Last lect in the 1st semester Cons sheet Dr.Suzan Eman Al.Hamad

 Part one

I**n this lecture we are going to talk about Tempero Mandibular Diorders TMDs and their classifications . this is a very hard and complicated topic for undergrad students but we are supposed to understand the general classification of TMDs in the first part of the lecture and later on we’re going to discuss the clinical examination of each disorder in the second part .**

**\*classification of TMDs**

**\*examination of TMDs**

**\*etiology of TMDs**

**\*management of TMDs ( for the second semester)**

**The classification of TMDs is referred to a scientist called Aucisson who established it in 1996 .**

-Epidemiological data shows:

- that 50-70% of the population have ***signs*** of TMDs .

-20-25% have ***symptoms*** of TMDs .

-only 3-4% of the population ***seek treatment*** for TMDs . ( small minority )

- age range : 15-30 years-old ptns >> have ***dysfunctional symptoms*** ( like clicking , muscle tenderness ..etc) so usually dysfunctional symptoms associated with young age groups .

-but ptns who are older than 40 years have more commonly ***degenerative joint disease*** ( like osteoarithritis , osteoarithrosis …etc)

- at any age internal derangement can occur. It is a problem between the condyle,disc and glenoide fossa .

- prevalence>> male:female = 1:1 no predilection but more females are seeking treatment compared to males with 5:1 ratio .

**TMDs is a multifactorial conditions that has no single etiological factor . could be due to trauma , stress, genetics ,parafunctional habits , deep pain inputs and in the last due to occlusion ( not really a significant factor ) .**

**Events that extend beyond the physiologic tolerance of the ptn > ( like prolonged mouth opening/stress/local anesthetic injection …etc) will lead to TMDs at the end .**

* **Occlusion is a variable factor across all ptns . this means that a certain type of malocclusion such as ( class II or class III … ) *is not* related / not attributable to a certain TMD .**
* **Pain is the most common cause for the ptn to seek treatment .**
* **50 % pf ptns reported to have parafunctional habits .**
* **Muscle tenderness is frequently detected but rarely reported . ptn means when you are examining the ptn may find some sort of tenderness but when you ask him have you ever felt that pain , he will say NO.**
* **Plane Radiography is the last tool used to diagnose TMDs because it cant show us soft tissues and it’s a 2D image not 3D can’t reveal the disease except when it is in a really advanced stage .**
* ***Joint noises :***
1. **Clicking : happens with internal derangement**
2. **Crepitus : happens when there is a problem with the articular surfaces خشخشة due to a degenerative disease**
3. **Locking : is occasionally reported**
4. **Trismus : the ptn gonna complain from a pain in his muscles and limitation of jaw movements particularly when he wakes up at morning >> this is a strong sign of parafunctional habits like sleep bruxisim at night especially . there is another type of diurnal bruxisim at day time.**

 **Aucisson 1996 TMDS Classification**

1. **Masticatory muscles disorders**

\*Protective muscle cocontraction

\*muscles soreness

\*myofacial pain

\*myospasm

\*CNS mediated myalgia

\*fibromyalga

1. **Temperomandibular joint disorders**

\*derangement of the condyler disc complex

\*structural incompatablity of the articular surfaces

\*inflammation

1. **Mandibular hypomobility**
2. **Growth disorders**

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**The first group we will discuss is masticatory muscles disorders and its categories**

* **Protective cocontraction ( muscle splinting ) : the activity of appropriate muscle is to protect the injured part and the muscles are maintained in a mildly contracted state called tonus .**

**-It’s when you injured your leg in a specific muscle you will notice that there will be pain and contraction in other near muscles “coconraction protective response” this will allow you to walk in a different way تعرج to reduce the feeling of pain .**

**-agonist and antagonist muscles work together (splinting) as a first response to injurious event .**

**-if not resolved it will continue to the second category which is muscle soreness .**

**-Causes : 1. Altered sensory or proprioceptive input**

 **2. constant deep pain input**

 **3. emotional stress**

**- Clinically : 1. Mild structural dysfunction ( reduced range and velocity of movements ) that means when you ask your ptn to open his mouth quickly , you will notice that he will open but with a slow velocity and not fully.**

 **2. no pain at rest**

 **3. increased pain with function**

 **4. feeling of muscle weakness**

* **Muscle soreness : it’s the first response after a prolonged /protracted muscle cocontraction .**

**Causes : 1. protracted muscle cocontraction**

 **2. trauma**

 **3. emotional stress**

 **4. local enjury**

**Clinically :**

**When you hear the history of your ptn he will say that Pain began several hours to few days following the event ( like prolonged mouth opening ) .Whereas, in muscle cocontraction pain with function is reprted directly/immediately after the event .**

1. **Structural derangement**
2. **Minimum pain at rest**
3. **Increased pain with function**
4. **muscle weakness**
5. **Local muscle tenderness**
* **Myofacial pain ( trigger point myalgia ) : it’s a regional myogenous pain characterized by local areas of fair hypersensitive points of muscles tissue known as trigger points and is centrally mediated .**

**Causes : 1. Protracted local muscle soreness**

 **2. deep pain**

 **3. increased stress**

 **4. sleep disturbances**

 **5. local factors : habits , improper postures , strain ….**

 **6. systemic factors : hypovitaminosis , fatigue , viral infection**

**\*ex. when we palpate sternoclidomastoide the ptn feels pain in the molars area or in TMJ ( heterotopic pain)**

**History: misleading history**

**Clinically : 1. Structural dysfunction**

 **2. pain at rest**

 **3. increased pain with function**

 **4. presence of trigger point**

* **Myospasm : involuntary CNS induced chronic muscle contraction . Either due to local factors (fatigue , electrolyte imbalance in the muscles ) or systemic factor like musculoskeletal disorder that affects masticatory muscles .**
* **Can be triggered by continued deep pain input and stress**

**History : 1. sudden onset of pain**

 **2. tightness العضلات مشدودة**

 **3. restriction in the jaw movements associated with muscles rigidity . The ptn will complain that he experienced a sudden pain with increased tightness and he couldn’t move his jaw freely .**

**Clinically : 1. Structural dysfunction ( marked restriction in the range of jaw movements**

 **2. acute malocclusion ( the ptn cant return back into inter cuspal position )**

 **3. pain at rest**

 **4. pain at function**

 **5. local muscle tenderness**

 **6. muscle tightness**

* **Centrally mediated myalgia ( chronic myositis) : its originated from CNS but affects peripherally the muscles . CNS impulses are sent up to muscular and vascular tissues producing neurogenic inflammation .**

**History : long history of consistency of pain ex. months..**

**Clinically : 1. structural dysfunction**

 **2. pain at rest**

 **3. pain at function**

 **4. local tenderness ,muscle tightness and muscle contraction**

* **Fibromyalgia :It’s a systemic disorder that diagnosed easily by the presence of 3 quadrants of the body out of 4 are affected .or 11 muscles out of 18 predetermined sites for three months or longer .**
* **the ptn clinically may have poor quality sleep , structural dysfunction , pain at rest , pain at function and trigger points .**

**Now we will discuss temporomandibular joint disorders**

**loss of normal disc movement could occur due to elongation of collateral ligaments and retrodiscal lamina or thinning of posterior border of the disc . one of the most common causes is bruxisim that causes microtrauma in the TMJ cause you are overworking condyles so trauma is the most common cause either its macro or micro trauma from (para functional habits, chronic muscle hyperactivity , orthopedic instability ).**

* **Derangement of the condyler-disc complex :**

**initiated as a slight disc displacement anteriorly and a little bit medially . when it is get more serious will form disc dislocation with or without reduction .**

* **So it includes : 1. Displacement 2. Dislocation with reduction and without reduction**

**So the cause of displacement ; is thinning of the posterior part of the disc and elongation of the associated fibers this will make the disc to slip a little bit anteriorly by superior lateral pterygoide muscle . But the disc still located on the top of the condyle .يعني بتتزحلق قليلا بدون ما يتغير موقعها**

* **During Opening and closing >> an abnormal condyle movement over the disc will result in a clicking sound .**
* **Clinically : 1. Click sound 2. Normal range of jaw movement at centric and eccentric .**
* **History : long history of clicking , and joint catching with / without pain .**

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* **Dislocation with reduction : further thinning and elongation of fibers resulting in the condyle being forced completely anteriorly . the ptn cant manipulate the jaw to reposition the condyle on the posterior border of the disc and the disc is said to be reduced .**
* **Disc dislocation with reduction also causes clicking sound , but without reduction doesn’t cause a click .**
* **Dislocation with reduction >> the condyle will return back to its position under the disc ( recapturing it ) .**
* **Dislocation without reduction resulted from excessive elongation extends and the disc is forced further more anterio-medially by the condyle .**
* **History : 1. ptn knows and recognized when the dislocation occurred and says that the jaw was locked .**
* **2. Previous history of clicking كان سابقا يسمع صوت و هلأ بطّل يسمعه**

**Dislocation without reduction >> the condyle will never returne back to its proper position under the disc and separation between them occurs . ( the disc in front and the condyle is behind )**

* **Clinically : 1. Range of movement is limited**

 **2. mandibular deflection to the involved joint**

 **3. lateral movement is normal on epsilateral side but restricted on the contralateral side**

 **4. bilateral loading is painful**



* **Structural incompatibility of the articular surfaces : means there is a problem in the articulating surfaces either :**
1. **In the form / morphology of the condyle or disc or glenoide fossa by flattening , thinning , perforations or bony protuberances . مشكلة بتكوين/ شكل الأسطح**
* **They have history of a long term disfunction/deviation at a particular point in opening and closure**
1. **Adhesions and adherence : due to chronic inflammation of the joint**
* **Causes are : prolonged static loading pf the joint , and loss off lubrication .**
* **Adherence : temporary sticking between disc-condyle or disc-fossa happens first and might develop into adhesion ( formation of fibrous tissue and its more chronic )**
* **Clinically for both : the ptn feels sticking in the joint at certain moment during movement but continues the movement normally .**
* **In both the ptn doesn’t feel pain contrary to dislocation without reduction .**
* **There is superior joint adhesion and inferior joint adhesion .**
* **superior joint adhesion : adhesion space between the disc and glenoide fossa . at early stages only rotation occurs and normal joint translation is inhibited leading to limited mouth opening . but at later stages due to long standing adhesion the ligaments become elongated and the condyle translates forward leaving the disc behind and would appear like disc is posteriorly displaced ( so the forward movement will be normal but there is a difficulty upon closure and turning back into occlusion ) .**
* **inferior space adhesion : happens between the disc and the condyle . بلزقوا ببعض زي قطعة واحدة No rotation is allowed but translation is normal ( mouth opening just inhibited ; cant rotate but he can translate ) .**
1. **Hypermobility ( or called subluxation ) : occurs in elderly ptns . its a sudden forward movement of the condyle-disk during mouth opening causing the condyle to set beyond the crest of the eminence ( usually the movement of the disc and condyle is up to the eminence not beyond it ) . No pathological changes it is just an anatomic variation in ptns have short and steep posterior slopes of the eminence .**
* **History : ptn reports locking when the mouth is widely opened .**
* **Clinically : during mouth opening there will be a depression in the face behind the condyle , and no pain is observed .**
1. **Spontaneous dislocation : occurs when the ptn opens his mouth the condyle-disc forced beyond the eminence and become locked there . He can’t close his mouth again unless you helped him to close and repositioned the condyle posteriorly . so its hyper extension of the TMJ resulting in fixation of the joint in an open position preventing any translation .**
* **Causes : anatomic predisposition , yawning , muscle fatigue , sudden contraction of inferior pterygoide muscle**
* **Clinically : sudden locking of the jaw with upper and lower anterior teeth separating and posterior teeth are closed .**

**\*\* the doc didn’t focus on the coming categories and she said ; just we should know generally about them and mainly focus on the disorders of the muscles and joint disorders \*\***

* **Inflammatory problems

They can be : synovitis , retrodiscitis , capsulitis , osteoarithritis ,osteoarithrosis and poly arithritis and many …**
* **Causes : trauma , infects .**
* **Clinically : 1. pain in the perioricular area**

 **2. Pain on function**

 **3. Limited range of movements**

 **4. Cripitation sound**

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 **This is the third group of TMDs**

**Chronic mandibular hypomobility**

**Includes :**

 **1. ankylosis**

**2. Muscle contraction**

**3. Coronoid impedance ( the coronoid is extremely long or fibrotic )**

 **- Ankylosis is diagnosed usually by double radiography**

**- Ankylosis happens when : Trauma and/or infalamation >> fibrous adhesions >> become bony >> ankylosis**

**Clinically : restricted range of movements , deflection and NO pain .**

 **Good luck**