Examination of the articulatory system

What are the signs and symptoms of TMDs?

-Joint pain

-sounds

-dysfunction or limitation of movement

-muscle tenderness

-headache

What is the Articulatory system?

Neuro-muscular system, the TMJ and occlusion.

They are 3 components, so we have to examine each one.

Examination consists of:

-Range of movements

-TMJ tenderness, locking, sounds

-Radiographs sometimes although they are not very conclusive

-Muscle tenderness

-signs of bruxism

-Headache

So this is the sequence that we follow

**\*Range of movement** is the only measurable character that can be objectively recorded.

Causes of limitation of the range of movement are either muscular or articular(physical obstruction).

We should measure the mouth opening range, notice any deviation or deflection and lateral movements.

Types of openings:

-Diagonal: when the patient starts opening his mandible goes toward one side, mainly the other side is not moving and we have something non-functional at that side or it may be locked because the patient has adhesions.

-Deflection: Once you open, there is a straight line, then you go to one side, usually it is associated with disc displacement without reduction. During the rotation of the condyle we have the vertical line.

-Deviation: is vertical then lateral movement in the middle, then it returns to the vertical path, happens with disc dislocation with reduction.

For the range of movement, we have technique for measuring the maximum opening, measured from the upper incisor tip to the lower incisor tip whit the patient opening to the limit of their pain free range of movement. Or you can measure it using your fingers.

The normal range is 35-40 mm.

Technique for lateral movement is measuring from the midline to the midline.

 the lower limit is 7-8mm.

If the patient’s midlines do not coincide with each other, we have to put a mark and measure according to it.

**\*TMJ tenderness**

How would you palpate the tenderness? Use two fingers in the area front to the ear.

Pain is the most common cause for patient to seek treatment. Causes of pain can be acute or chronic trauma.

Pain induces inflammation and this causes pain upon pressure or palpation.

You can palpate the retro-discal tissues with your index finger inside the external auditory meatus.

So palpating can be from the inside of the ear or the lateral aspect of the condyle.

We can hear TMJ sounds better by collaborating palpating to the sound, you can also use stethoscope.

In normal opening the condyle rotates around an axis, in wide opening translation occurs when the condyle and the disc slides forward, below the posterior surface of the articular eminence.

In normal opening the disc is usually interposed, moves forward downward and the condyle passes forward across the disc, in maximum opening the head of the condyle is a little bit anterior to the disc, the condyle is more free.

Popping sound is usually due to dislocation or when the condyle recaptures the disc. The etiology of this sound is injury to the bilaminar zone, hyper tonicity of the lateral pterygoid superior head.

-Types of clicks are:

Single or multiple (very serious disc instability or perforation in the disc).

Early (minor displacement) or late.

Soft (minor displacement) or loud.

Painful or painless.

Simple or reciprocal.

Unilateral or bilateral.

Crepitus happens with degenerative diseases such as osteo-arthrosis, articulating surfaces display erosions or little lubrication of the joint, usually symptomless associated with pain in advanced cases.

TMJ sounds

 What happens if the disc is out of its space, what will you hear? Well hear a click. (internal derangement)

What happens if the articulating surfaces are worn? Crepitus. (degenerative diseases or incompatibility of the articulating surfaces)

Can you hear clicking and crepitus at the same time? Then it’s really a severe case.

TMJ locking refers to two clinical presentations:

1- the patient can open to a limited degree, movement of the closing and opening is free to that limit, beyond this limit the patient feels pain and locking of TMJ, this is usually due to anterio-medial disc displacement, and its dislocation without reduction, the condyle is unable to gain access under the surface of the disc, so rotation will happen but translation is very minimal or none at all, this is disc dislocation without reduction.

2- The second scenario of TMJ locking is much less common, occurs when the mandible opens and locks temporarily into one position, the patient is unable to open or close any further, this is what we call spontaneous dislocation, the condyle goes beyond the articular eminence and the disc would be anteriorly or posteriorly. It sometimes happen when the condyle gains access to a serious perforation in the disc.

Correct diagnosis depends on good examination

**\*Radiographic examination** is indicated when we suspect a bone pathology, we take trans-cranial or trans-pharyngeal radiographs.

Radiographs have do much short comings, they can’t be conclusive nor reproducible, because the articulating surfaces of the condyle and the fossa won’t be visualized and because early changes in bone won’t be detected in radiographs.

**\*Muscle tenderness:**

Muscles examination: you can start from the muscles origin to its insertion, usually bilaterally and don’t exert too much pressure.

-Masseter examination: 2 fingers, one from the inside and the other from the outside and ask the patient to clench.

-Temporalis: we have anterior, middle and posterior fibers. Palpate at the temporal area bilaterally, it’s inserted on the coronoid, you can palpate its insertion with your finger and ask the patient to try to close while keeping his mouth open (close with an open position).

-Lateral pterygoid: functional examination, opening and lateral movements against resistance.

-Medial pterygoid: very difficult, won’t be able to palpate it, so it’s also functional.

Trigger points palpation:

-if we have trigger points in masseter the pain can be sensed in the maxillary molars, over the angle of the mandible or in the supra-orbital region.

-If you have trigger points in the temporalis, the pain will be in the upper molars or the upper anterior teeth and the supra-orbital region.

-Lateral pterygoid: referred pain to the ear or infra-orbital regions.

**\*Bruxism:**

What are the signs of bruxism you need to look for in your patients?

-Teeth attrition

-wear fascist

-sensitivity in all teeth

-teeth or restorations fractures

-scalloping of the tongue

-ridging of the cheek

-headache usually at the temporal area upon waking up.

Occlusal examination (static and dynamic):

-Static, angles classification, we should also check if the centric occlusion coincides with the centric relation, check for premature contacts, magnitude and direction of the slide between centric occlusion and relation and the premature contact that caused it, check if the patient has freedom in centric.

-Dynamic occlusion examination, check for incisal guidance, working and non-working sides.

We should know how to bring the patient to the centric relation by using the bi-manual manipulation by Dawson.

Retruded contact position: it’s the position of the mandible to the maxilla where there’s just the first contact upon closure, when the condyle is in the centric relation, then a slide occurs due to this contact, and we go to the maximum intercuspation.

The Dr asked us to refer to the chapter she gave about psychological considerations.

Good luck

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