Dental Anxiety

Evidence Based Dentistry Rounds
Behavioral Sciences

Group 9A

9/23/2020

Rounds Team

- **Group Leader: Dr. Derderian**
- **Specialty Leader: Dr. Shane/Bartfield**
- **Project Team Leader: Curtis Henderson**
- **Project Team Participants:**
  - **D1: Sheridan Michaud**
  - **D2: Maggie Gentine**
  - **D3: Chandler Brennan**

Patient

- 57 yr old
- Female
- Caucasian
- "My lower left crown came off."
- Pt. is extremely anxious about going to the dentist and has had inconsistent dental care.

Medical History

- Current & past:
  - Conditions: Hypothyroidism (thyroid removed), Periodic knee swelling, Hypertension, Asthma, and Reflex syndrome disorder
  - Medications: Levothyroxine, Gabapentin, Albuterol, Vicodin/Percocet (prn)
  - Supplements: Selenium, Vit D, E, Multivitamin, Calcium, Flax oil.
  - Allergies: Cymbalta; "I pass out"
  - Consult: Emergency hospital visit in November, 2019. Pt. did not know if it was a "mini-stroke" or panic attack.
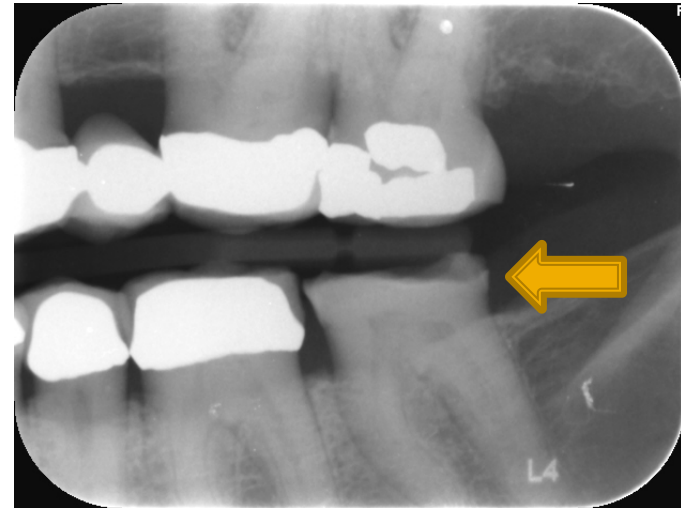
Dental History

- Crowns: #3, #5, #18, #19, #20, #21, #30, and #31
- Bridge: #12 – 14
- RCT: #3
- Amalgam restorations: #2 MOD, #15 MO + B, #29 DO
- Resin restorations: #4 MOD

Radiographs
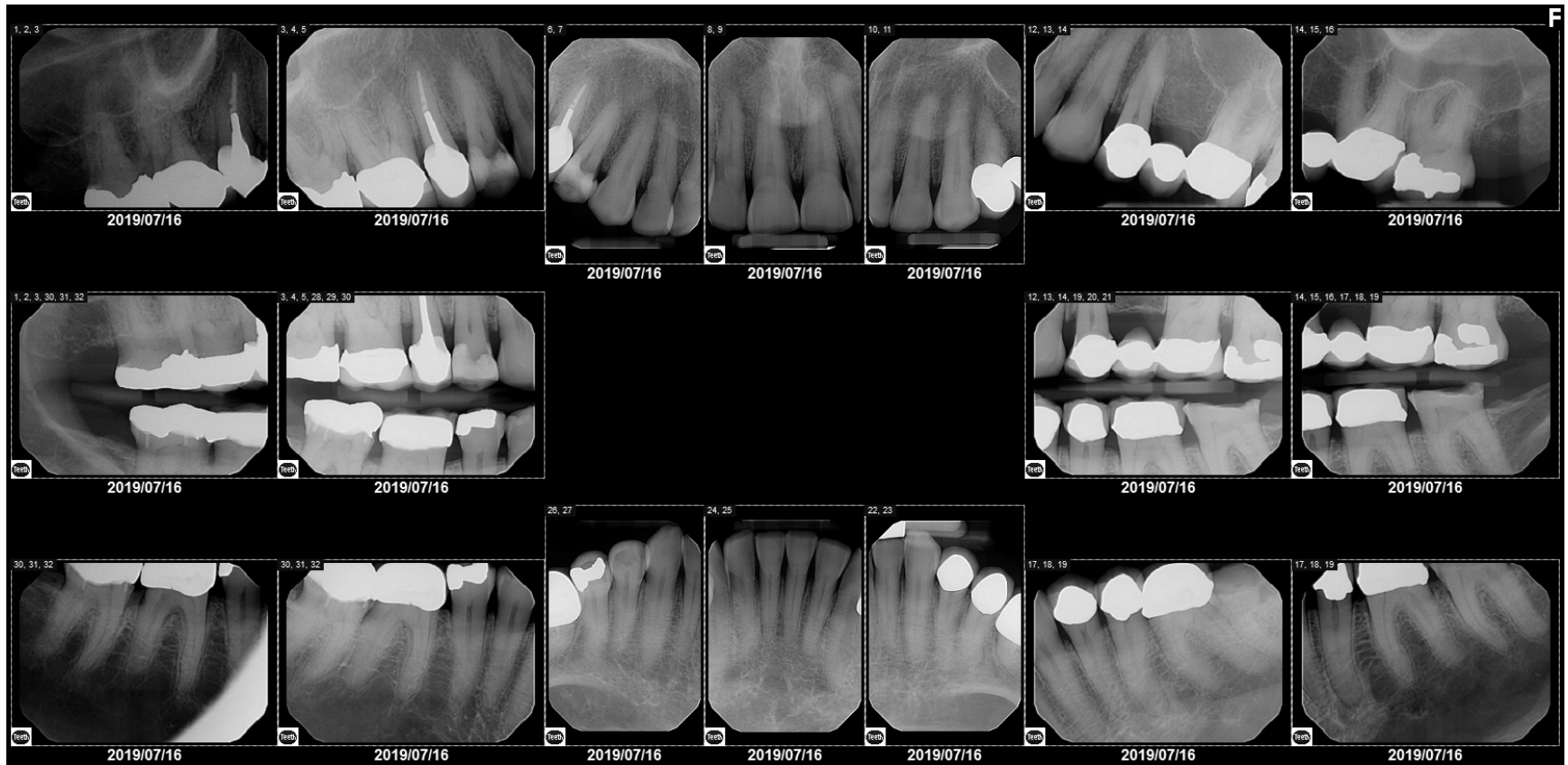
Radiographs

Radiographic Findings

- Recurrent caries #4 M
- #18 missing crown

Clinical Findings

- Anterior worn dentition
- #18 inadequate ferrule (DL)
- CAL ≥5 mm: #2, #3, #14, #30, #31

Periodontal Charting

Maxillary

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

Periodontal Charting

Mandibular

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

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Specific Findings

- "Novocaine does not work for me"
- "I did not like my past doctor. I had a traumatic experience with my childhood dentist"
- Corah score: 18/20

Diagnosis

- Severe dental anxiety

Appointment 1

- Limited evaluation #18
- Clinic coordinator warning: "Pt. has a record of poor behavior with students and has only been scheduled for emergent dental care"
- Pt. visibly anxious and crying; tone of distrust toward dentists
- Strategy: Calm demeanor, interview patient to understand anxiety, let patient guide appt, no tx rendered this appt

Appointment 2

- #5 Core Build Up/Prep
- Pt. took a muscle relaxer prior to appt and was provided NO_2
- Pt. very anxious and cried during anesthetic delivery
- Strategy: Calm demeanor, psychological "trick" with anesthetic, instructed pt. to provide me feedback
  - "Please stop asking me how I'm doing"

Appointment 3

- SRP UR & Prophy
- Major improvement: Pt. declined NO_2; "I even forgot to take my muscle relaxer!"
- #31 ACC debonded during scaling
- Pt. visibly upset and felt it was my fault
- Strategy: Patience and thorough explanation
- Tx: Re-bonded with MultiLink; pt. dismissed in better spirits

Appointment 4

- 1 step forward, 2 steps back?
- CL #18 appt
- Pt. extremely anxious (more crying)
- Bad experience with Perio resident

  - Misunderstanding almost led to anesthetizing #5
  - Perio resident conclusion: "I cannot treat her without IV sedation"

- Meeting with Dr. Leupke

Appointment 5

- #5 PFM Cementation
- Pt. acknowledges good relationship with me; trust has been established
- Pt. declines NO2 for this appt, but expresses her continued anxiety about CL appt
  - Pt. happy to learn I will be assisting her perio surgery

Etiology of Dental Anxiety

Pain and Fear of pain

- Primary cause of dental anxiety is a personal adverse experience
  - Formed by a Direct Conditioning Pathway
    - Often triggered in childhood
  - Exposure to a learned threat reconsolidates a memory, curtesy of the amygdala (Debiec)
- Secondary information can introduce and heighten dental anxieties
  - Stories from friends, fear of needles, fear of drill sound, fear of choking or gagging, fear of vulnerability, fear of blood, and fear of criticism
- Can be identified through physiological factors
  - High BP, rapid breathing, heart rate, sweat, dry mouth, or excessive salivation

Jovanovic-Medojevic, Milica; Neskovic, Jelena; Medojevic, Aleksandar. Dental Anxiety: Etiology and Treatment Options. Institute for Health Protection Ministry of Internal Affairs, Belgrade, Serbia. 2015.

Debiec, Jacek; LeDoux, Joseph E. Reconsolidation of Pavlovian Conditioned Defense Responses in the Amygdala. New York University, New York, New York; and The Emotional Brain Institute, Nathan Kline Institute for Psychiatric Research, Orangeburg, New York. 2013.

Influencing factors

- Relationship between patient and practitioner
- Patients with pre-existing high anxiety are more sensitive to pain
- MC1R mutation
- Abuse victims and PTSD patients are more likely to have dental anxiety
- Associated with depression and anxiety comorbidities and generalized anxiety disorder

Vaida, Sebastian & Dumitru, Mariana. (2019). DENTAL ANXIETY FACTORS AND TREATMENTS.

Jovanovic-Medojevic, Milica; Neskovic, Jelena; Medojevic, Aleksandar. Dental Anxiety: Etiology and Treatment Options. Institute for Health Protection Ministry of Internal Affairs, Belgrade, Serbia. 2015.

Dental Anxiety & Oral Health Consequences

- Dental erosion
- Periodontal disease
- Caries
- Tooth loss

Kisely, S. et. al., 2016. The oral health of people with anxiety and depressive disorders- a systematic review and meta-analysis. *Journal of Affective Disorders*.

Heidari, E., Andiappan, M., Banerjee, A., & Netwon J.T., 2017. The oral health of individuals with dental phobia: a multivariate analysis of adult dental health survey, 2009. *British Dental Journal*. 222: 595-604

Oral Health-Related Quality of Life (OHRQoL)

- Functional well-being
- Emotional well-being
- Expectations and satisfaction with care
- Sense of self

Svensson, L., Hakeberg, M., & Wide, U. 2018. Dental pain and oral health-related quality of life in individuals with severe dental anxiety. *Journal Acta Odontologica Scandinavica.* 76(6): 401-406

Zinke, A., Hanning, C., & Berth, H., 2018. Comparing oral health in patients with different levels of dental anxiety. *Head & Face Medicine.* 14(1):25

D3 PICO

- **Clinical Question:**

How do you manage patients with severe dental anxiety?

PICO Format

P: Patients with dental anxiety

I: Behavioral interventions or medications

C: No treatment

O: Reduction of dental anxiety symptoms

PICO Formatted Question

In patients with dental anxiety are behavior interventions or medications, compared to no interventions, effective in reducing anxiety symptoms?

Clinical Bottom Line

Both pharmacological and non-pharmacological methods of treating dental anxiety are effective clinically to reduce anxiety symptoms during treatment.

Search Background

- **Date(s) of Search:** 9/15/20 and 9/16/20
- **Database(s) Used: PubMed**
- **Search Strategy/Keywords:** Dental anxiety, Nitrous oxide, behavior therapy, sedation

Search Background

- **MESH terms used:**

Dental Anxiety, Behavior Therapy, Sedation

Article 1

Burghardt, et al., Non-pharmacological interventions for reducing mental distress in patients undergoing dental procedures: Systematic review and meta-analysis, Journal of Dentistry, February 2018, 69, 22-31.

- A systematic review and meta-analysis

- To assess the efficacy of current non-pharmacological interventions for dental anxiety

Article 1 Synopsis

- A systematic review of 29 eligible RCTs including a total of 2,886 patients

- Inclusion criteria specified studies done on adult patients with studied treatment measured against a 'treatment as usual control'

Behavioral treatment for dental anxiety was shown to be significantly effective against 'no treatment' controls.

Hypnosis was noted to be the most effective method according to the data present. However, more data is needed to support this conclusion.

Relevance

- Directly addresses the PICO question

- High level evidence

- Clinically relevant

Article 2

Kvale, et al., Dental fear in adults: a meta-analysis of behavioral interventions, Community Dentistry and Oral Epidemiology, July 6, 2004, 32, 250-264.

- Study Design: Meta-analysis

- Addresses Non-pharmacological methods of managing dental anxiety

Article 2 Synopsis

- Analyses the efficacy of non-pharmacological interventions for dental fear and anxiety

- Included 38 of 80 studies identified

- Though studies cannot be accurately described as an aggregate, data strongly indicates that behavioral approaches to dental anxiety are very effective.

Article 2 Selection

- High level evidence

- Directly addresses the PICO question

Article 3

Corcuera-Flores et al., Current methods of sedation in dental patients - a systematic review of the literature, Medicina Oral Patologia Oral y Cirugia Bucal, July 31, 2016, 21, 579-586.

A systematic review of current conscious sedation drugs

Article 3 Synopsis

- Of 473 articles identified 21 prospective RCTs were selected for analysis based on inclusion criteria.

- Reviewing the efficacy of common drugs used for light to moderate sedation in a dental setting.

Article 3 Synopsis

- Benzodiazepines are common, safe, and effective drugs used for light to moderate sedation and anxiolysis.

- Midazolam was the most commonly used sedative studied.

- Other drugs including clonidine, propofol, and dexmetedetomidine were identified as safe and useful sedatives as well.

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

How does the evidence apply to this patient?

- Evidence strongly supports the safety and efficacy of employing anxiolytic techniques to reduce dental anxiety, both pharmacological and behavioral.
- The decision to employ anxiolytic drugs, behavioral techniques is a clinical decision at the discretion of the patient and provider.

Based on the above considerations, how will you advise your D4?

Employing a behavioral technique paired with an anxiolytic drug like midazolam or Nitrous oxide is indicated for this patient.

Conclusions: D4

Based on your D3's bottom line recommendations, how will you *advise* your patient?

1. Take "baby steps"
2. Provide honest, respectful feedback to provider
3. Utilize NO2 prn

How will you *help* your patient?

1. Iatrosedation: a relationship-building and communication approach that focuses on establishing trust (Malamed, 2003).
2. Administer NO2 prn
3. Help patient "face her fears" to increase self-efficacy
   1. Avoid over-reliance on pharmacological intervention if possible

Questions?