

Occlusion / sheet 7

- Slides: #2 (1-26)
- Dr. Aya
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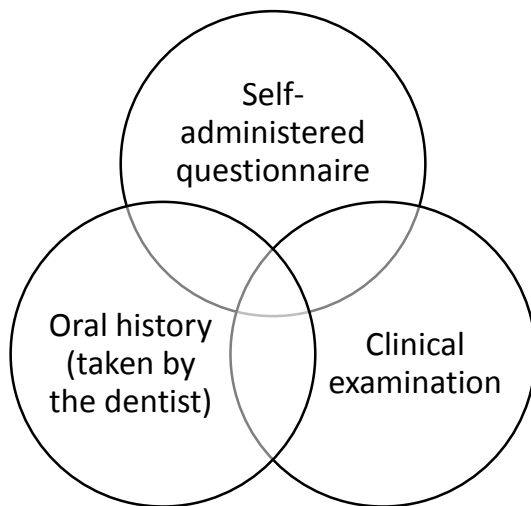
NOTE: this sheet includes all that was mentioned in the lecture and the slides so there is no need to go back to the slides.

Classification and diagnosis of temporo-mandibular disorders

Definition and prevalence

- Temporomandibular disorders: conditions producing abnormal, incomplete, or impaired function of the temporomandibular joint(s)- acronym: TMD
- TMD is a common disorder; 38% of the population has at least one symptom of TMD.
- It's caused by any limitation, complete disorder or abnormality in the movement.
- **Females are usually more affected.**
- **It is common also in adults.**

Diagnostic tools

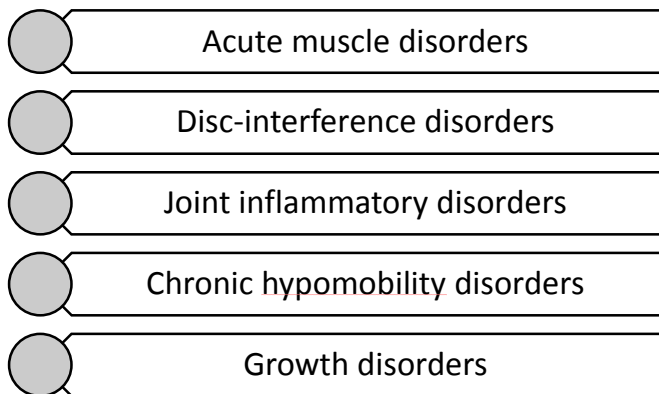


Supplemental: Radiography, EMG

- History: dental, social, medical.

- Radiographs are advocated if there is crepitation in the joint as radiologic findings will determine whether a TMJ patient should receive extended dental treatment. The use of EMG in diagnosis and treatment of TMD did not add any additional information beyond that obtained from patient history, clinical examination and, if needed, appropriate imaging.
- **EMG: Electromagnetic graphs**
ONLY in big big issues.
If you took a good history and good clinical examination as well as the supplementary radiographs (MRI, scanning...etc), they will be enough, thus no need to do an EMG.

Classification of temporomandibular disorders

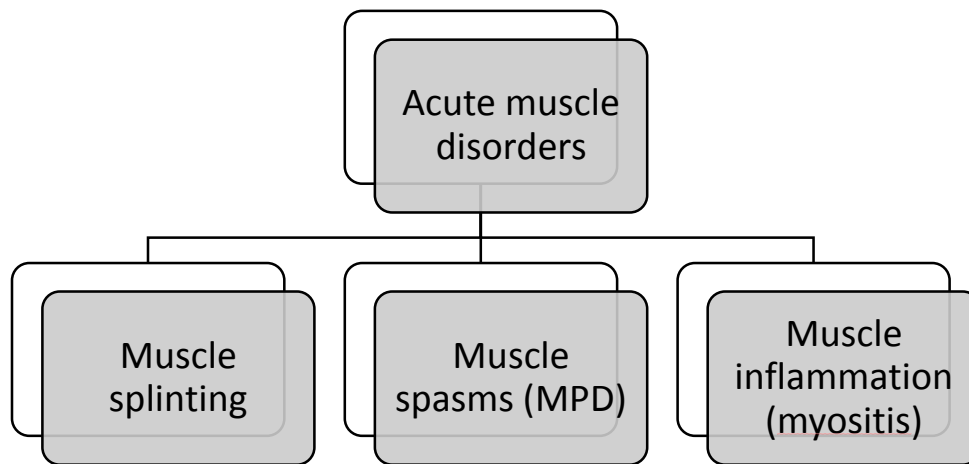


1. ACUTE MUSCLES DISORDERS

Common symptoms:

- **Muscle pain (myalgia) is the most common complaint** given by patients with functional disturbances of the masticatory system.
- Restricted mandibular movements (extra-capsular in origin).
- Acute malocclusion (occasionally).
- Only in rare cases the mandible suddenly and out of nowhere stops moving. Muscles disorders usually starts with spam, pain in the muscle (myalgia), this pain may affect the patients mastication.
- **Occlusal disturbance does NOT occur first.**
- **Extra-capsular:**
Cause: Teeth/muscles.
OUT of the joint.
- **Intra-capsular:**
Cause: Disc/eminence/condyle.
WITHIN the joint.

- **In muscle pain the cause is extra-capsular in origin.**
- Example:
If the problem was in the lateral pterygoid, the restriction in movement is due to weakness and fatigue of the muscle; the disc and the condyles are fine.
- Restricted mandibular movements is not intracapsular. It is induced by the inhibitory effect of pain. It is also not related to any structural change in the muscle itself.
- Restricted movement not because the muscle is unable to move, it's because of the pain I feel every time I move it; **NO structural change in the muscle itself = if someone forced me to open my mouth, I'm going to be able to open it.**



- **Uncontrolled splinting leads to spasm.**
- **Muscle spasm + infection = muscle inflammation (myositis)**

A. Muscle splinting

- **It is the first reaction to altered proprioceptive and sensory input.**
- Such alterations may arise from dental treatment, gingival pain (e.g. denture irritation) or even the administration of local anesthetics.
Alterations that may arise from dental treatment such as overfilled cavity. **WHY?** It might alter the normal occlusion of the patient.
- **Short duration; disappears when the etiological factor is resolved.**
- **Short duration is few days long.**
- **If the etiological factor is not corrected, this condition may progress to a more chronic form of the disease.**

Signs and symptoms:

1. Pain that originates in the muscles especially upon contraction
2. **Muscle weakness**
Muscle under stress → fatigue → weakness.
3. **No restriction to jaw movement except to avoid concomitant pain**
 - a. **Relaxed muscle → NO PAIN.**
 - b. **Upon contraction → PAIN.**
4. No acute muscle-induced malocclusion

B. Masticatory muscle spasms (Myofascial Pain Dysfunction Syndrome) MPD

- Continuous muscle splinting can lead to muscle spasms.
- As the pain of muscle splinting continues, it feeds back and influences the general state of the muscle, increasing the activity of the gamma efferents, which in turn increases muscle activity.

Contributing factors:

1. General and physical fatigue
2. Systemic illness
3. Emotional stresses

Any of the etiological factors that cause splinting can lead to spasms if not controlled or eliminated.

Secondary effects of MPD:

When the muscle is contracted and fatigued, it enters a hyperactive phase (contracted all the time phase) trying to get rid of its weakness which will increase the interarticular pressure within the capsule → NO harmony between the muscle and the disc → disc-condyle interference; Clicking and crepiting → (Extra-capsular → Intra-capsular).

- Increased interarticular pressure in the TMJs due to the increased activity of the masticatory muscles. This increase may predispose to disc-condyle interferences during function.
- **Acute malocclusion. COMMON in this case!**

Signs and symptoms:

1. Pain in the muscles during contraction and stretching (soft end feel).
2. Specific to the muscles involved.

- The spasms may alter the resting position of the mandible and an apparent change in occlusion.
- The change in mandibular movements is said to be of extra-capsular origin. Anything that starts in the joint itself is said to be intra-capsular.

C. Masticatory muscle inflammation (Myositis)

As myospasms continue, inflammation may arise in the muscle tissues.

Myositis is either:

1. A continuation of splinting and myospasm.
2. Due to an inflammation that arises by its own, for example: taking a contaminated anaesthesia = NO underlying cause.

Etiology:

- Same etiological factors as splinting and myospasms.
- Local injury (trauma) and subsequent infection to the muscles.
- Direct extension of an inflammatory condition from nearby structures.

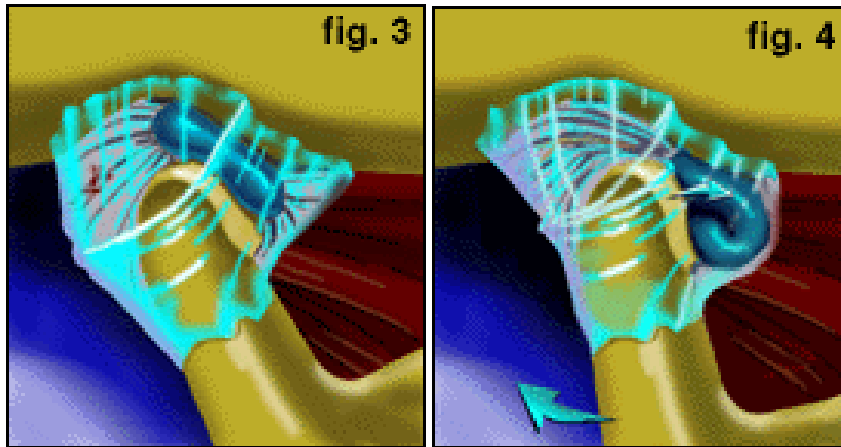
Signs and symptoms:

1. Pain and soreness in the muscle at rest and during contraction.
2. Restriction of mandibular movements.

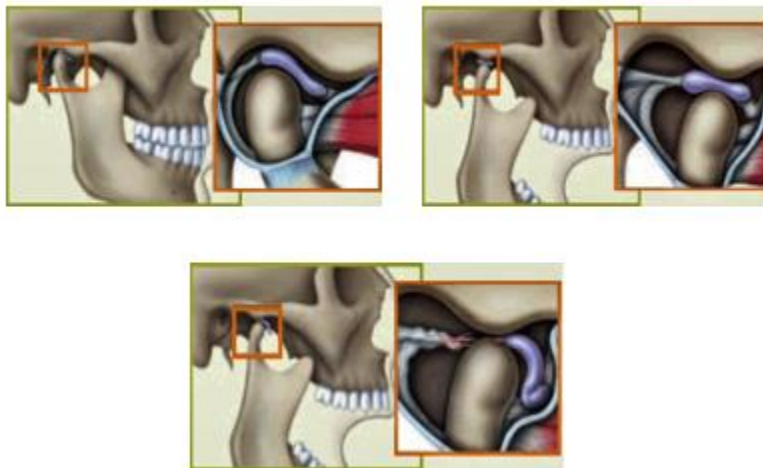
Elevator muscles are usually affected with this condition.

2. DISC-INTERFERENCE DISORDERS

- Commonly referred to as **Internal Derangement**.
- Involves the breakdown of discal attachments, **resulting in anterior and medial displacement of the disc.**



- Internal derangement describes one of the most commonly encountered disc interference disorders.
- The disc should move along with the movement of the condyle. If the disc does not follow the condyle, this is when internal derangement is apparent.



Caused by trauma or muscle hyperactivity.

Signs and symptoms:

1. Joint tightness

Inability to perform the normal condylar movements; opening & closing.

2. Clicking

Occurs whenever you move the mandible.

3. Crepitation

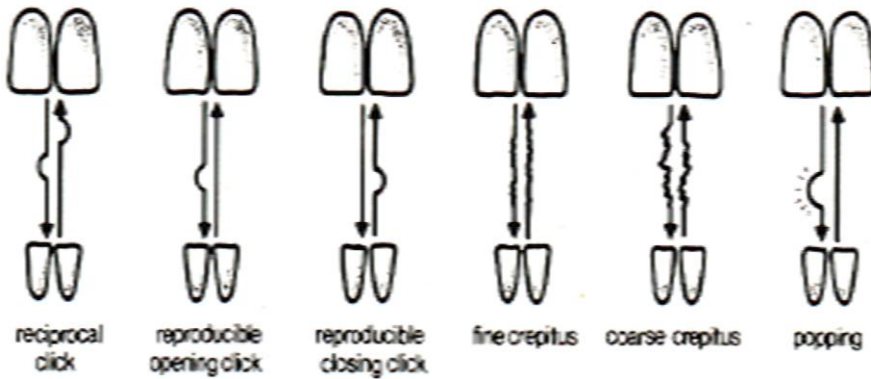
Occurs in advanced cases. (Degeneration in the articulating surfaces → friction)

4. Jaw locking

Opened but cannot be closed OR closed and cannot be opened.

5. Altered or restricted mandibular movements

These signs and symptoms happen separately and they depend on the severity of the case.

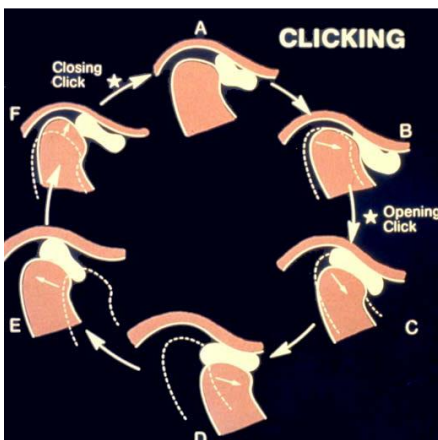


A. Disc displacement with reduction

WITH = displaced but it can return to its normal position.

Signs

- Reciprocal click (Click is evident both upon opening and closing), or reproducible opening click
- May have **deviation** in active vertical mandibular range of motion and/or in protrusion
- **No restriction in active vertical mandibular range motion when performing any movement within the normal range, the problem is in the movement itself!**
(Deviation + clicking)

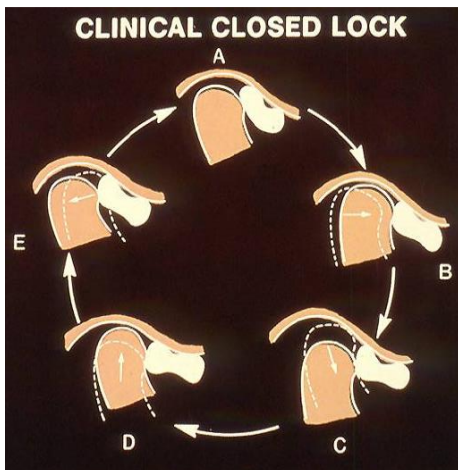


B. Disc displacement without reduction (Closed lock)

WITHOUT = the patient comes to the clinic with either opened or closed mouth.

Signs

- No TMJ sounds
(possibly crepitus)
- Restriction in active vertical mandibular range motion and laterotrusion
- May have **deflection** in active vertical mandibular range of motion and/or in protrusion
- **NO LATERAL RANGE MOVEMENT!**



Disc interference problems may present as a complete disc dislocation in its most severe form.