Chemotherapy: oral side effects and dental interventions. A review of literature. Stomatological Dis Sci 2017:1:35-49.

- **Study Design:** Literature review

- **Study Need / Purpose:** To describe the management of dental treatment of patients undergoing chemotherapy and the dentist's contribution to that treatment

Article 1 Synopsis

- **Dental intervention before chemotherapy:**
  - periodontal and endodontic evaluation
  - prognosis of existing restorations
  - dental inflammations?
  - oral hygiene
  - prophy, chlorhexidine
- **During chemotherapy:**
  - extractions postponed (unless emergency)
  - no traumatic dental procedures or even minimal surgical procedures
  - dentures should be removed if they are minimally traumatic
  - possible complications of chemo: xerostomia, mucositis
- **After chemotherapy:**
  - remove infection
  - restore esthetics
  - restore functional impairment
  - regular check ups
  - no extractions/invasive procedures for at least 1 year (if it cannot be avoided, patient needs to be on antibiotics 2 days before procedure and for 7-15 days following)

PoulopoulosA, Papadopoulos P, AndreadisD. Chemotherapy: oral side effects and dental interventions. A review of the literature. StomatologicalDis Sci 2017;1:35-49

Article 1 Synopsis

- **Conclusions:** Need good communication with oncologist to determine course of action. Dental care must be taken care of before chemotherapy. Once it starts, all treatments are postponed to reduce risk of osteonecrosis.

Poulopoulos A, Papadopoulos P, Andreadis D. Chemotherapy: oral side effects and dental interventions. A review of the literature. Stomatological Dis Sci 2017;1:35-49.

Article 1 Selection

- Relevance to PICO question and clinical bottom line
- Applicability to patient: #13 fracture, #14 recurrent decay, PARLs #3, 4, 19 must be taken care of before chemo

Poulopoulos A, Papadopoulos P, Andreadis D. Chemotherapy: oral side effects and dental interventions. A review of the literature. Stomatological Dis Sci 2017;1:35-49.

Article 2 Citation

- **Citation:** Mancheno Franch A, Gavalda Esteve C, Sarrion Perez MG. Oral manifestations and dental managements of patients with leukocyte alterations. J Clin Exp Dent. 2011;3(1):e53-9. http://www.medicinaoral.com/odo/volumenes/v3i1/jcedv3i1p53.pdf

- **Study Design:** Literature review

- **Study Need / Purpose:** To review the main side effects affecting the oral health of patients with leukocyte alterations

Article 2 Synopsis

- Non-Hodgkin's lymphoma oral lesions:
  - erythematous, painless enlargement, with surface ulceration secondary to trauma
  - lesions in maxilla more commonly involved than mandible
- Radiographic findings: diffuse bone destruction, loss of lamina dura
- Teeth loosening and paresthesia

Mancheño Franch A, Gavaldá Esteve C, Sarrión Pérez MG. Oral manifestations and dental management of patient with leukocytes alterations. J Clin Exp Dent. 2011;3(1):e53-9. http://www.medicinaoral.com/odo/volumenes/v3i1/jcedv3i1p53.pdf

Article 2 Synopsis

- **Conclusions:** main concerns in dental treatment of patients with leukocyte malignancies are a tendency to bleed, increased risk of infections, risk of developing osteonecrosis of the jaw, anemia

Mancheño Franch A, Gavaldá Esteve C, Sarrión Pérez MG. Oral manifestations and dental management of patient with leukocytes alterations. J Clin Exp Dent. 2011;3(1):e53-9. http://www.medicinaoral.com/odo/volumenes/v3i1/jcedv3i1p53.pdf

Article 2 Selection

- Relevance to PICO question
- **Applicability to patient:** regular prophylaxis and maintaining good oral hygiene eliminates oral sources of infection and reduces the risk of infections

Mancheño Franch A, Gavaldá Esteve C, Sarrión Pérez MG. Oral manifestations and dental management of patient with leukocytes alterations. J Clin Exp Dent. 2011;3(1):e53-9. http://www.medicinaoral.com/odo/volumenes/v3i1/jcedv3i1p53.pdf

Article 3 Citation

- **Citation:** Abed H, Nizarali N, Burke M. Oral and Dental Management for People with Lymphoma. DOI: 10.12968/denu.2019.46.2.133

- **Study Design:** Literature review

- **Study Need / Purpose:** To describe the recommended oral and dental management for people with lymphoma

Abed H, NizaraliN, Burke M. Oral and Dental Management for People with Lymphoma. DOI: 10.12968/denu.2019.46.2.133

Article 3 Synopsis

- Mucositis is the most common complication, develops 7-14 days as a sloughing erythematous area. Affects mucosal areas (oral mucosa and GI tract) and can compromise oral intake. Recommended ice-chips for 30 min prior to chemo cycles to reduce severity of the developing mucositis. Use soft toothbrush as gums might be sensitive. Oral infections more commonly in patients on chemo due to immunosuppressed state. Anti-fungals and anti-virals can be prescribed

- Risk of dry mouth, moisturizing gel or spray could be prescribed to reduce the feeling of dryness. Sips of water.

Abed H, NizaraliN, Burke M. Oral and Dental Management for People with Lymphoma. DOI: 10.12968/denu.2019.46.2.133

Article 3 Synopsis

- **Conclusions: No dental treatment is recommended, and urgent care should be managed with antibiotics. Pathological findings, tooth mobility with sudden displacement and oral bleeding could be a clinical scenario of a relapsing lymphoma and patients need urgent referral to a specialist. Need patient education about side effects of immunosuppressive agents (gingival hyperplasia) and emphasize the importance of preventive dentistry.**

Abed H, NizaraliN, Burke M. Oral and Dental Management for People with Lymphoma. DOI: 10.12968/denu.2019.46.2.133

Article 3 Selection

- Relevance to PICO question and recent publication
- **Applicability to patient:** Follow a soft diet and avoid rough and spicy food, acidic fruit and salt

Abed H, NizaraliN, Burke M. Oral and Dental Management for People with Lymphoma. DOI: 10.12968/denu.2019.46.2.133

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

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

Conclusions: D3

In determining how to proceed with a patient with Non-Hodgkin's lymphoma about to undergo therapy, it is important to maintain communication with the patients oncologist and complete all dental treatments prior to chemo and maintain excellent oral hygiene.

Stage I treatment (fillings) are possible during chemo but preferable to do beforehand.

Questionable teeth must be extracted. Stage II treatment (crowns) should be postponed.

Conclusions: D4

- **Dental Clearance**
  - Important for pre-chemotherapy treatment
  - 2-4 weeks prior to chemo
  - Take care of questionable teeth (RCT, EXT, caries excavation, etc)
  - Reinforce oral hygiene
  - Discuss long lasting oral side effects and their effects
- **Collaborative Care**
  - Discuss treatment with oncologist, PCP, and other professionals about patient management
- **Terminal Outlook**
  - No treatment or get patient to function/comfort
  - Recalls to improve quality of life
  - Follow patient requests

Conlusions: D4

"Time will tell what should have been the best option" - Dr. Yale

Discussion Questions

- App References/Manual?
  - Dr. Yale

THANK YOU