Fall Rounds

Treatment of Disc Displacement with Reduction

Evidence Based Dentistry Rounds
TMD
Group B
Team 4A-4
10/28/2020

Rounds Team

- **Group Leader: Dr. Grady**
- **Specialty Leader: Dr. Waliszewski**
- **Project Team Leader: Abby Schabel**
- **Project Team Participants: Megan Maynard; Joud Alabyad; Jacob Cassaro**

Patient: SM

- Age: 27
- Gender: Male
- Ethnicity: White
- Chief Complaint: “Sometimes my jaw clicks which doesn’t bother me that much but my right masseter is tender. I’m interested in a night guard”.

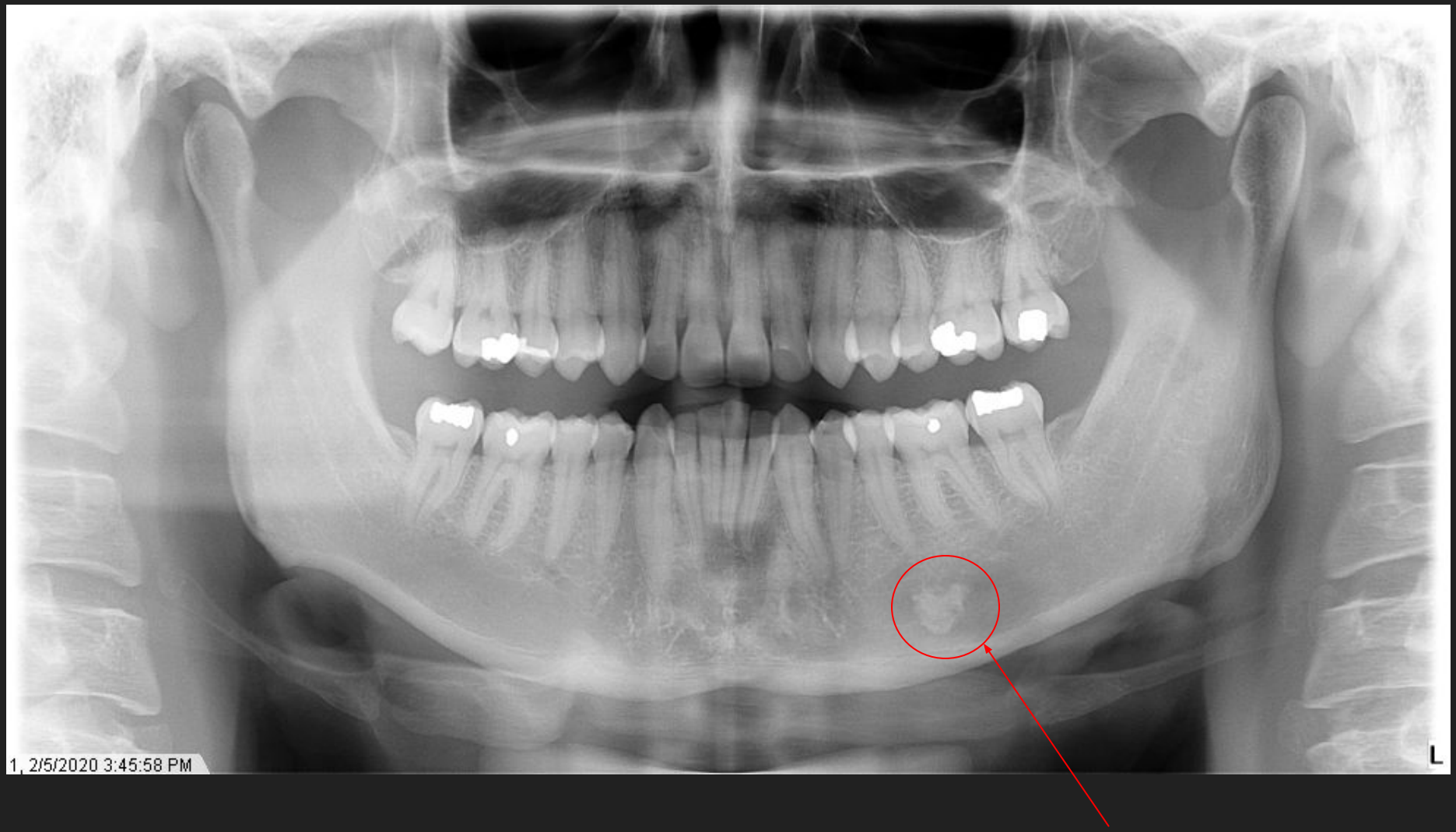
Medical History

- Conditions
  - Seasonal allergies
- Medications
  - Zyrtec

Dental History

- Restorations
  - Amalgam: #3MO, #14MO, #15O, #18O, #19B, #30B, #31O
  - Resin: #4DO
- Underwent orthodontic treatment on maxilla
- Hx of TMD
  - Pt. received occlusal guard in past but reports it doesn’t fit well

Radiographs - Pan

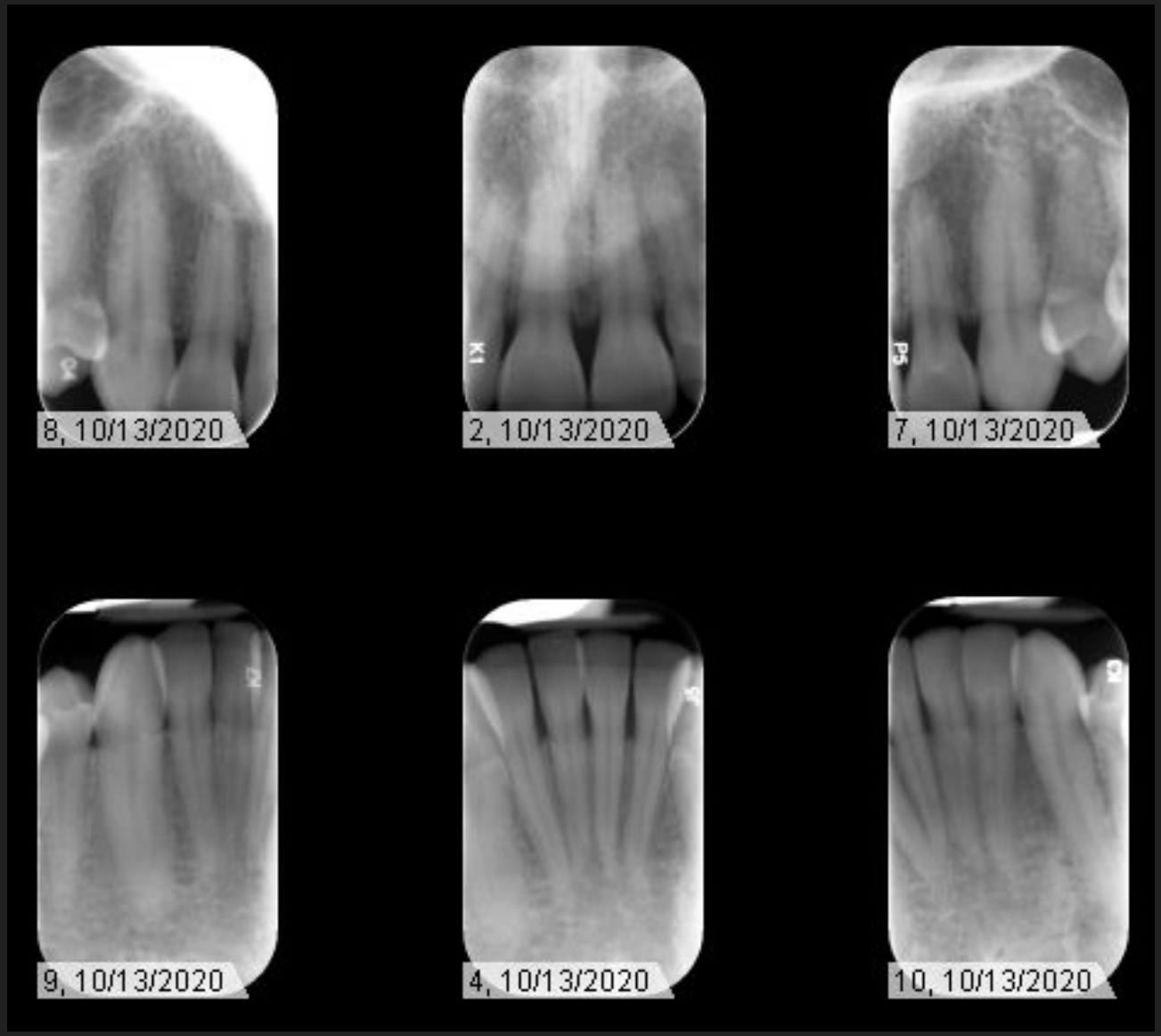


Radiographs - FMX

Radiographs - Right Posterior

Radiographs - Left Posterior

Radiographs - Anterior



Radiographic Findings

- Idiopathic osteosclerosis

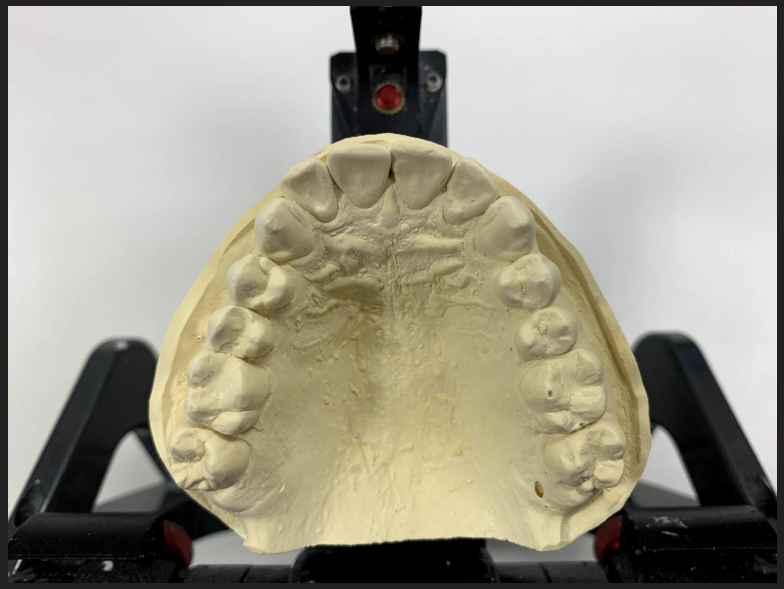
Clinical Findings

- Restorations
  - Amalgam: #3MO, #14MO, #15O, #18O, #19B, #30B, #31O
  - Resin: #4DO
- Clicking of TMJ on right side
- Class I occlusion
- Bilateral canine guidance

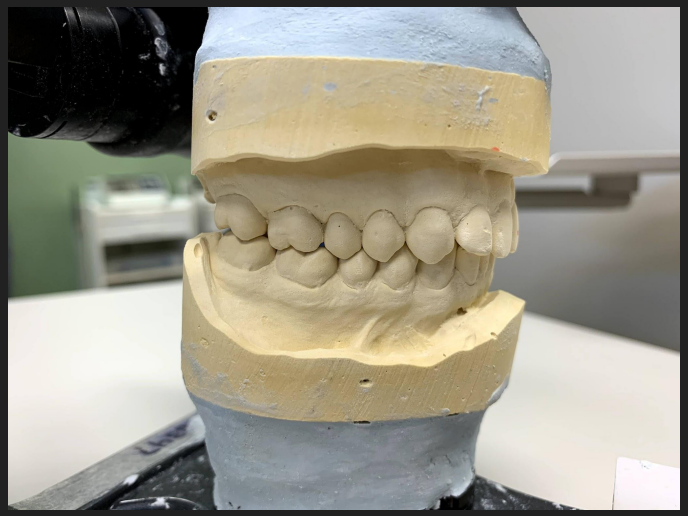
Clinical Findings

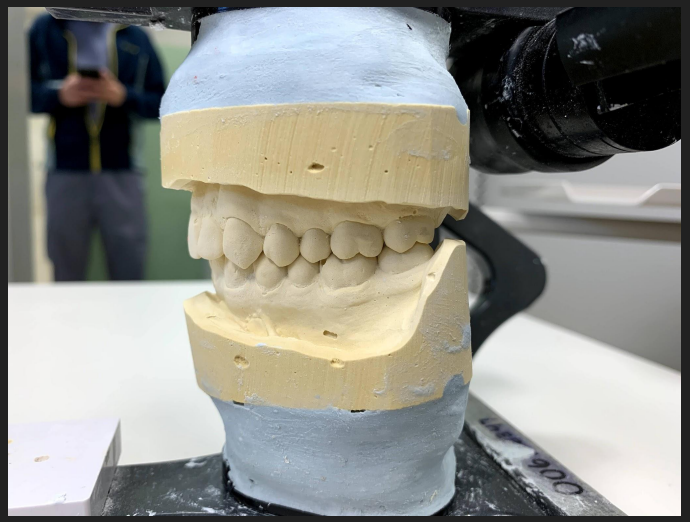
Clinical Findings

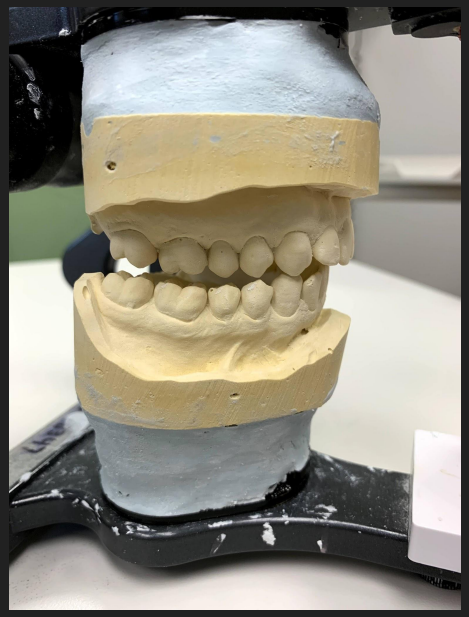
Clinical Findings



Clinical Findings







Specific Findings

- Clicking of TMJ on right side upon opening and closing

Periodontal Charting

																	MOBILITY
																	FURCA
																	PLAQUE
							B										BOP
	6 6 6	6 6 6	6 6 6	6 6 6	7 7 7	7 7 7	7 7 7	7 7 7	7 7 7	7 7 7	5 5 5	5 5 5	5 5 5	5 5 5			MGJ
	1 2 4	2 2 4	2 2 2	2 2 3	2 2 2	2 1 2	2 1 2	1 1 2	2 1 2	2 1 3	2 1 2	2 1 2	2 2 3	3 1 2			CAL
	1 2 3	2 1 2	2 1 2	2 1 3	2 2 2	2 1 2	2 1 2	1 1 2	2 1 2	2 1 3	2 1 2	2 1 2	2 1 3	3 1 2			P.D.
	0 0 1	0 1 2	0 1 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			FGM
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
	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
	2 1 2	2 1 2	2 1 3	2 1 2	2 1 1	1 1 2	1 1 2	2 1 3	2 2 2	2 2 2	2 2 2	2 2 2	2 1 2	2 2 2			P.D.
	2 1 2	2 1 2	2 1 3	2 1 2	2 1 1	1 1 2	1 1 2	2 1 3	2 2 2	2 2 2	2 2 2	2 2 2	2 1 2	2 2 2			CAL
																	MGJ
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																	PLAQUE
																	BOP
	4 4 4	4 4 4	4 4 4	4 4 4	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	4 4 4	4 4 4	4 4 4	4 4 4			MGJ
	2 2 2	2 1 2	2 2 2	2 1 2	2 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	2 1 1	2 2 3	1 1 2			CAL
	2 2 2	2 1 2	2 2 2	2 1 2	2 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	2 1 1	2 2 3	1 1 2			P.D.
	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
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17		
	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
	2 2 2	2 2 2	2 1 1	2 1 2	2 1 1	2 1 2	2 1 2	2 2 1	1 1 2	2 2 2	2 1 2	2 1 2	2 1 2	2 1 1			P.D.
	2 2 2	2 2 2	2 1 1	2 1 2	2 1 1	2 1 2	2 1 2	2 2 1	1 1 2	2 2 2	2 1 2	2 1 2	2 1 2	2 1 1			CAL
	3 3 3	3 3 3	3 3 3	3 3 3	5 5 5	5 5 5	5 5 5	5 5 5	5 5 5	5 5 5	3 3 3	3 3 3	3 3 3	3 3 3			MGJ
																	BOP
																	PLAQUE
																	FURCA
																	MOBILITY

Diagnosis

- Disc displacement with reduction

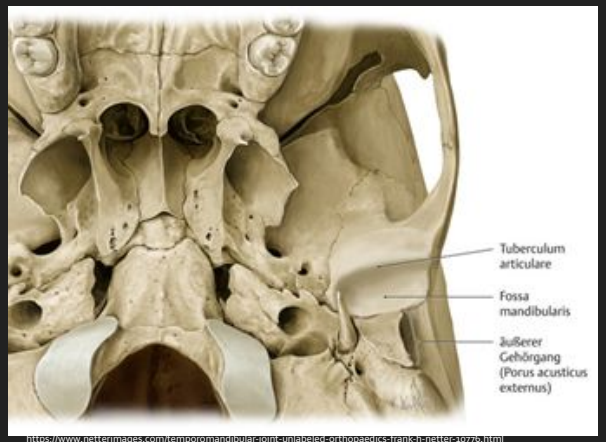
Problem List

- Crowding
- Hx of TMD

D1 Basic Science: What is the anatomy of the Temporomandibular Joint (TMJ)?

- The TMJ consists of the articulation point between the head of the mandibular condyle and the mandibular fossa of the temporal bone.
- The TMJ is considered a synovial joint. More specifically, it is classified as a ginglymoarthrodial joint due to the combination of both gliding and hinge movements.
- Within the mandibular fossa there are two slopes of the articular eminence: anterior slope (non-load bearing) and posterior slope (pressure bearing).
- The articular tubercle is the boney projection found on the lateral aspect of the articular eminence.
- The TMJ is innervated by the mandibular branch of the trigeminal nerve.

http://www.sdmesa.edu/academics/schools-departments/biology/bio160/bones-axial-skeleton.shtml

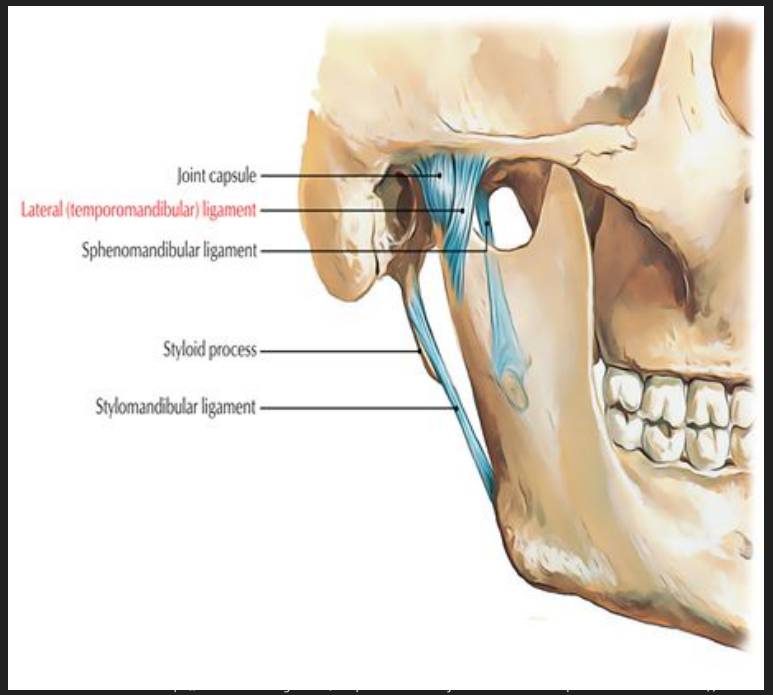


https://www.netterimages.com/temporomandibular-joint-unlabeled-orthopaedics-frank-h-netter-10776.html

Joint Capsule and Ligaments of the TMJ

There is a joint capsule and three major ligaments associated with the TMJ.

- The joint capsule is composed of dense fibrous connective tissue that surrounds the TMJ.
  - There is a synovial membrane that produces synovial fluid which lines the joint capsule.
- Temporomandibular Ligament:
  - Originates from the zygomatic process of the temporal bone and inserts into the neck of the mandibular condyle.
  - The ligament serves to prevent posterior and excess lateral displacement of the TMJ.
- Sphenomandibular Ligament:
  - Originates from the spine of the sphenoid and inserts into the lingula of the mandible.
  - This ligament will become taught during excessive opening of the mouth.
- Stylomandibular Ligament:
  - Originates from the styloid process of the temporal bone and inserts into the angle of the mandible.
  - It will become taught during excessive protrusion of the jaw.



D2 Pathology: What causes disc displacement with reduction?

- ***1-2 slides*** *(Summarizes written report in D2 Pathology Template posted in Rounds Website.)*
- ***D2 Pathology Question:***
- ***Discussion:***
- ***Reference citation(s):***

D3 PICO

- **Clinical Question: What type of occlusal guard is most effective for patients with anterior disc displacement with reduction?**

PICO Format

P: Patient with anterior disc displacement

I: Anterior repositioning appliance

C: Stabilization appliance

O: Reduction in patient's experienced pain and clicking.

PICO Formatted Question

In patients with disc displacement with reduction, do anterior repositioning appliances result in greater reduction in symptoms than stabilization appliances?

Clinical Bottom Line

Anterior repositioning appliances show great promise in treating patients with anterior disc displacement with reduction. Compared to stabilized splints, anterior repositioning splints were more likely to relieve joint pain and clicking as well as eliminate muscle tenderness than their stabilizing splint counterparts. Longevity of treatment outcomes, however; is variable.

Search Background

- **Date(s) of Search:** October 18, 2020; October 19, 2020
- **Database(s) Used:** Cochrane Library, Wiley Online Library, PubMed for National Institutes of Health
- **Search Strategy/Keywords:** TMJ disc displacement, Occlusal guard intervention, anterior repositioning splint, anterior disc displacement, twin block, occlusal splints

Search Background

- **MESH terms used:** Dental Occlusion, Temporomandibular Joint Disc, Temporomandibular Joint Disoprders, Occlusal Splints, Joint Dislocations

Article 1 Citation, Introduction

- Citation: Chen, H.-M., et al. “Physiological Effects of Anterior Repositioning splint on Temporomandibular Joint Disc Displacement: a Quantitative Analysis.” Journal of Oral Rehabilitation, vol. 44, no. 9, 2017, pp. 664-672., doi:10.1111/jor.12532

- 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

Template Revised 9/10/2020

Optional for reference citations or other notes. Delete if not needed.

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: D3

How does the evidence apply to this patient?

- The evidence presented in these articles apply directly to our patient. The treatments explored directly relate to the pathology that is being experienced. The age group of our patient is older than the average age of study participants but the result I believe are still viable.

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

- Based on the evidence seen, anterior repositioning appliances will provide our patient with the most effective treatment in reducing pain and clicking. Treatment may need to be implemented throughout life in order to

Conclusions: D4

- I will advise my patient to get a stabilization appliance
  - I will inform him that the appliance will treat the pain but NOT the noise
- I will help my patient by making adjustments to the appliance as part of an ongoing process to treat his condition

Discussion Questions

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

Discussion Questions

THANK YOU