Principles of TMJ Examination and Treatment

The Plan / Objectives

1. Identify common elements in the history/symptoms of a patient with TMD.
2. Discuss TMD screening tools and methods and the principles behind them.
3. Suggest interventions that can provide relief to patients with TMD.
4. Discuss referral to other healthcare providers.

History/Symptoms

- Pain
  - Location
  - Activity
- Onset
  - Trauma or Hx of Trauma
  - Long-standing problem
- Joint noises
- Motion Limits
  - Locking
- Other

History/Symptoms – Pain – Location

History/Symptoms – Pain – Activities

- Chewing
- Yawning/Opening
- Talking/Laughing
- Smiling
- Oral Hygiene
  - Brushing/Flossing
  - Dental Cleanings
- Generally worse in the morning
  - Clenching
  - Grinding

History/Symptoms – Onset

- Stress
- Trauma
- Facial
- Non-facial
- Insidious/Unknown

This information is property of Lang Ho and should not be reproduced without permission.
**History/Symptoms – Joint Noises**
- Click/Pop
- Grind (Crepitus)
- Clunk

**History/Symptoms – Motion Limits**
- Limited Opening
- Locking
  - Closed Lock
  - Open Lock

**History/Symptoms – Other**

**Doesn’t look like TMD, but is**
- Headache
- Tooth pain
- Ear Symptoms
  - Ringing
  - Fullness
  - Hearing Loss
- Dizziness

**Looks like TMD, but isn’t**
- Cardiac Issues
- Cervical Muscle Dysfunction

**Characteristics of 511 patients with temporomandibular disorders referred for physical therapy**
Sharon L. Kline, PT
Emory University School of Medicine, Atlanta, GA, USA, Physiotherapy Associates, Atlanta, GA, USA

- 96% Jaw symptoms
  - pain, limited opening, popping, locking.
- 69% Neck pain
  - 74% of those had headaches concurrent with neck pain
- 67% Bruxism
- 60% Ear symptoms
  - Pain, ringing, fullness, subjective hearing loss

**Examination**
- Joint noises
  - Crepitus
  - Click
  - Clunk
- ROM
  - Direction of opening
  - Amount of opening
- Palpation
  - Joint (pain, movement)
  - Muscle
  - Headache

951 consecutive patients
Eight times higher in those with TMD
(30 of 82; 38 of 869)
Structural Components of the TMJ

- Disc

Structural Component – Disc

- Condyle

Structural Components - Condyle

- Eminence

Structural Components - Eminence

The “Yoint” Video
https://www.youtube.com/watch?v=cH8KGJ0DobM

Subluxation (Clunk) Anatomy
Subluxation (Clunk)

Muscles of Mastication
- Elevators
  - Masseter
  - Temporalis
- Lateral Excursion
  - Medial Pterygoid
  - Lateral Pterygoid
- Depression
  - Suprahyoids

Range of Motion – Abnormal Opening
- Unilateral deviation
- C-Curve
- S-Curve
- Limited Opening
- Excessive Opening
- Limited Lateral Excursion

Unilateral Deviation

C-Curve

S-Curve
Opening (40mm)

Restricted Opening (< 40mm)

Excessive Opening

Lateral Excursion (7mm)

Temporomandibular Joint

Muscles: Masseter
Muscles: Temporalis

Muscles: Medial Pterygoid

Muscles: Lateral Pterygoid

Anterior Capsule/Disc Connection

Headaches

- Primary headaches
  - Migraine
  - Tension-Type
  - Trigeminal Autonomic Cephalalgia
- Cervicogenic Headache
- Myogenic Headache / Referred Muscle Pain

Masticatory Muscle Pain Referral

<table>
<thead>
<tr>
<th>Muscle</th>
<th>TMJ/Pre-Auricular</th>
<th>Temporal</th>
<th>Per-Occlusal</th>
<th>Esr</th>
<th>Teeth</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masseter</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporalis</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medial Pterygoid</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral Pterygoid</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Classification

Group I: Masticatory Muscle Disorders
• Myofascial pain
• Myofascial pain with limited opening

Group II: Disc Displacements
• Disc displacement with reduction
• Disc displacement without reduction with limited opening
• Disc displacement without reduction without limited opening

Group III: Joint Dysfunction
• Arthralgia
• Osteoarthritis
• Osteoarthrosis

Group I: Masticatory Muscle Disorders
• Painful muscles
• Pain-free opening of 40+mm
  • <40mm is designated as “with limited opening”

Group II: Disc Displacement
• With Reduction: Reproducible clicking
  • Opening, excursion, or protrusion
• Without Reduction w/ Limited Opening
  • Limited opening, contralateral lateral excursion
  • Previously had a click, but not currently
• Without Reduction w/o Limited Opening
  • History of locking
  • No major opening limitations
  • Imaging to confirm disc displacement

Group III: TMJ Arthralgia/Capsulitis
• Arthralgia
  • TMJ pain
  • No crepitus
• Osteoarthritis
  • Crepitus
  • TMJ pain
• Osteoarthrosis
  • Crepitus
  • No TMJ Pain

Physical Therapy Treatments
• Patient Education
• Myofascial Treatment/Soft Tissue Mobilization
• Joint mobilizations
• Exercises
  • Rocabado’s 6x6
  • Range of Motion
  • Relaxation/Breathing
• Posture/Ergonomics: Sleep, Work
• Modalities: US, E-Stim, Ionto, Heat, Cold, Spray and Stretch, Kinesiotape
Patient Education

- Parafuction/Oral Habits
- Avoid chewing tough foods, hard foods, or gum
  - Bagels, Steak, hard veggies, etc.
- While irritable, chew on uninvolved side
  - Progress to chewing with both sides simultaneously
- Reduce caffeine intake
  - Avoid extra pressure to the jaw
    - Sleep position
    - Leaning on hands

Myofascial Treatment/Soft Tissue Mobilization

- Masseter – Supine
  - Gentle pressure
  - Be aware of the Parotid Gland
- Temporalis – Supine
- Ptorygoids – Sitting
  - Sustained Pressure
- Alternative techniques
  - Graston
  - Dry Needling

TMJ Mobilization

- Distraction
  - Grade I-IV
- Distraction + Anterior Glide
  - Grade III-IV
- Medial/Lateral Glide

Joint Mobilization

Exercises: Rocabado’s 6x6

- Tongue positioning
- Controlled TMJ Rotation
- Mandibular Rhythmic Stabilization
- Upper Cervical Flexion
- Lower Cervical Retraction
- Scapular Depression/Retraction

6x6 – Tongue Positioning

- Resting on the roof of the mouth
6x6 – TMJ Rotation
• Palpate the TMJ on both sides

6x6 – Rhythmic Stabilization
• Resist against light pressure in all directions

Exercises:
Tongue Depressor Stretch
• Resting in the back molars

Exercises:
Knuckle Stretch

Exercises:
Self-Overpressure Finger Stretch

Exercises:
Lateral Excursion AROM
Exercises: Relaxation

- Coach on Diaphragmatic Breathing
- Use of calming sounds/music
- Combine with tongue resting position and soft tissue work

Sleep Posture

Evidence – Efficacy of Treatment

- Manual Therapy
- Manual Therapy and Therapeutic Exercise
- Massage and Occlusal Splint
- Rocabado’s 6x6

Review

Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder: a systematic review of randomised controlled trials.

- Moderate-to-High grade evidence:
  - Myofascial Release and Massage was better than nothing, but the same as botulinum injections
  - Upper cervical mobilization/manipulation was effective
  - Thoracic manipulation was not effective

Effectiveness of Manual Therapy and Therapeutic Exercise for Temporomandibular Disorders: Systematic Review and Meta-Analysis

- Low quality evidence due to high or unclear risk of bias
- Manual therapy alone or in combination with exercise at the jaw or cervical level showed promising effects.

Effects of massage therapy and occlusal splint therapy on electromyographic activity and the intensity of signs and symptoms in individuals with temporomandibular disorder and sleep bruxism: a randomized clinical trial

- No significant influence on Electromyographic activity of the masseter or anterior temporal muscles
- Combination of therapies reduced the intensity of signs and symptoms in those with severe TMD and bruxism
6x6 Mixed Evidence
Does not support
Mulet, 2007, J of Orofacial Pain
- 45 patients with primary myofascial pain in the masticatory muscles
- Self-care vs. self-care and 6x6
- Jaw pain, neck pain, change in head posture showed significant improvement in both groups
  - p < 0.01

Does support
Mulla, 2015, Int J Physiother
- 30 subjects with TMD
- Conventional TMJ exercises vs 6x6 and conventional exercises
- VAS, TMJ ROM, Fonseca’s questionnaire and JFILS scores significantly improved
  - p < 0.05

Other Treatments/Providers
- Physicians
  - Pharmacotherapies
- Dentists
  - Splint Therapy
  - Arthrocentesis
  - Trigger Point Injection
- Psychiatrists/Psychologists
  - Cognitive Behavioral Therapy

Splint Therapy
The effectiveness of splint therapy in patients with temporomandibular disorders
A systematic review and meta-analysis
- Ebrahim, 2012, AADA
- Moderate quality evidence suggests reduced pain
- Low quality evidence suggests no impact on quality of life or depression

Arthrocentesis
Arthrocentesis as initial treatment for temporomandibular joint arthropathy: A randomized controlled trial
- Arthrocentesis yielded faster improvements in pain and maximal mouth opening compared to conservative treatments
- Both approaches appeared to reach similar outcomes by 26 weeks.

Trigger Point Injection
Trigger point injection therapy in the management of myofascial temporomandibular pain
- Ozkan, 2011, Agri
- Trigger point injections with splint therapy were more effective than splint therapy alone for jaw pain in myofascial TMD patients.

Cognitive Behavioral Therapy
Enhancing the efficacy of treatment for temporomandibular patients with muscular diagnosis through cognitive-behavioral intervention, including hypnosis: a randomized study
- Ferrando, 2012, Oral Medicine
- CBT, including hypnosis, had better reductions in pain frequency and emotional distress than conservative standard treatment alone.
Ask the audience

Ask your patients about this

Where were you four years ago?

Take a moment and consider which patients on your schedule might have TMD symptoms. Ask them at their next appointment.

References


