

Treating patients with TMD
Oral Medicine/Pharmacology
Group 9A-5
9/23/2020

Rounds Team

- **Group Leader:** Dr. Derderian
- **Specialty Leader:** Dr. Khaled
- **Project Team Leader:** Sahar Edalatpour
- **Project Team Participants:** Francesca Malensek, Jack Hayes, Austin Czarnecki

Patient

- 27 y.o.
- Female
- Caucasian
- CC: “My left side has been hurting and swollen ever since my appointment on Tuesday”
 - 3 days after a prophylaxis and resin restoration appointment

Medical History

- Allergies: Amoxicillin
- Medications: None
- CRPS – Complex Regional Pain Syndrome
 - Secondary to ankle injury

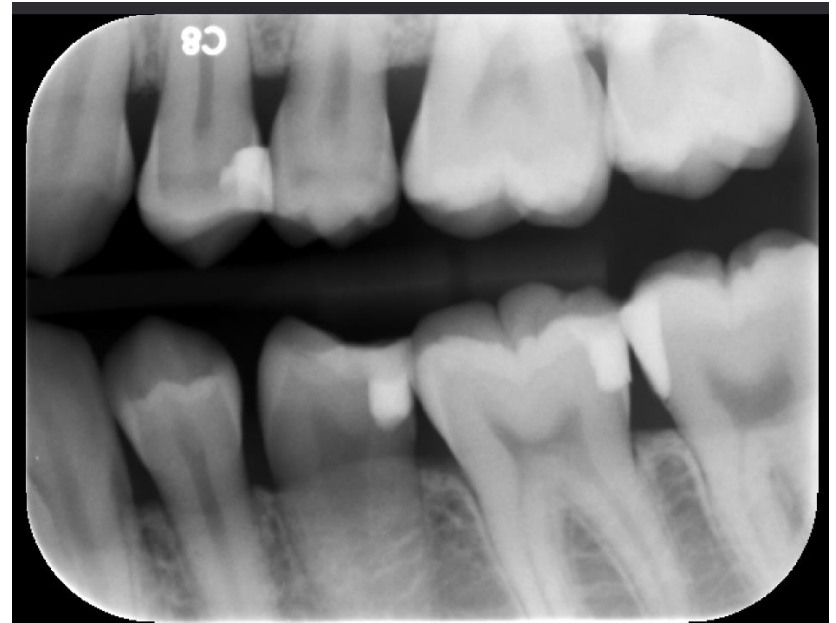
Dental History

- No significant dental history
- Pt reports brushing twice a day and flossing occasionally

Radiographs



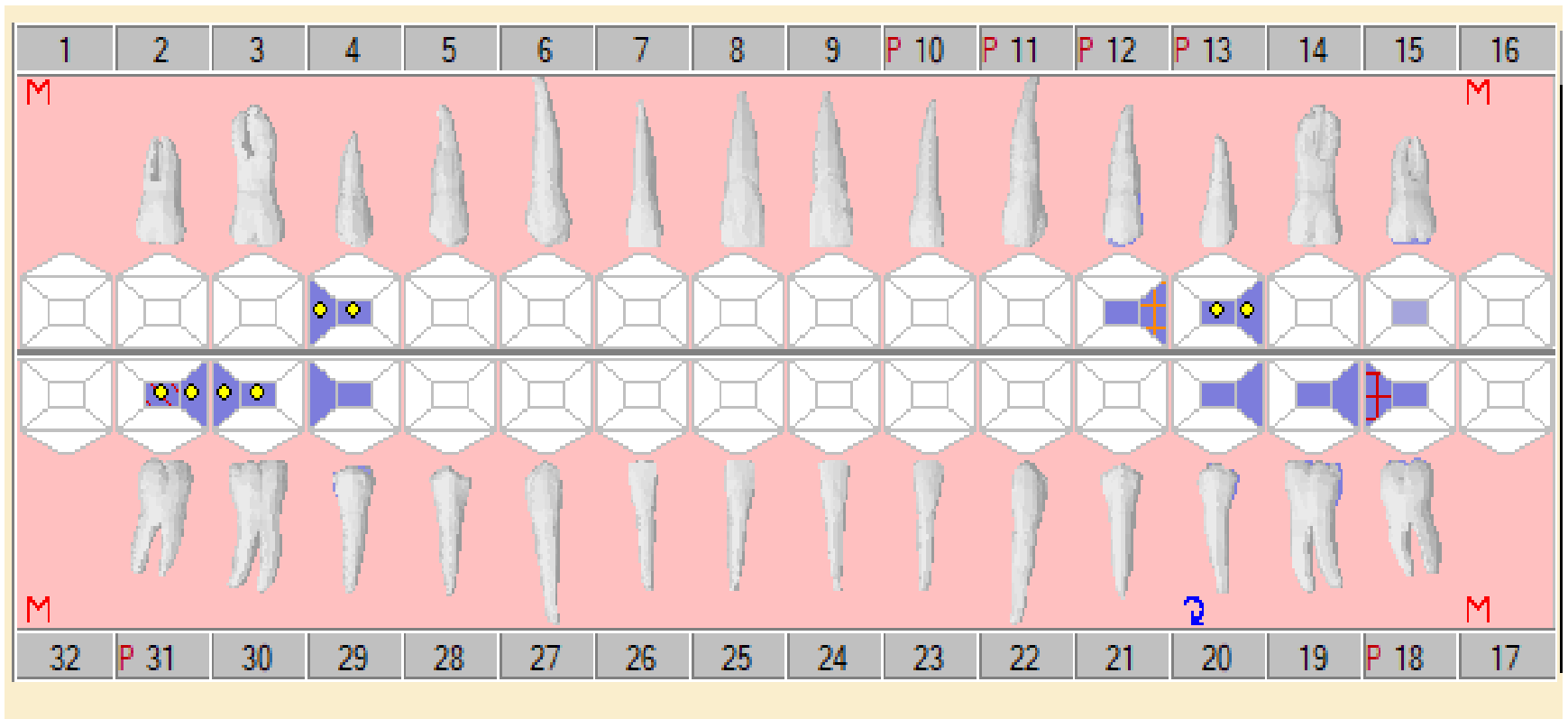
Radiographs



Radiographs



Odontogram



Periodontal Charting

Chart	In Progress				Tx History				Forms				Attachments/Consents				Perio	Tx Plans				Medications				Labs						
																													MOBILITY			
		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P													FURCA		
																													PLAQUE			
																													BOP			
		3	3	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4			MGJ		
		3	2	2	3	2	2	3	1	2	2	1	3	2	1	3	2	1	2	2	1	4	2	1	4	2	1	3			CAL	
		3	2	2	3	2	2	3	1	2	2	1	3	2	1	3	2	1	2	2	1	4	3	1	4	2	1	3			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				FGM	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																	
	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0																FGM	
	3	2	3	3	2	2	3	3	2	3	3	2	4	3	2																P.D.	
	1	2	3	3	2	2	3	3	2	3	3	2	4	3	2																CAL	
																															MGJ	
				B	B																										BOP	
	P	P	P	P	P	P	P	P	P	P	P	P																			PLAQUE	
																															FURCA	
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	P	P	P	P	P	P	P	P	P	P	P	P																			PROGNOSI	
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																															FURCA	
																															MOBILITY	

Clinical Findings

- 7/31 – Consult in OS
 - Pt reports pain and swelling immediately following 7/28 apt
 - S:
 - Pain felt with palpation of left maxillary buccal vestibule, pain and swelling are slowly improving
 - Pain scale - 6/10 on Tuesday, 5/10 today
 - Pt states mother has history of jaw problems
 - O:
 - Swelling of left buccal space
 - No signs of infection
 - Scalloping on lateral tongue bilaterally
 - Very tender at origins of masseter muscle (beneath zygoma and insertion at mandible)
 - Extraoral ecchymosis of lower left cheek
 - A: Masseteric muscle spasm suggestive of TMD
 - P: 1 or 2 Naproxen every 12 hours until pain and swelling subside, soft food diet, warm compresses

Clinical Findings Cont

- 8/03 – Follow-up in OS
 - CC: "My left side is feeling a little better but still hurts, is swollen and I can't open my mouth very wide"
 - Pt has been taking Naproxen, which has relieved some of the pain
 - Warm compresses done 2-3x/day, seems to help
 - Extraoral ecchymosis and swelling still present
 - Limited mouth opening of 10mm
 - Oral surgeon recommends consult with Dr. Khaled

Clinical Findings Cont

- 8/31 – Consult with Dr. Khaled
 - Pt is still taking Naproxen PRN, swelling has improved
 - Limited mouth opening of 10-15mm
 - Dx: Anterior disc displacement of the left side, mild capsulitis of the left side, moderate masticatory myalgia of the left masseter, mild masticatory myalgia of the bilateral SCM and trapezius muscles
 - Rx: Cyclobenzaprine 10mg 1x/day, Naproxen 500mg BID for 3 weeks
 - Occlusal splint recommended
 - Trigger point injections done on masseter bilaterally, left SCM and trapezius muscles

Clinical Findings Cont

- 9/14 – Follow-up with Dr. Khaled
 - Pt reports that symptoms got worse after TPI
 - Limited mouth opening of 5mm
 - Pain scale:
 - Right masseter - 5/10
 - Left masseter - 7/10
 - Left occipital muscle - 6/10
 - Left SCM – 3/10
 - Dx: Severe muscle spasm of left masseter and severe capsulitis of left TMJ
 - Rx: Medrol dose pack for 6 days
 - Methylprednisolone 4mg
 - TPI done on left masseter and left capsule

Clinical Photos



Trigger Point Injections

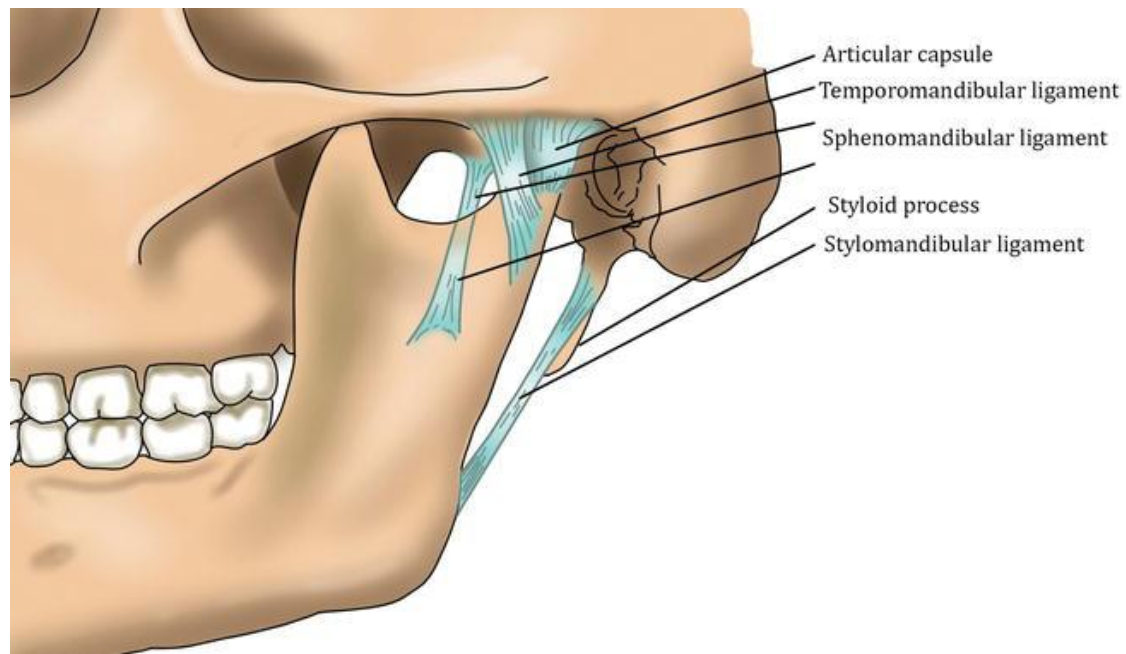


Diagnosis

- Severe muscle spasm of left masseter with severe capsulitis of the left TMJ

Problem List

- Caries
- Bruxism

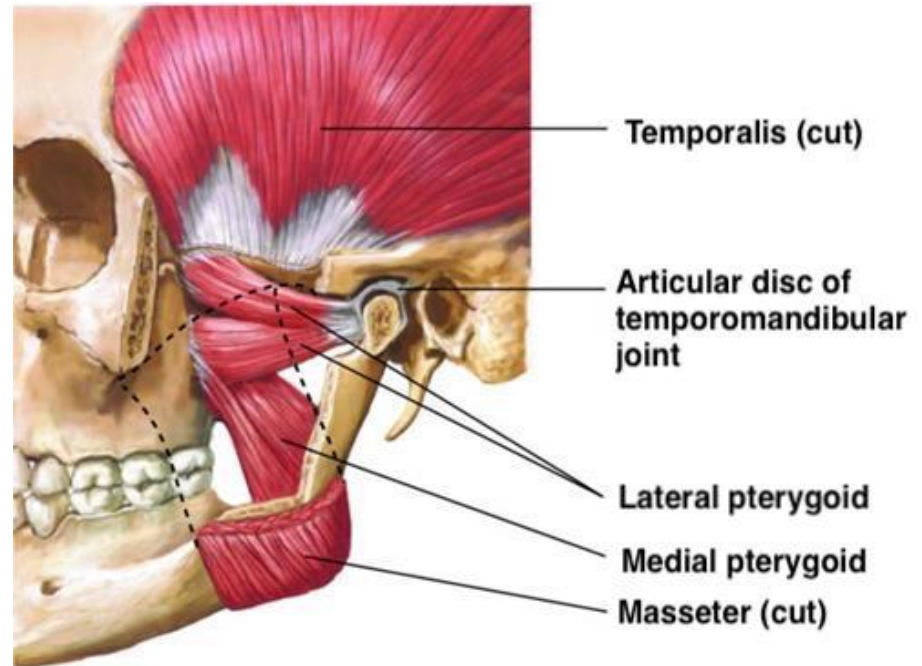


Ligaments of the TMJ

- Temporomandibular (lateral) ligament
- Sphenomandibular ligament
- Stylomandibular Ligament
- Pterygomandibular Ligament
- Pinto or malleolomandibular Ligament
- Temporomandibular Ligament

Muscles of the TMJ

- Temporalis
- Masseter
- Lateral Pterygoid
- Medial Pterygoid



D2 – Pathology

- What are the signs and symptoms of TMD?
 - Pain – occurs during mandibular movement or palpation
 - Myogenic: disorders of muscles of mastication, most common
 - Articular: joint disorders, derangement of condyle-disc complex, structural incompatibility with articular surfaces, inflammatory disorders of TMJ
 - Joint sounds
 - Clicking: uncoordinated movements of condylar head and articular disc
 - Crepitations: rough and irregular articular surfaces of TMJ
 - Restriction of mandibular movement
 - Muscular restriction, disc displacement, or ligament restriction
 - Condyle can become displaced from fossa – unable to close mouth

D2 – Pathology

- Other signs/symptoms
 - Dental symptoms
 - Tooth wear, mobility, pulpitis
 - Otologic symptoms
 - Auricular pain, tinnitus, itching in ear, vertigo
 - Headaches/migraines
 - Muscle pain in temporal region

D3 PICO

- **Clinical Question:**
- **What treatment recommendations can we give to patients experiencing severe TMD?**

PICO Format

P: Patients experiencing severe TMD

I: Trigger point injections

C: Pharmacologic drug interventions such as muscle relaxants

O: Alleviating TMD symptoms

PICO Formatted Question

- In patients with severe TMD, how does trigger point injections compare with muscle relaxants in alleviating symptoms?

Clinical Bottom Line

- **For patients experiencing severe TMD, alternative treatment options need to be offered and explored to improve their QOL and improve their symptoms.**

Search Background

- **Date(s) of Search:** September 15, 17, 21
- **Database(s) Used:** PubMed
- **Search Strategy/Keywords:**
 - Muscle relaxants
 - Temporomandibular joint disorders
 - Dry needling
 - Local anesthetic
 - Dentistry

Search Background

- **MESH terms used:**
 - Muscle relaxants, centrally acting
 - Dry needling
 - Local anesthetic
 - Temporomandibular joint disorders

Article 1 Citation, Introduction

- Citation: Luis Espejo-Antúneza Jaime
Fernández-Huertas Tejeda Manuel Albornoz-
Cabello. Dry needling in the management of
myofascial trigger points: A systematic review of
randomized controlled trials (2017)
- Study Design: Systematic Review
- Study Need / Purpose: Examined the efficacy of
dry needling in myofascial pain

Article 1 Synopsis

- Relevant studies were identified by searching PubMed, Scopus, The Cochrane Library and Physiotherapy Evidence Database
- Inclusion criteria:
 - English
 - 2000-2015
 - Randomized controlled trials (RCTs)
 - Dry needling technique used
- 15 publications reviewed :
 - Thickness and length of needles
 - Characteristics of insertion
 - Number of needles inserted
 - Number of sessions

Article 1 Synopsis

- Conclusion: 3 studies compared dry needling to lidocaine injections to botulism injections.
 - Conflicting results for pain pressure threshold
 - Improved range of motion
- Limitations:
 - Only English articles
 - Incomplete description of how dry needling was applied
 - Heterogeneity of studies

Article 1 Selection

- High level of evidence
- Recent article
- Related to PICO question
 - Analyzes dry needling, lidocaine injections, botulism injections for TMD symptoms

Article 2 Citation, Introduction

- Citation:

Haggman-Henrikson B, Alstergren P, Davidson T, A.
Pharmacological treatment of oro-facial pain – health
technology assessment including a systematic review with
network meta-analysis (2017.)

- Study Design: Systematic Review and Meta-Analysis

- Study Need / Purpose: Pharmacological treatments as a management of TMD symptoms

Article 2 Synopsis

- Population:
 - Adults patients (18+) with chronic oro-facial pain (TMD)
- SubGroups:
 - TMD-Muscle disorders
 - TMD- joint
 - Burning mouth syndrome

Article 2 Synopsis

- 41 studies met inclusion criteria without risk of bias and were used
- Treatments analyzed:
 - Muscle relaxants (cyclobenzaprine)
 - Benzodiazepine (Clonazepam)
 - NSAIDS
 - Corticosteroid injections
- Conclusion: NSAIDs and corticosteroid injections are effective treatments for TMD-joint. Cyclobenzaprine is an effective treatment for TMD-muscle disorders
- Limitations: Risk of Bias and follow up time

Article 2 Selection

- High level of evidence
- Recent publication
- Relevant to patient and clinical bottom line

Article 3 Citation, Introduction

- Citation:

Machado E., A systematic review of different substance injection and dry needling for treatment of temporomandibular myofascial pain (2018)

- Study Design: Systematic Review

- Study Need / Purpose: Investigate the effectiveness of dry needling and substrate injections in temporomandibular myofascial pain

Article 3 Synopsis

- Systematic review of randomized clinical trials
- 18 RCT studies included with patients of any age
- Comparisons
 - Dry needling x substrate injection
 - Dry needling x other treatments
 - Substance injection x other treatments

Article 3 Synopsis

- Conclusion:
 - Use of dry needling vs substance injection both showed improvements in pain intensity, frequency, and duration but not statistically different
 - Use of dry needling vs other compared use of muscle relaxants and paracetamol. Dry needling showed a reduction in pain intensity compared to pharmacologic interventions, but not in maximum mouth opening.
- Limitations:
 - Heterogeneity of studies assessed disallows meta-analysis
 - Sample size in 14 of the studies

Article 3 Selection

- High level of evidence
- Recent publication
- Good comparison of dry needling, substance injections, and pharmacologic interventions. But the substrates used were not local anesthetics.

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)

<input type="checkbox"/>	A – Consistent, good quality patient oriented evidence
<input checked="" type="checkbox"/>	B – Inconsistent or limited quality patient oriented evidence
<input type="checkbox"/>	C – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening

Conclusions: D3

- Both dry needling/ substrate injections into trigger points and pharmacological interventions show evidence of reducing pain for patients at least over the short term.
- Conflicting results for maximum mouth opening and more research would be needed
- Evidence supports muscle relaxants aid in TMD associated with muscle pain, while substrate injections aid in TMD associated with joint pain.

Conclusions: D4

- Check for signs and symptoms of TMD
- Make the patient aware of their TMD
- Keep appointments short and give the patient breaks

Thank you!



That's Odd... My Jaw suddenly feels better.....

