Temporomandibular Joint

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Aims

- Discussion of TMJ anatomy
- Temporomandibular Joint Disorder versus “Dysfunction”
- Classification and diagnostic factors of TMD
- Explore the link between malocclusion and TMD
- Explore the link between orthodontic treatment and TMD
- Management of TMJ Disorders
Temporomandibular Joint Anatomy

- Ginglymoarthroidal
  - Ginglymus (hinge): open
  - Arthroidal (slide): translation
- Temporal bone and mandible: synovial articulation
- Articular disc: dense fibrous connective tissue, divides joint capsule
- Joint capsule has two compartments, filled with synovial fluid
  - Upper: initial opening and rotation
  - Lower: late opening and translation
Temporomandibular Joint Anatomy
TMJ Disorders

- DISORDER, not “Dysfunction”
- 15%+, 20-40 y/o, F>M
- Etiology: biologic, environmental, social, emotional, cognitive
- Categories (RDC/TMD classification)
  - **TMJ**: Internal Derangements such as disc displacement
    - With reduction (pop/click), without reduction
  - **Muscles of Mastication**: myofascial pain dysfunction syndrome
  - **Degenerative**: osteoarthritis, osteoarthrosis, arthralgia
  - Less common pathology: Temporal arteritis, chondrosarcoma, osteosarcoma, giant cell tumour, aneurysmal bone cysts
- Joint noise, pain, myofascial pain, referred pain (head/ear), limited movement
Malocclusion, Ortho and TMD


**Michigan jury awards $850,000 in ortho case**

- Damages awarded asserting that orthodontic treatment caused TMD

- Does malocclusion cause TMD?
- Does ortho treat TMD?
- Can ortho cause TMD?
- Shall we all just go home and cry?
Malocclusion and TMD

  - Parafuction, Skeletal AOB, OJ 6mm+, RCP/ICP slide 4mm+, loss posterior support, post x-bite
  - No link ideal occlusion and TMD
  - TMD causes some occlusal features, not the other way around

- Caldas et al (2016): no difference between malocclusion/normal in TMD
  - Malocclusion (early) versus TMD (realised later) : chicken or egg?
  - Worsening TMD in adolescence (coincide with ortho)
  - Sudden changes may cause TMD
Orthodontics and TMD

- Luther (1998):
  - treat to functionally optimal occlusion but no evidence it prevents/cures TMD
  - Functional occlusion is not always stable, removing interferences does not cure TMD

  - No association between ortho treatment and TMD
  - Ortho does not cure TMD

- Need for Cochrane Review / RCT
Ortho treatment and TMD - your clinical situation

- **ASK:** joint noises, locking, pain
- **PALPATE:** muscles, TMJ
- **MEASURE:** range of motion, opening/closing deviations, deflections, lateral movement
- **LISTEN:** for noises when opening and closing

- Do not proceed with ortho in the presence of TMD: specialist referral and management prior to ortho
- **TMD develops in ortho**
  - inform, educate and manage
  - Parafuction?
Management

- Conservative and reversible
- Lifestyle: resting, avoiding gum chewing, hot compresses, massage, stress reduction
- Mouth guards
- Medication: NSAIDs
- Steroid injections if arthritis
- Surgery (if all else fails)
Conclusions

- Knowledge of TMJ anatomy is important for clinical practice
- Knowledge of TMD and its etiology is essential
- Know how to help your patients suffering from TMD

- Does malocclusion cause TMD?  **NO**
- Does ortho treat TMD?  **NO**
- Can ortho cause TMD?  **NO**
- Shall we all just go home and cry?  **NO!**

- BUT: make sure you judge your clinical situation right BEFORE your start anything - assessment is key.
References


- En.wikipedia.org: Temporomandibular joint, accessed 01.05.17


References


- Smileworks Liverpool. If you’re interested in getting braces from Smileworks then take a look at our braces page at: Braces Liverpool