

Facial Pain

AMIR JALAL ABBASI

ASSOCIATE PROFESSOR OF

ORAL AND MAXILLOFACIAL SURGERY,

FELLOWSHIP IN FACIAL AESTHETIC AND RECONSTRUCTIVE SURGERY

SINA HOSPITAL,

TEHRAN UNIVERSITY OF MEDICAL SCIENCES



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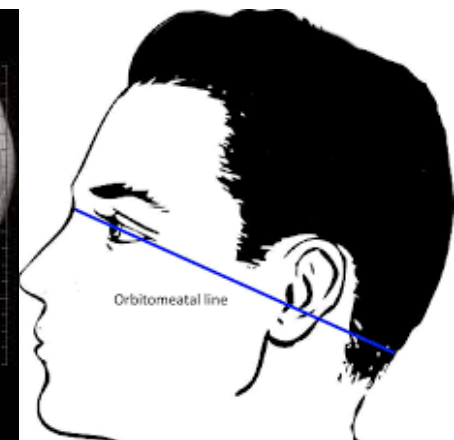
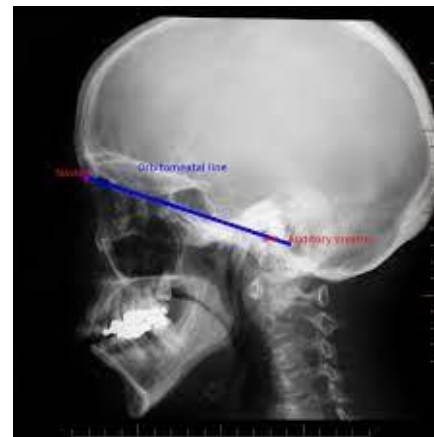
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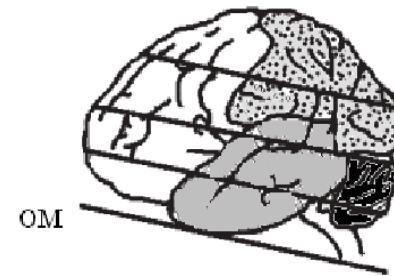
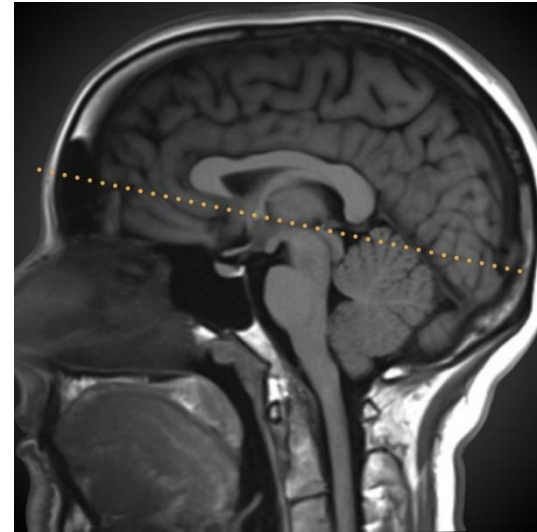
International Classification of Headache Disorders, 3rd edition (ICHD-3)

- ▶ Headache refers to pain located in the head or in the face above the orbitomeatal line;
- ▶ Pain below this line will be regarded as facial pain
- ▶ Although this has recently been challenged.



- ▶ The **orbitomeatal line**, roughly corresponds to the border between the **ophthalmic (V1)** and **maxillary (V2)** branches of the trigeminal nerve.
- ▶ This differentiation also reflects the intracranial anatomy:

the **supratentorial dura mater** is primarily innervated by the V1 branch of the trigeminal nerve, which is the same branch responsible for “pain in the face” above the orbitomeatal line.

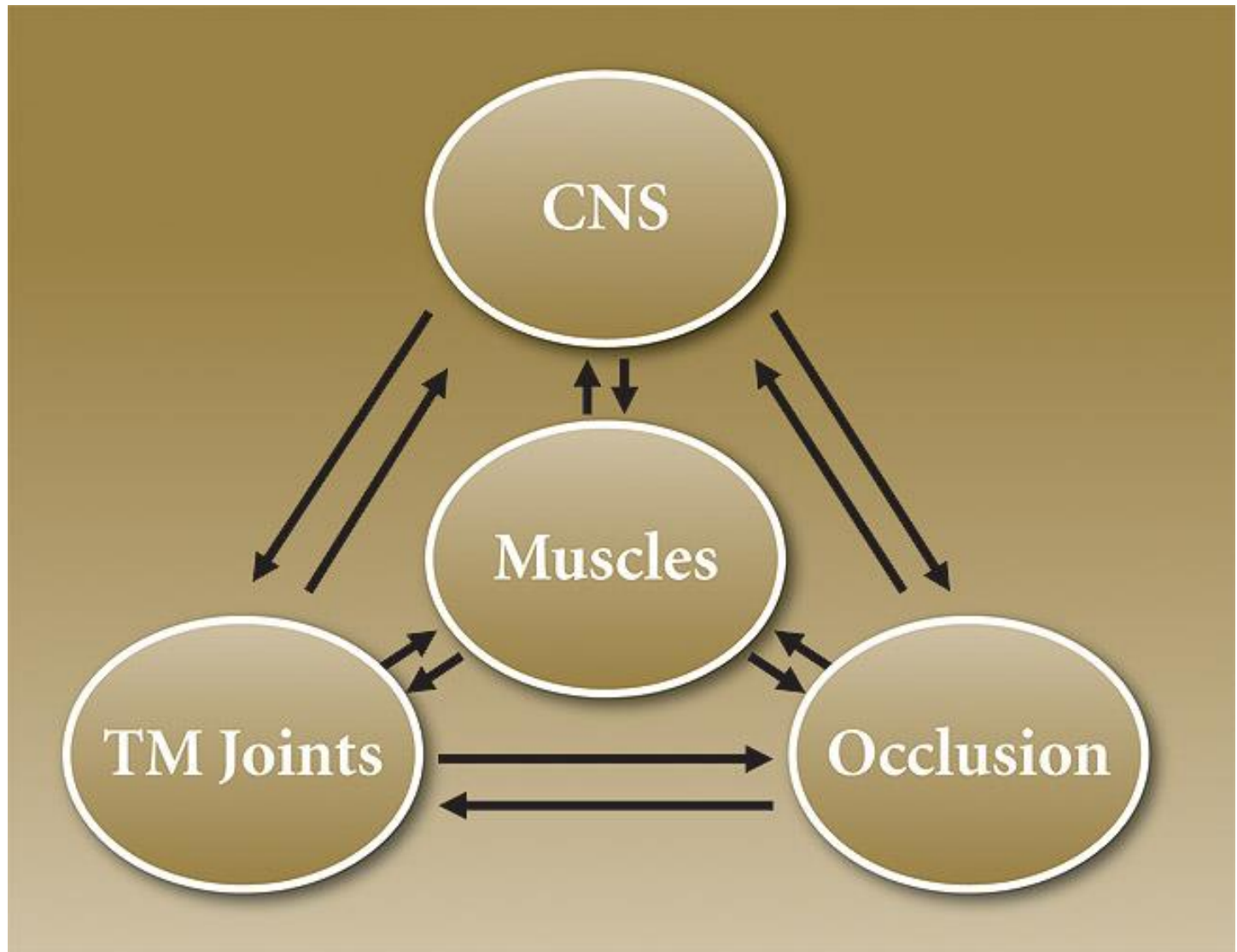


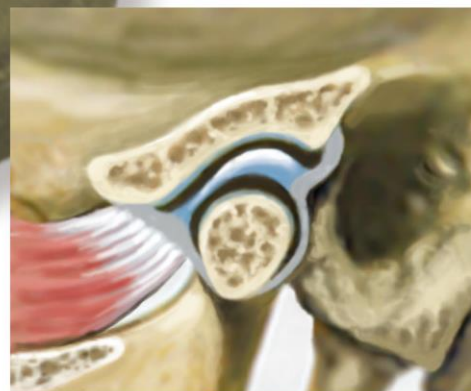
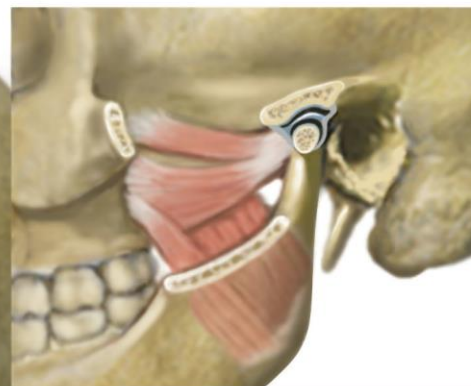
Facial pain is simply categorized into one of several types, including:

- **dental pain**, which relates to problems with the teeth and gums
- **nerve pain**, or neuralgia, which relates to conditions that affect the facial nerves
- **temporomandibular pain**, which relates to the temporomandibular joint (TMJ) and the muscles of the jaw
- **vascular pain**, which occurs due to issues with blood vessels and blood flow

Temporomandibular disorder as the most prevalent cause of facial pain

- ▶ In the orofacial area temporomandibular disorders (TMD) are the most frequent chronic pain conditions. TMD is a collective term embracing chronic conditions affecting the temporomandibular joint (TMJ) or the masticatory muscles (myalgia). It affects about 5%–10% of the population





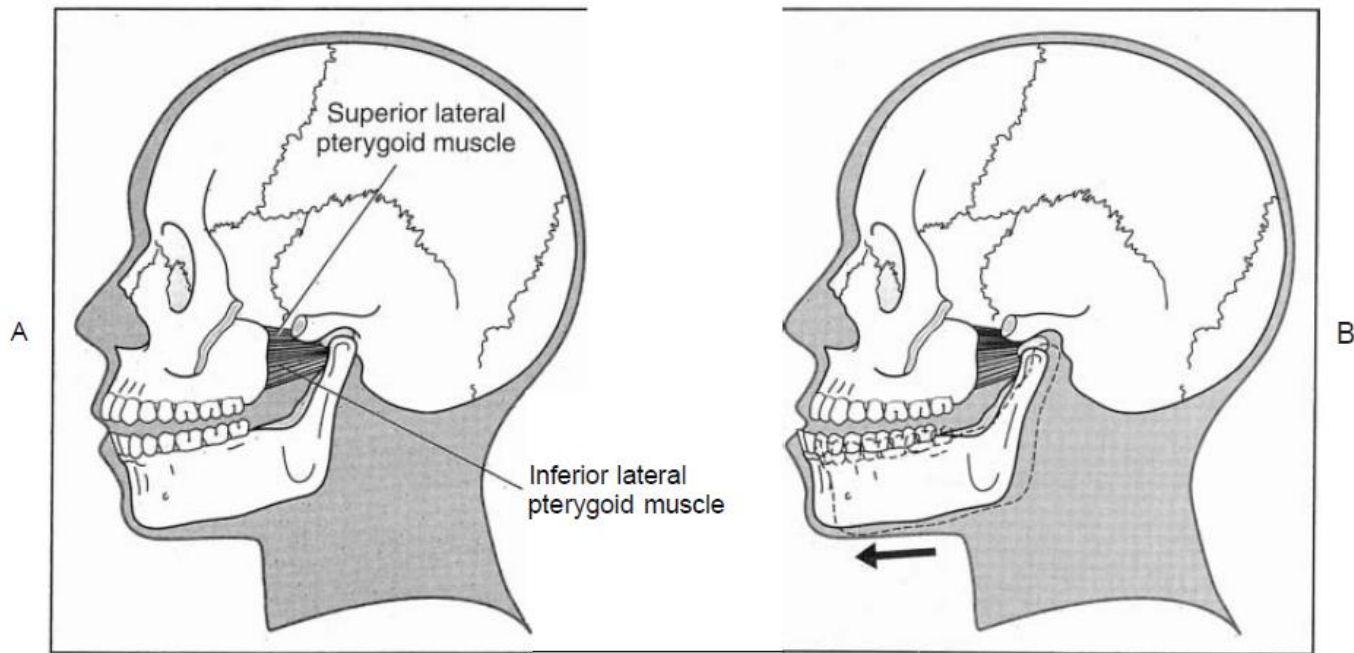
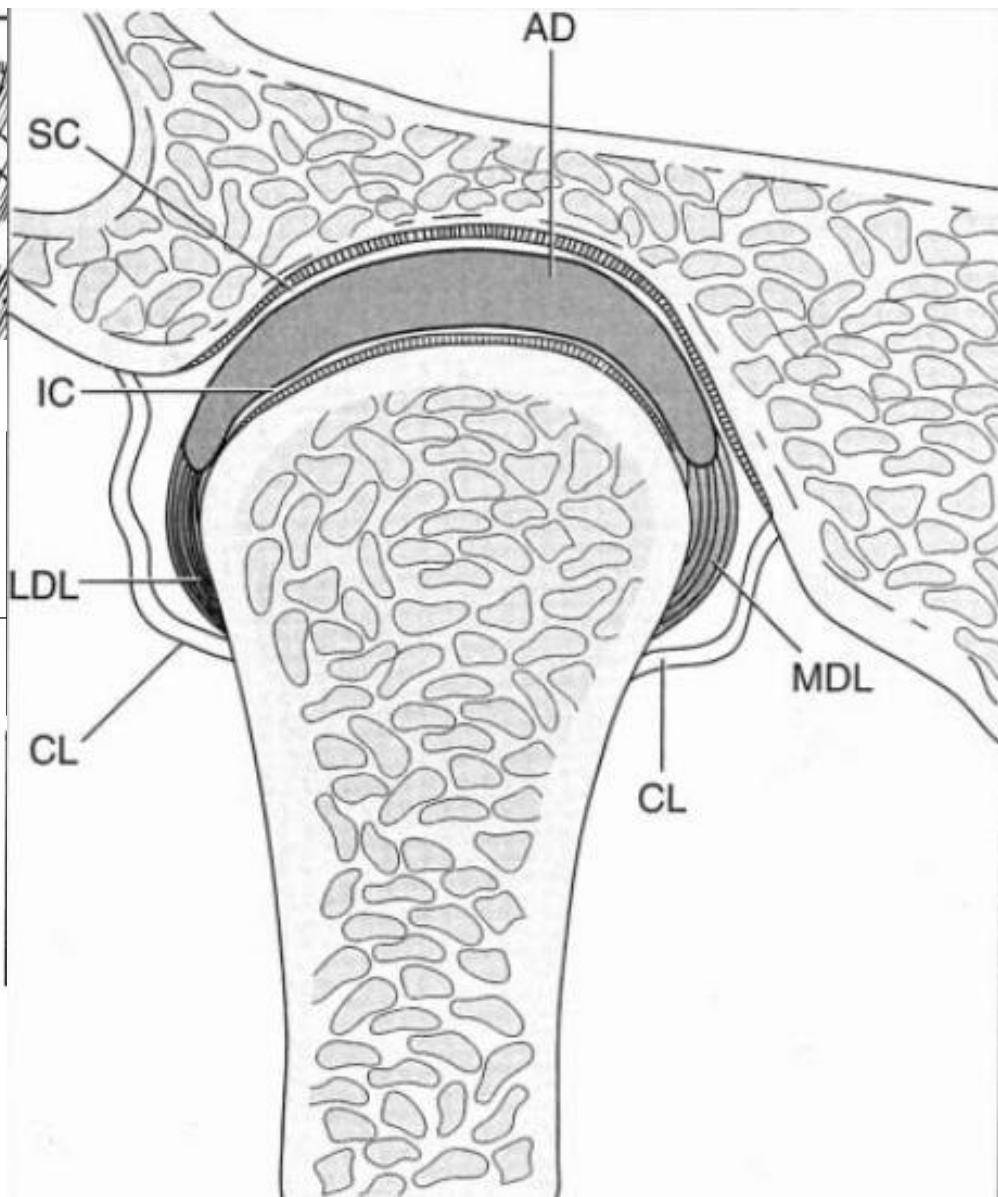
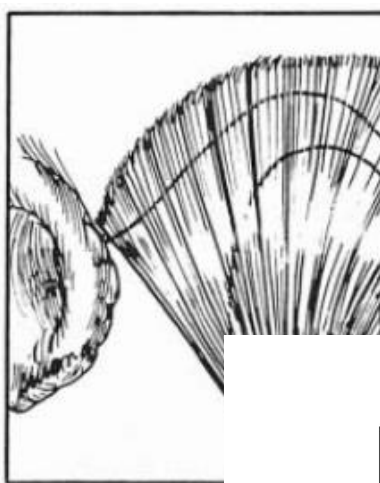


Fig. I-25 **A**, Inferior and superior lateral pterygoid muscles. **B**, Function of the inferior lateral pterygoid: protrusion of the mandible.



IC
B RT
IRL

SLP
ACL
ILP

Temporomandibular disorders (TMD)

- ▶ Craniofacial pain involving the joint, masticatory muscles, or muscle innervations of the head and neck.
- ▶ Major cause of nondental pain in the orofacial region.
- ▶ The incidence of TMD peaks from 20 to 40 years of age; it is twice as common in women



► The most common syndromes are:

- Myofascial pain disorder
- Disk derangement disorders,
- Osteoarthritis
- Autoimmune disorders



The discussion of acute dislocations, trauma, and neoplasia is beyond the scope of this lecture.

Etiology

- ▶ The etiology of TMD is multifactorial and includes biologic, environmental, social, emotional, and cognitive triggers.
- ▶ Factors consistently associated with TMD include other pain conditions (e.g., chronic headaches), fibromyalgia, autoimmune disorders, sleep apnea, and psychiatric illness.
- ▶ Twofold increase in TMD in persons with depression
- ▶ Twofold increase in myofascial pain in persons with anxiety
- ▶ Smoking

Classification

- ▶ **TMD is categorized as:**
 - Intra-articular (within the joint)
 - Extra-articular (involving the surrounding musculature)

Musculoskeletal conditions are the most common cause of TMD, accounting for at least 50% of cases.

Articular disk displacement involving the condyle–disk relationship is the most common intra-articular cause of TMD.

TMJ Disorders

muscle pain, reduced jaw opening capacity, recurrent TMJ dislocations and masticatory hyperactivity.

- TMDs may be divided into
 - Myofascial
 - Arthrogenic
- Joint noise, pain and restricted range of motion are most frequent symptoms.
- The source of chronic myofascial pain is not clear.

CLASSIFICATION OF TEMPOROMANDIBULAR DISORDERS

- Myofacial Pain
- Disk Displacement Disorders
 - Anterior Disk Displacement with Reduction
 - Anterior Disk Displacement without Reduction
- Degenerative Joint Disease (Arthrosis, Osteoarthritis)
- Systemic Arthritic Conditions
- Chronic Recurrent Dislocation
- Ankylosis
 - Intracapsular Ankylosis
 - Extracapsular Ankylosis
- Neoplasia
- Infections

EVALUATION

- Interview
- Examination
- Radiographic Evaluation

Transcranial Radiographs

Panoramic Radiography

Tomograms

Temporomandibular Joint Arthrography

Computed Tomography

Magnetic Resonance Imaging

Nuclear Imaging

- Neurologic and Psychologic Evaluation

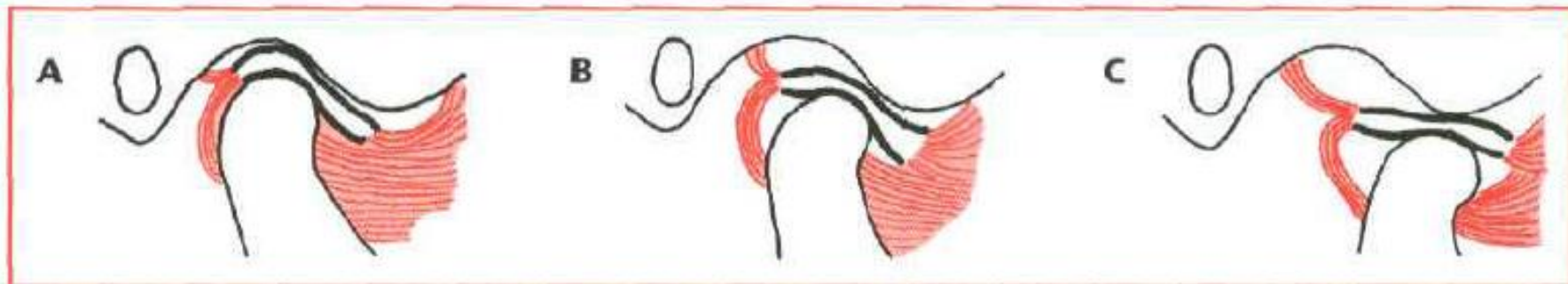


FIG. 30-11 Normal disk and condyle relationship. A, Biconcave disk is interpositioned between fossa and condyle in closed position. B, When condyle translates forward, thin intermediate zone stays in consistent relationship with condyle. C, Maximum open position.

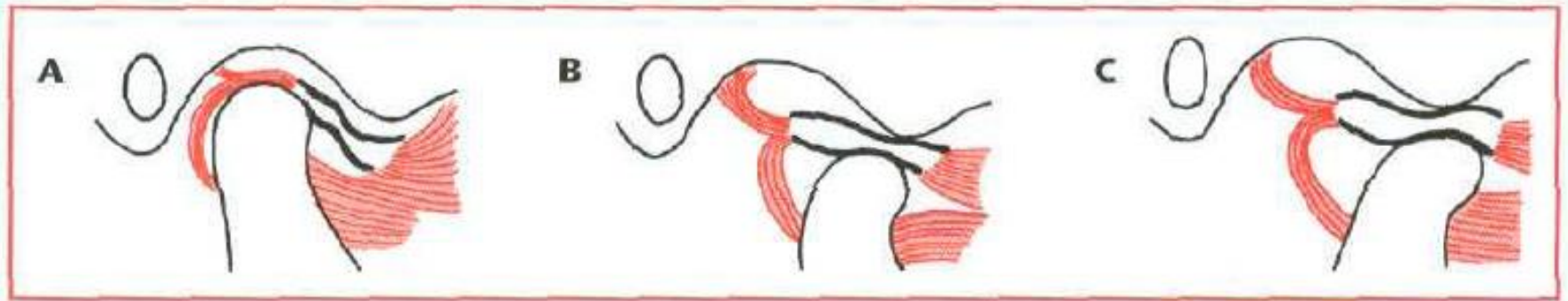


FIG. 30-12 Anterior disk displacement with reduction. A, Biconcave disk is situated anterior to articulating surface of condyle. When condyle translates forward, it eventually passes over thickened posterior band of disk, creating clicking noise. B, After click occurs, disk remains in appropriate relationship with condyle through remainder of opening cycle. C, Maximum opening position. When mandible closes, condyle and disk relationship will return to position as shown in A.

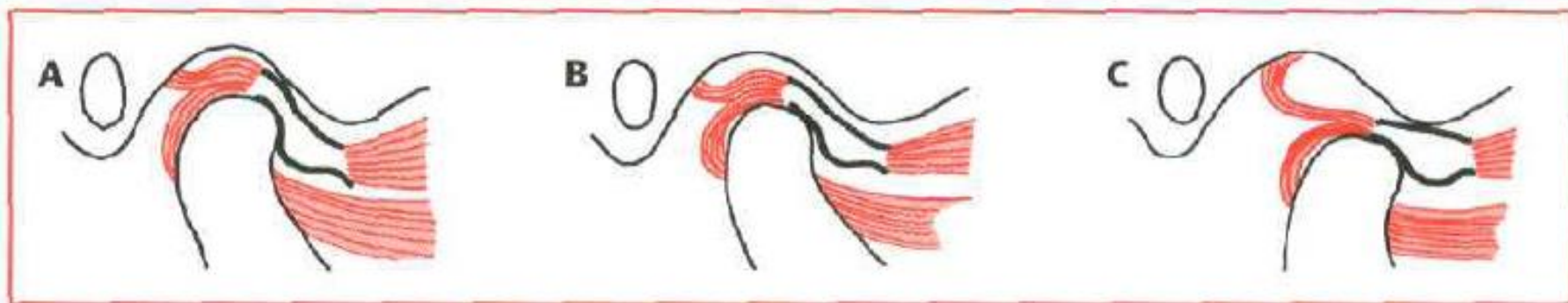


FIG. 30-13 Anterior disk displacement without reduction. A, Disk that has been chronically anteriorly displaced now has amorphous shape rather than distinct biconcave structure. B, When condyle begins to translate forward, disk remains anterior to condyle. C, In maximum open position, disk tissue continues to remain anterior to condyle, with posterior attachment tissue interposed between condyle and fossa.

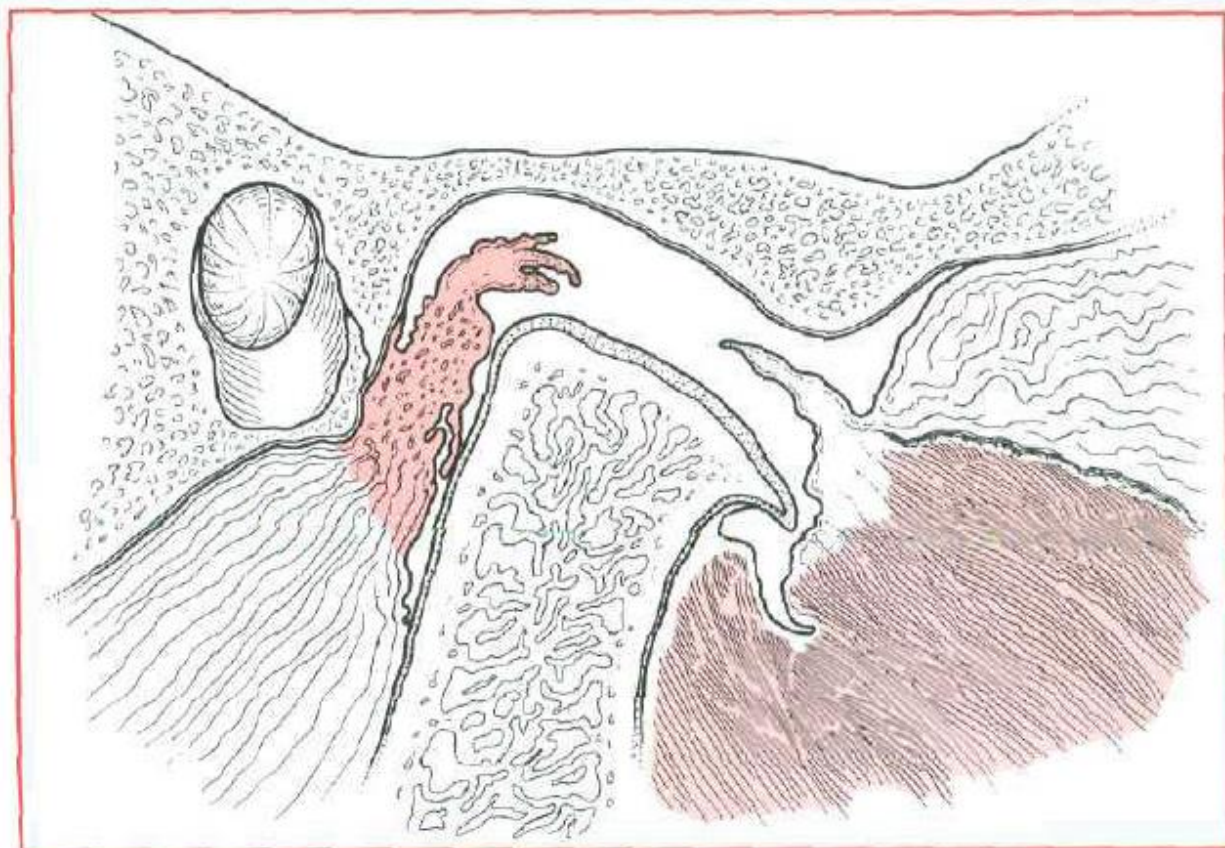


FIG. 30-14 Degenerative joint disease demonstrates large perforation of disk tissue and erosion and flattening of articulating surfaces of both condyle and fossa.

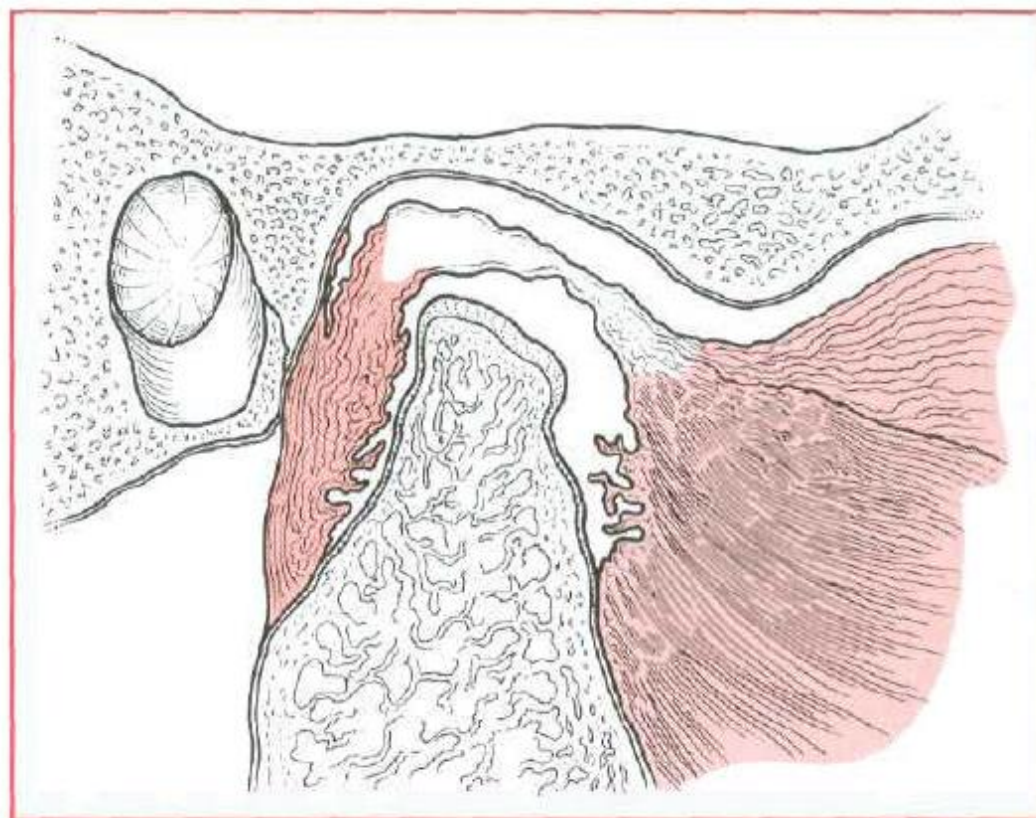
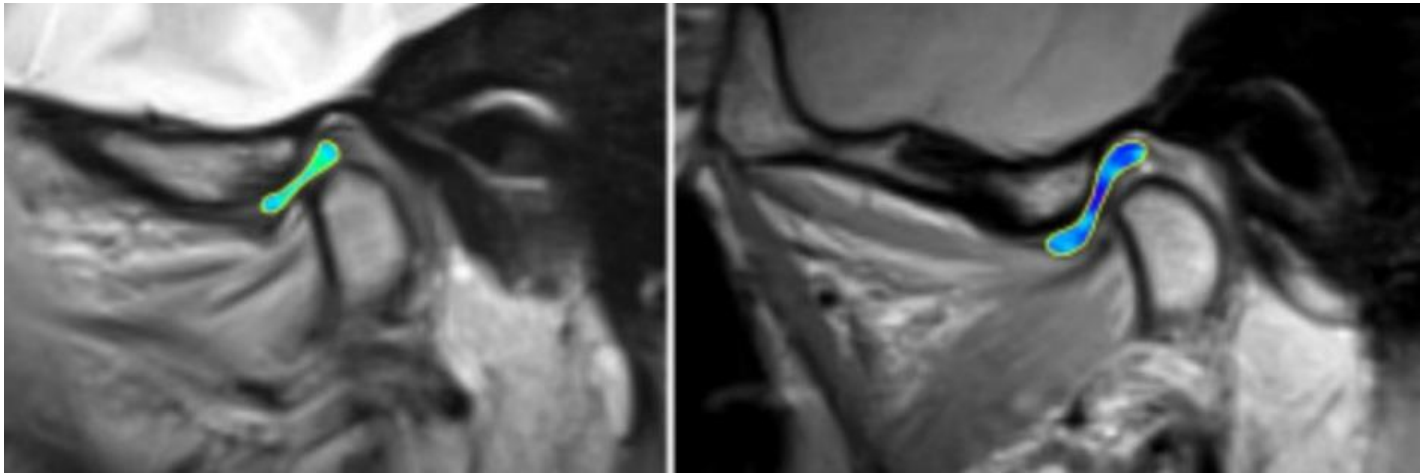


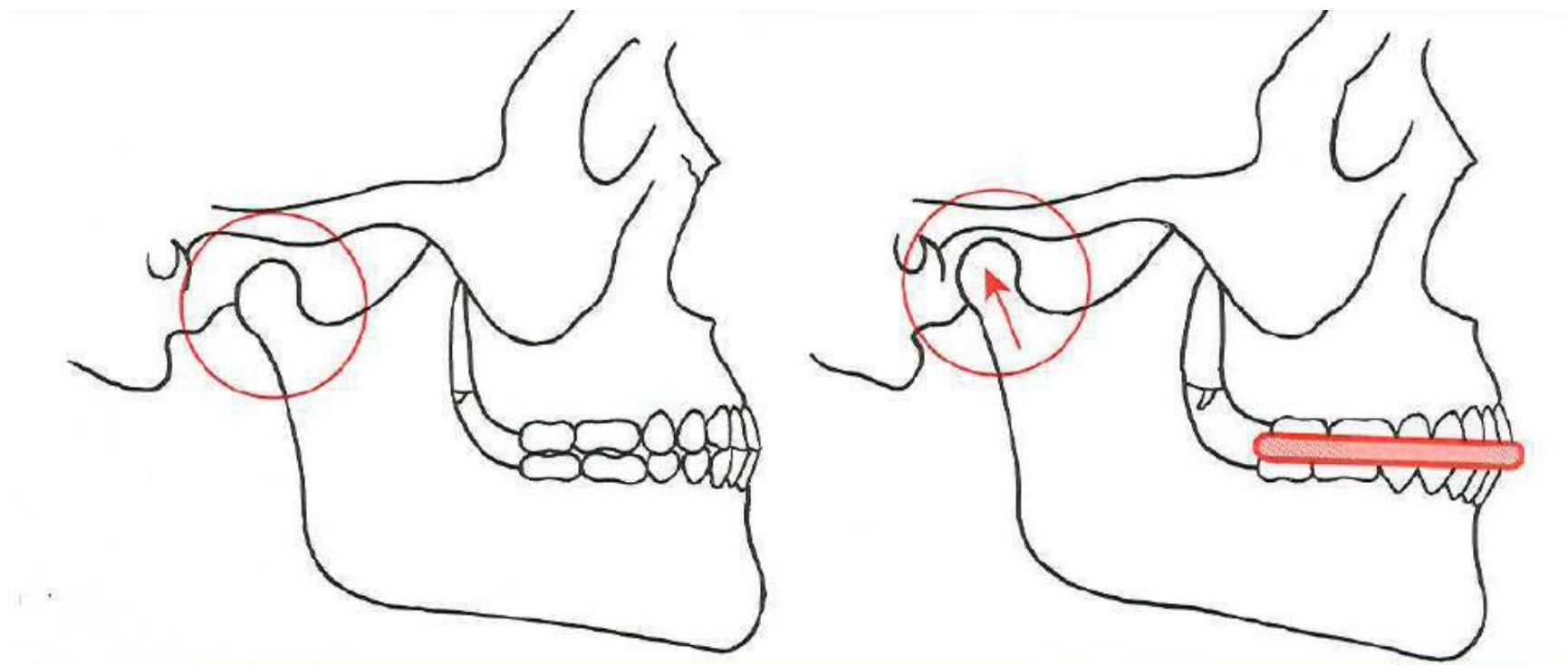
FIG. 30-15 Changes seen in rheumatoid arthritis of temporomandibular joint. These changes include proliferation of synovial tissue, creating resorption in anterior and posterior areas of condyle. Irregularities of disk tissue and articulating surface of condyle eventually occur.

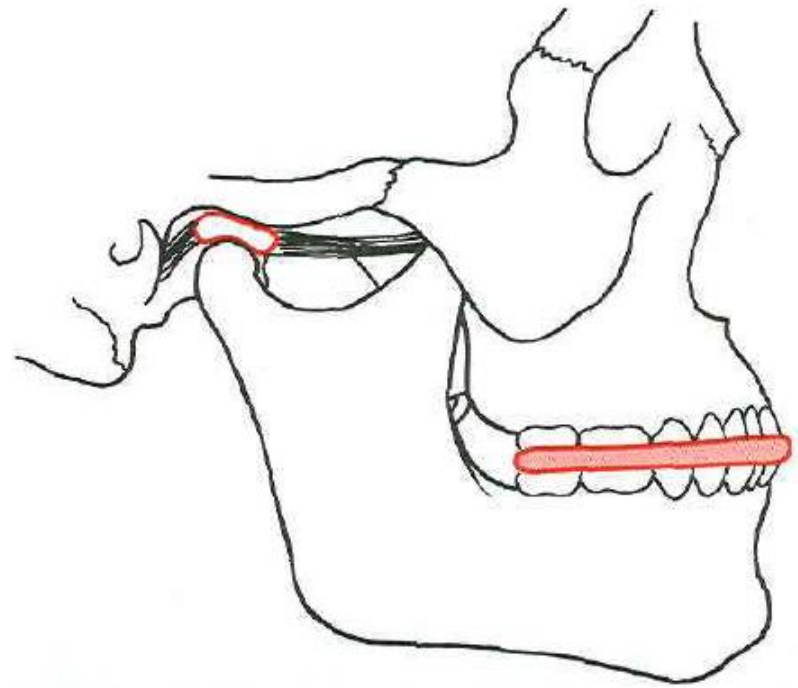
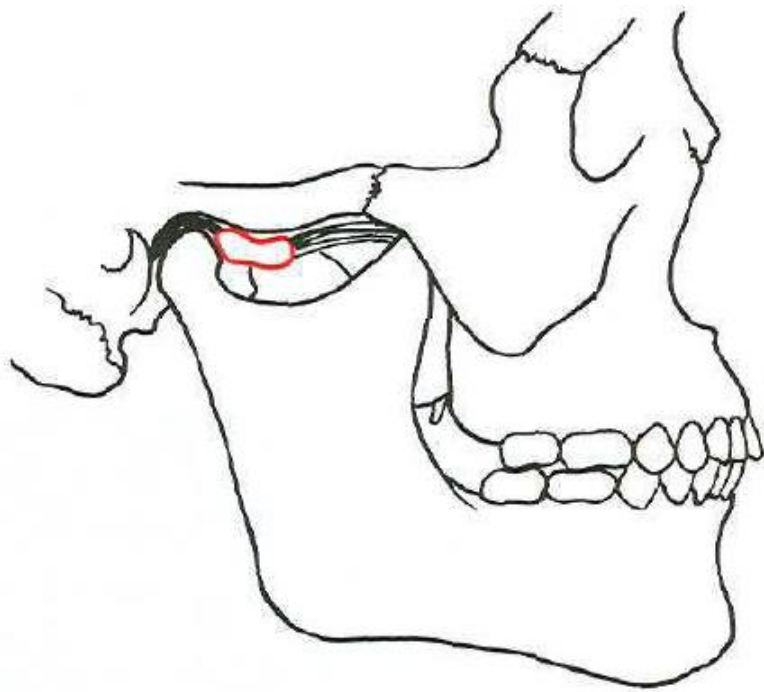


NON-SURGICAL TREATMENT

- ▶ Patient Education
- ▶ Medication
- ▶ Physical Therapy
- ▶ Splints
 - Autorepositioning Splints
 - Anterior Repositioning Splints
- ▶ Permanent Occlusion Modification
- ▶ Temporomandibular Joint Injection

Prosthodontic Occlusal Treatments







Temporomandibular Joint Injections

Injection of Corticosteroid into the TMJ

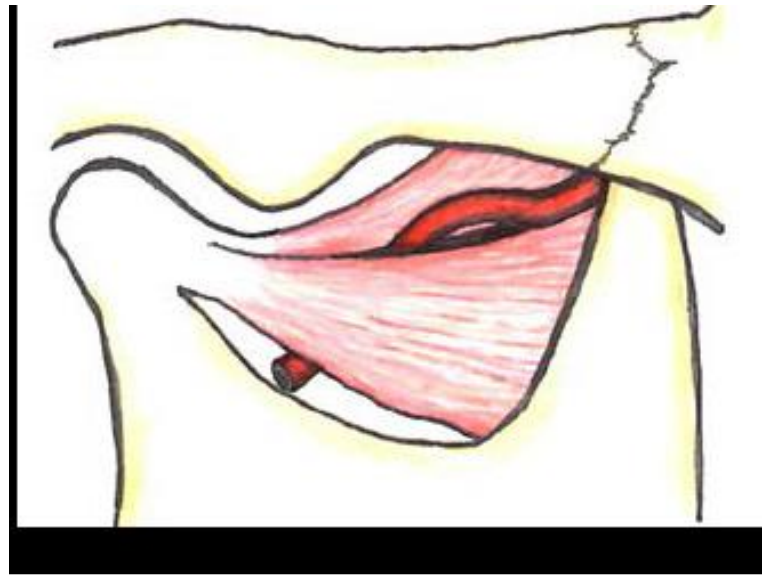
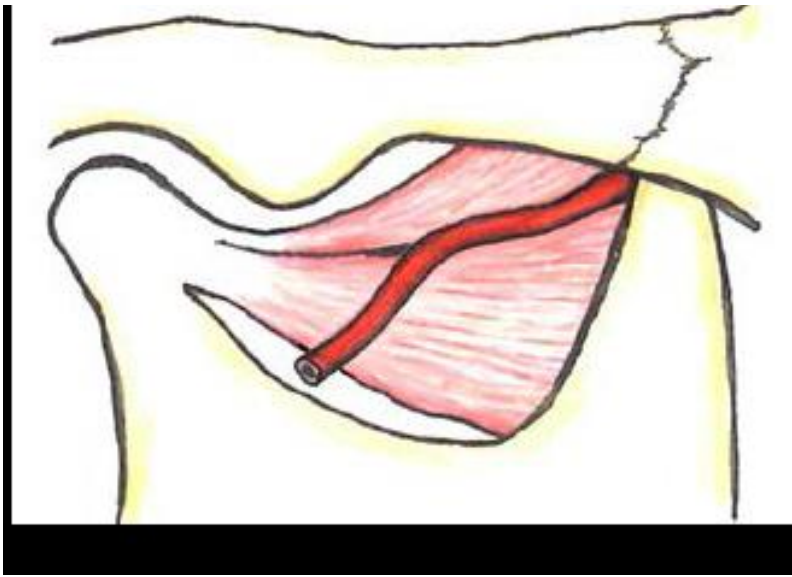
- ▶ The **injections** help to reduce inflammation and pain
- ▶ This procedure can also help those suffering from chronic jaw pain.
- ▶ The bone structures are the most sensitive to intra-articular injection, however, the deleterious effect of corticosteroids on the TMJ healthy bony structures could be avoided with the use of single intra-articular injection.



BOTOX



- ▶ The area of flaccidity produced may be larger than the area of muscle denervated
- Weakening of surrounding muscles not injected may also occur because of toxin diffusion.
- Animal studies have demonstrated that BTX diffuses across fascial planes to surrounding muscles

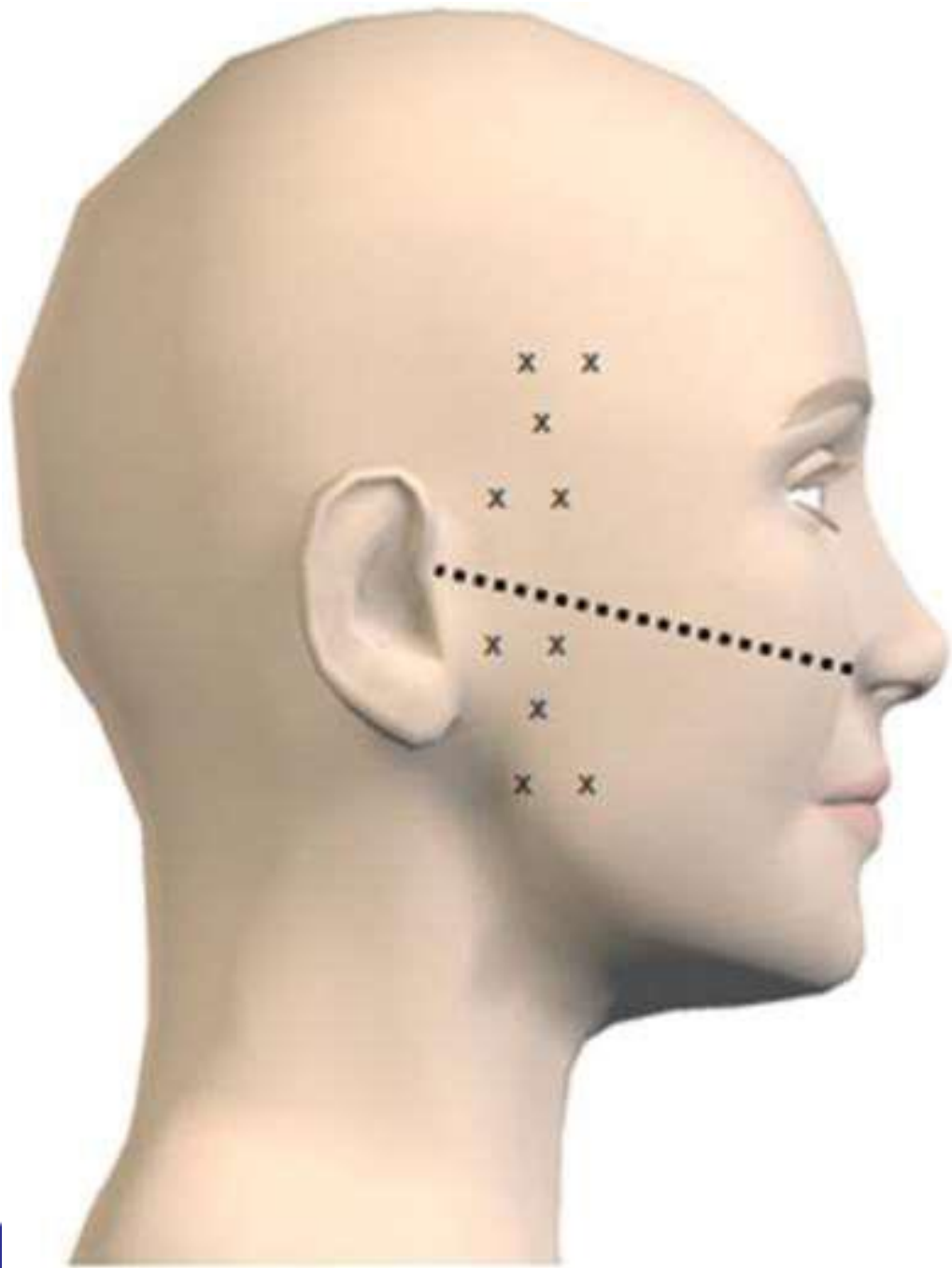






Masseter Hypertrophy

- Masseteric hypertrophy usually results from anatomical asymmetry of the jaw, clenching, excessive chewing of gum or congenital malformations.
- May be unilateral or bilateral



Temporalis Hypertrophy

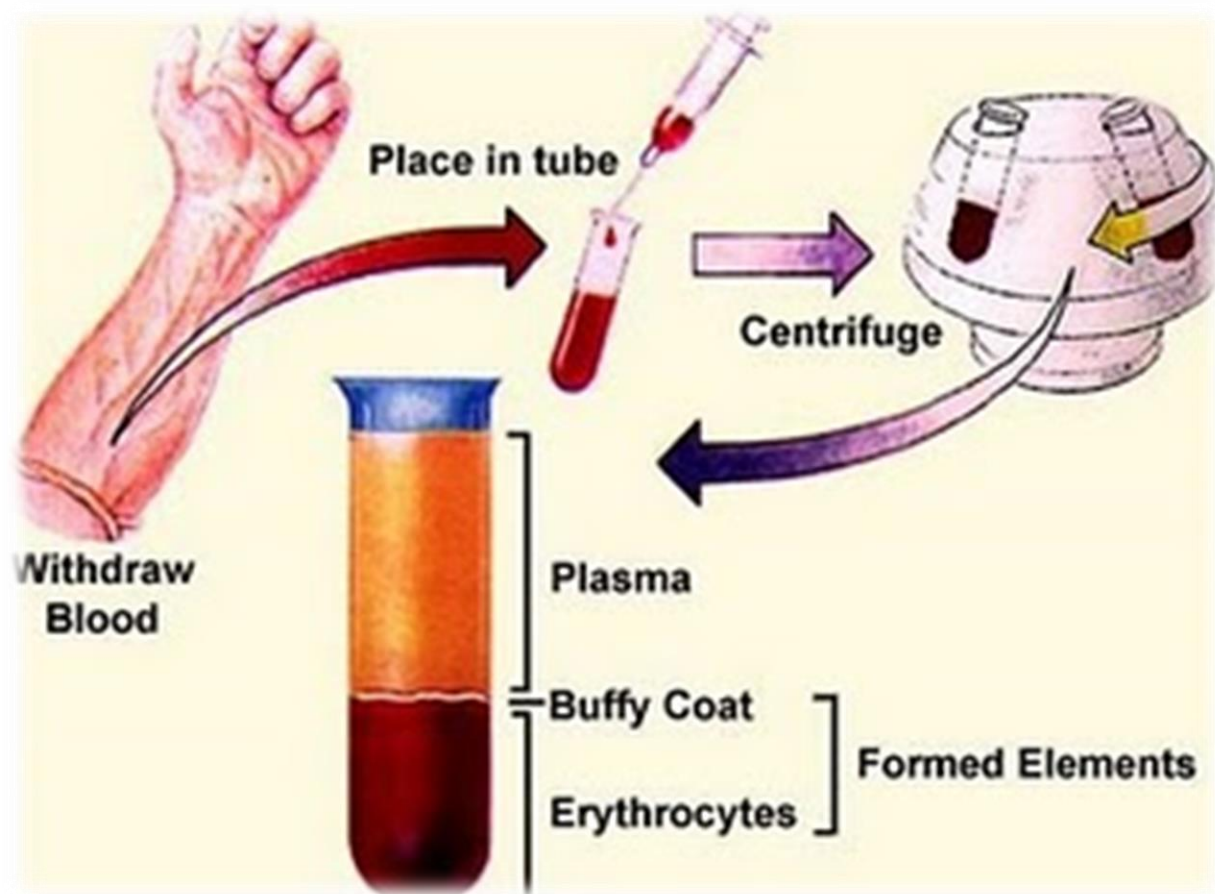
- Less common
- Can be managed successfully using BTX
- With no appreciable side effects.

Hyaluronic acid (HA) in the treatment of TMJ disorders

- ▶ (HA) is a linear chain, hydrophilic, poly-ionic glycosaminoglycan of high molecular weight.
- ▶ In the extracellular matrix of several connective tissues, including joint cartilage and synovial fluid.
- ▶ HA molecules are predominantly synthesized by type B synovial cells.

Platelet-Rich Plasma in Treatment of TMJ Dysfunctions

- ▶ Evaluate the effectiveness of arthrocentesis or injections with platelet-rich plasma in temporomandibular affections and to compare them to arthrocentesis alone or with hyaluronic acid (HA) or to hyaluronic acid injections.

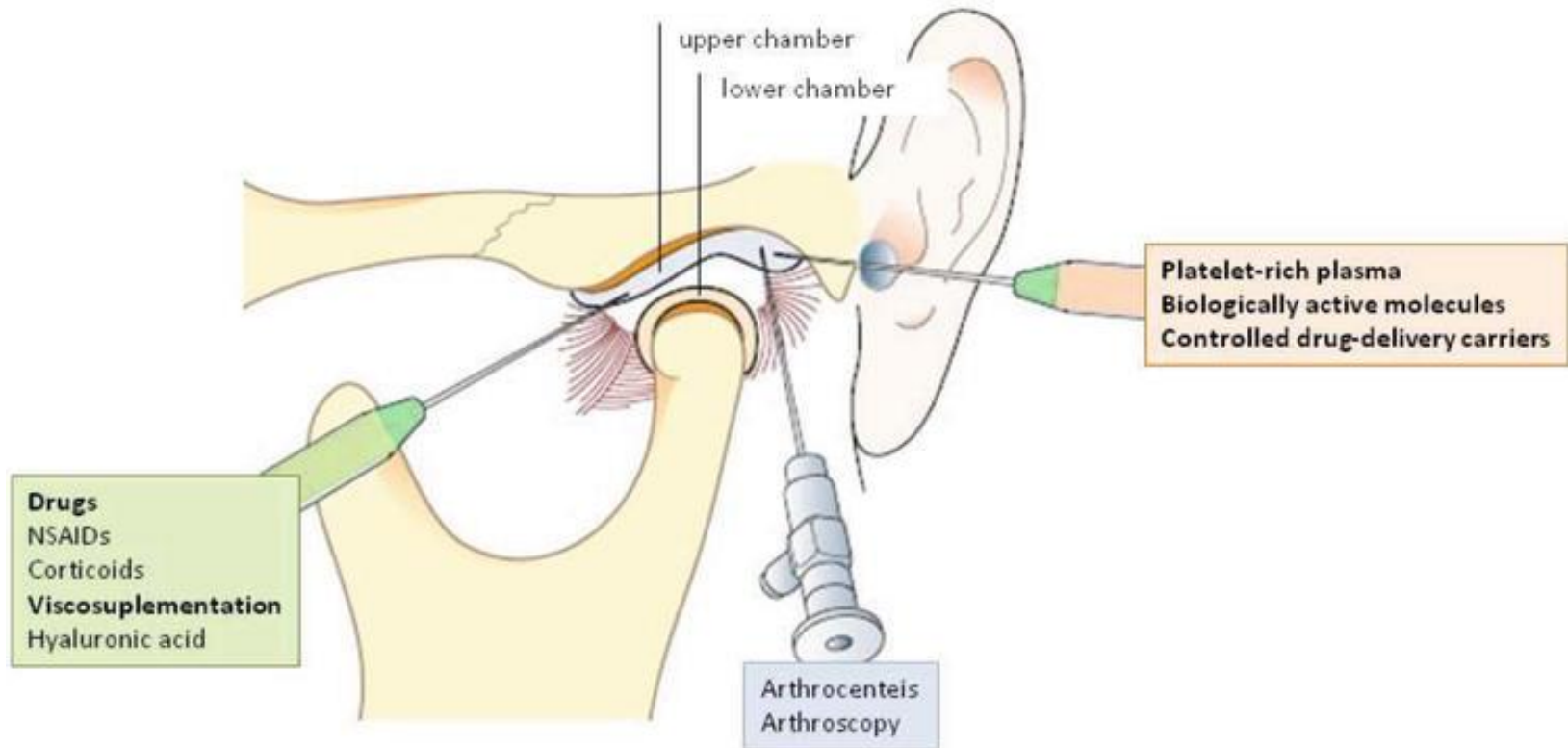


TEMPOROMANDIBULAR JOINT SURGERY

- ▶ Arthrocentesis - Arthroscopy
- ▶ Condylotomy for Treatment of Temporomandibular Joint Disorders
- ▶ Disk-Repositioning Surgery Disk Repair or Removal
- ▶ Condylectomy
- ▶ Total Joint Replacement

Arthrocentesis

is the clinical procedure of using a syringe to collect synovial fluid from a joint capsule. It is also known as joint aspiration.



Arthrocentesis of TMJ

- ▶ **Arthrocentesis** a method of flushing out the temporomandibular joint (TMJ) by placing needles into the upper joint compartment using local anesthesia or sedation.
- ▶ According to the most common procedure, Ringer's lactate or physiological saline is injected into the joint
- ▶ This compartment will take up to **5 mL** of fluid and, by filling under pressure, any minor adhesions are broken down or lysed.
- ▶ A second needle is then placed into the same joint compartment to achieve through flow of fluid and to allow thorough washing or lavage of the joint.

- ▶ The process is referred to as “**lysis and lavage**” and can produce good therapeutic outcomes, in case series of patients with:
 - **Restricted mouth opening**, due to either an anchored disk phenomenon or a non reducing disk displacement.
- ▶ The effectiveness of joint lavage in those cases may be explained by the joint space expansion achieved with the introduction of fluid and by the washing out of inflammatory mediators and catabolytes.

TWO-NEEDLE ARTHROCENTESIS TECHNIQUE

- ▶ Double access to the joint space.
- ▶ Holmlund line
- ▶ Positioning of two 19-G needles within a small virtual cavity
- ▶ 300 mL of Ringer lactate solution or physiological saline



SINGLE-NEEDLE ARTHROCENTESIS TECHNIQUE

- ▶ Under-pressure fluid injection with the patient in a mouth-open position, in order to expand the joint cavity;
- ▶ After the injection, the patient is asked to close the mouth and the fluid is taken off with the same injection needle.
- ▶ The injection-ejection process must be performed for up to 10 repetitions (for a total amount of about 40 ml).





The main chronic orofacial pain

1. Musculoskeletal orofacial pain

- ▶ *Temporomandibular joint (TMJ) pain*
- ▶ *Masticatory myofascial pain*
- ▶ *Tension-type headache*

2. Neurovascular craniofacial pain

- ▶ *Migraine*
- ▶ *Cluster headache*
- ▶ *Chronic paroxysmal hemicrania*
- ▶ *SUNCT (short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing)*
- ▶ *Neurovascular orofacial pain*
- ▶ *Hemicrania continua*

3. Neuropathic orofacial pain

- ▶ *Trigeminal neuralgia*
- ▶ *Traumatic neuropathies (CRPS-I/II)*

Neuropathic orofacial pain

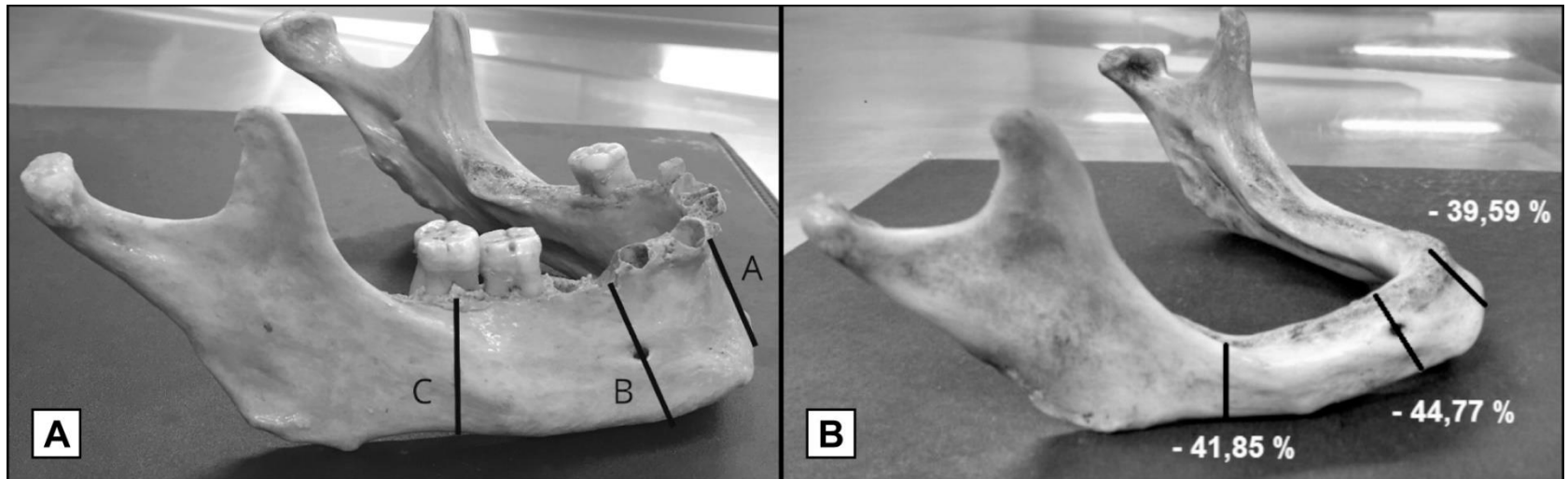
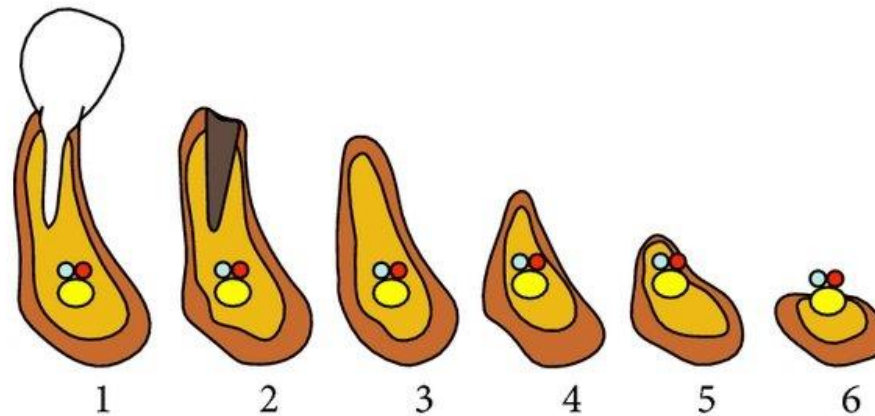
▶ *Trigeminal neuralgia*

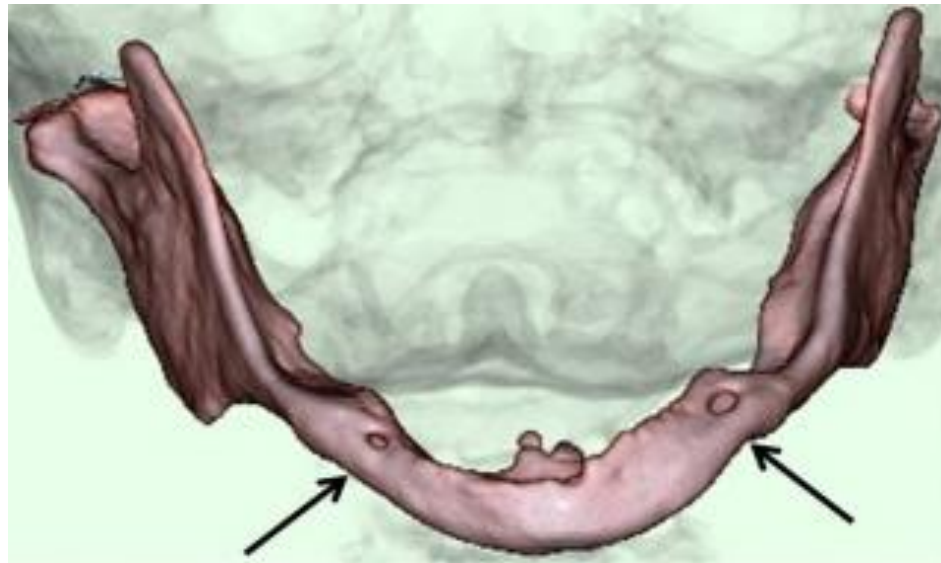
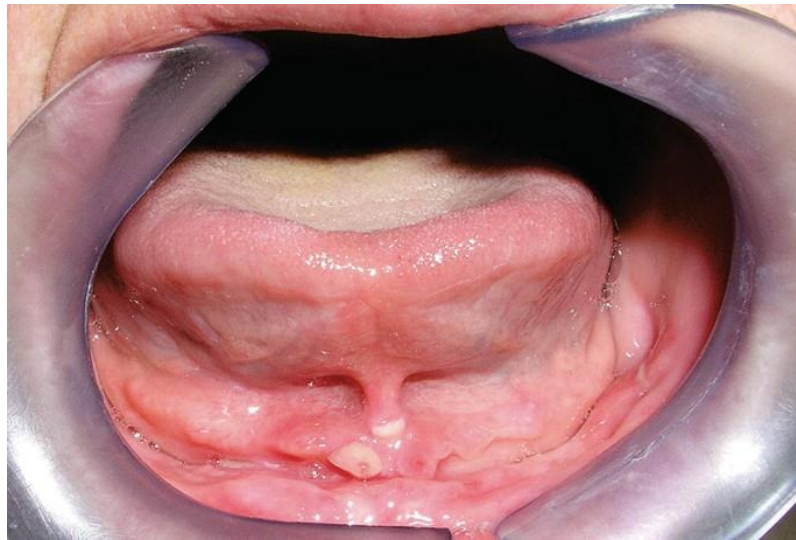
- Unilateral pain in the trigeminal nerve area (mostly 2nd and 3rd divisions)
- Paroxysmal, electric-like, very short (lasting seconds), strong pain
- Pain attack accompanied by facial tic
- Pain triggered by light touch, vibration, and other nonpainful stimuli
- After triggering, there is a refractory period
- No sensory deficit

▶ *Traumatic neuropathies (CRPS-I/II)*

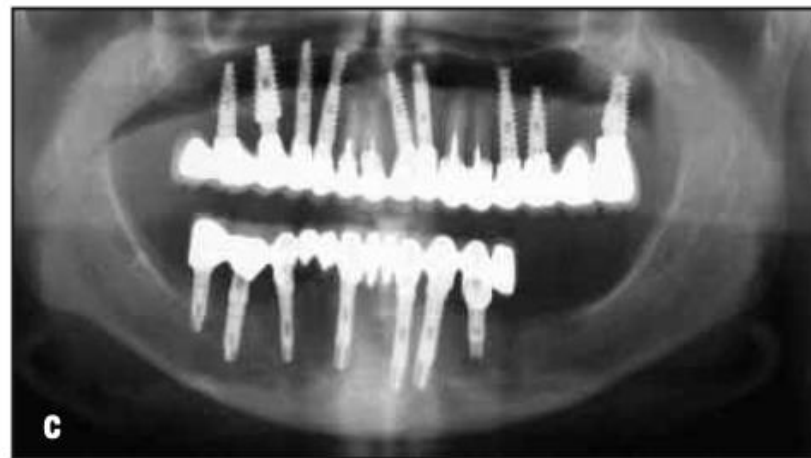
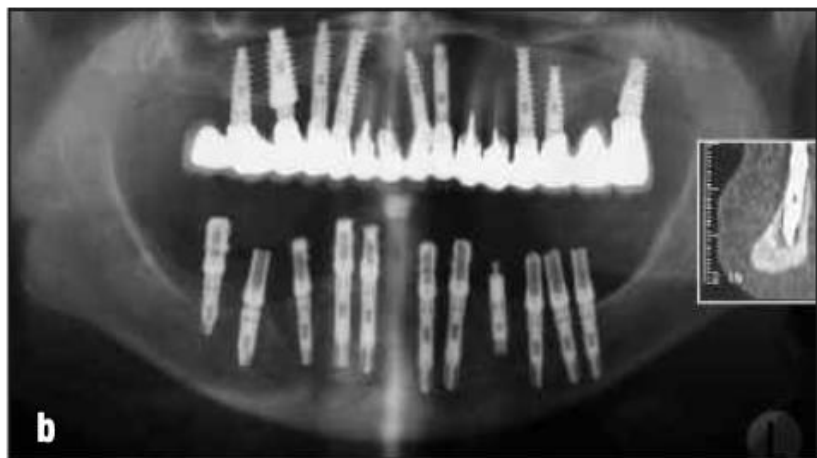
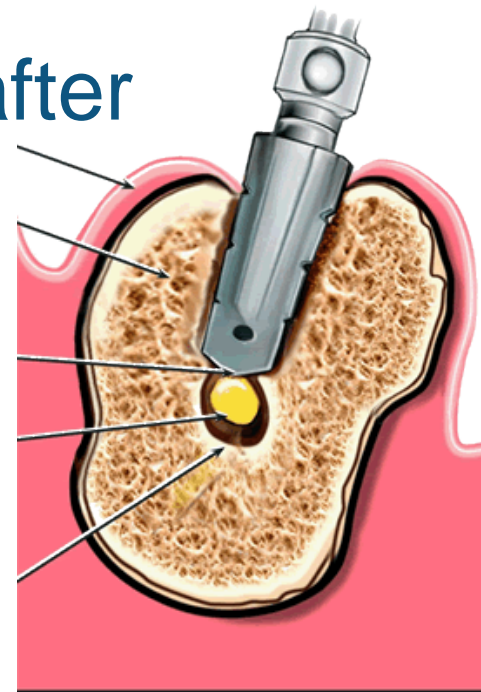
- Pain location associated with history of trauma
- Pain continuous, mostly burning quality
- Allodynia
- Edema/redness
- Trophic changes (mostly in CRPS II)
- Sensory deficit (in CRPS II)
- Dysesthesia (in CRPS II)

Atrophy stages in the mandible





pain and neurosensory deficit after dental implants



A vibrant field of tulips in various colors including red, orange, yellow, and purple, with the text "Thank You" overlaid. The tulips are in full bloom, and the background is a lush green field. The text "Thank You" is written in a bold, blue, italicized font with a black underline.

Thank

You