Chew on this: Evaluation and Treatment of TMJ Dysfunction

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Objectives

1. Describe TMJ anatomy and biomechanics.
2. Identify key examination elements.
3. Discuss diagnostic classifications for TMJ dysfunction.
4. Apply interventions specific to a diagnostic classification.

Incidence

- 10-70%
- Women > men
- Ages 20-40
Etiology

- Dental procedures
- Surgical procedures
- Injury
- Clenching/grinding
- Malocclusion
- Missing teeth
- Arthritic changes
- Postural imbalances
- Stress
- Parafunctional habits
- Movement dysfunction of the jaw

Presentation

- Significant variance in presentation
- Interdisciplinary (multi-factorial) approach

Anatomy of the Temporomandibular Joint

https://images.app.goo.gl/3G1auOBqMFR9G4A
Close functional and anatomical relationships between cranial nerves V and VII (sensory and motor).

Sensation on the face is innervated by the trigeminal nerves (V) as are the muscles of mastication, but the muscles of facial expression are innervated mainly by the facial nerve (VII) as is the sensation of taste.
Key History Elements

- History of s/s – onset, mechanism
- Description of s/s – pain location, intensity, description, associated functional limitations (mouth opening, eating, talking, etc.)
- Presence of joint noise
- Stressors
- Dental history

Differentials to Consider

Neurological
- Atypical facial neuralgia - associated paresthesia
- Trigeminal neuritis - ages 45-60 most common, unilateral/shooting pain, typically brief episodes, may be clustered or random
- Bell's palsy - ages 20-50, associated facial paralysis
Non-neurological

- Otitis media
- Paranasal sinusitis
- Dental infections
- Cluster headaches – associated with lacrimation and rhinitis, ipsilateral facial
  redness, attacks last approximately 45 minutes on average
- Temporal arteritis – elevated SED rate, males over 50, skin over temple red/warm

Examination

- General observation
- Palpation
  - AROM
  - PROM
  - Accessory motion/movement quality
- Muscle performance
- Special tests

General Observation

- Crossbite: mandibular teeth lateral to maxillary teeth on one side and
  medial on the other side
- Underbite: mandibular teeth are anterior to maxillary teeth
- Overbite: maxillary incisors extend below mandibular incisors when jaw is in
  central occlusion
- Overjet – measure of how far top incisors are ahead of bottom
  incisors
Central Occlusion

Figure 4-12: Normally, the maxillary anterior teeth overlap the mandibular anterior teeth. (From: Okeson J.P., Management of temporomandibular disorders and occlusion, 5th Ed. St. Louis, Mosby, 2008.)

Posture

Palpation
- Cervical musculature
- Muscles of mastication
- Joint palpation
Active Range of Motion

- Cervical
- TMJ
  - Mandible depression – 25-50mm, two knuckles or three fingers
  - Mandible lateral glide – 10-15 mm
  - Mandible protrusion – 6-9mm

Passive Range of Motion

- Firm end feels expected

Accessory Motion/Movement Quality

- Inferior glide
- Anterior/posterior glide
Muscle Performance

- Mandible elevators - masseter, temporalis, medial pterygoid
- Mandible depressors - lateral pterygoid, hyoid muscles
- Mandible protractors - medial pterygoid, lateral pterygoid
- Contralateral mandible lateral glide - medial and lateral pterygoids

Muscle Performance

- [https://www.youtube.com/watch?v=IYisgSo03Ds](https://www.youtube.com/watch?v=IYisgSo03Ds)
- [https://www.youtube.com/watch?v=QXKnd_yIU2Y](https://www.youtube.com/watch?v=QXKnd_yIU2Y)

Special Tests

- Krogh-Poulsen bite test - ipsilateral pain (muscular); contralateral pain (joint)
Diagnostic Classification

- Heterogenous
- Harrison Diagnostic Classification

Axis 1

Masticatory Mm. disorders
- With normal opening
- With limited opening

Displacements
- With reduction
- Without reduction with limited opening
- Without reduction without limited opening

Joint dysfunction
- Osteoarthrosis
- Arthralgia
- Juxtaarthrosis

Interventions

- Postural training
- Therapeutic exercise
- Manual therapy
Diagnostic Classification

- Hypomobility
  - Arthrogenic
  - Myogenic
  - Acute vs. subacute or chronic

Interventions

- Acute arthrogenic – education, antiinflammatory modalities, joint protection, passive range of motion, postural correction exercises
- Subacute or chronic arthrogenic – education, consider ultrasound, joint mobilization, stretching, postural correction exercises
- Acute myogenic – education, antiinflammatory modalities, gentle manual therapy, range of motion, inhibition techniques, postural correction exercises
- Chronic myogenic – education, consider thermal modalities, dry needling, manual therapy, stretching, inhibition techniques, postural correction exercises

Diagnostic Classification

- Hypermobility
  - Disc
  - Joint
  - Acute vs. subacute or chronic
Interventions

- Acute disc or joint – education, avoidance of end range mandible depression, joint protection, antiinflammatory modalities, postural correction exercises
- Subacute or chronic disc or joint – education, neuromuscular reeducation, joint protection, postural correction exercises

Case Discussions

References

TMJ mob with pen

Place a pen in your mouth sideways as far back as possible.- Then, use your thumb to gently push up on your chin.- Hold briefly and release.- Try not to clench your teeth together during this exercise.

OPEN CLOSE EXERCISE

With the tip of your tongue on the roof of your mouth, slowly lower your jaw. Make sure the tip of your tongue keeps in contact with the roof of your mouth the entire time.

Masseter Self Release

Place hands on either side of the face with the fingertips at about the level of the TMJ. Let your hands gently sink into the cheeks. Let your hands/arms soften and grow heavy, pulling your jaw gently open and stretching the masseters.
Isometric Opening
start with tongue up on the roof of the mouth and teeth slightly apart, place fist under the chin, activate muscles as if to open the jaw but fist resists the motion, fist and chin are pushing against each other submaximally, teeth are never touching

Pterygoid Self Massage
Apply light to moderate massage pressure to lateral pterygoid muscle.
Place your index finger tip to the far corner of your check and upper gums. Turn your finger pad to cheek side and palpate for the tender lateral pterygoid muscle.

TMJ unload
Place tongue depressors on bottom molars
Pull up on tongue depressors to stretch the jaw joint
Keep tongue depressors on the bottom molars the entire time
Do not bite down on the tongue depressors
**Isometric lateral pressure**

Sitting with good alignment and teeth slightly parted, apply a light to moderate pressure at one side of your jaw. Hold for 5 seconds.

Do not allow the jaw to move from a neutral position.

Repeat to the other side