OCCLUSION

Principle of occlusion
Temporomandibular disorders
Occlusal disease
Osteoarthritis of TMJ
Disease of lateral pterygoid muscle (provisional name)
Disease of retrodiscal tissue (provisional name)
Centric relation
Determining of centric relation
Malocclusion
Occlusal analysis
Occlusal equilibrations
Examinations and diagnosis of occlusal equilibrations

Method of occlusal equilibrations
Case of occlusal equilibrations
Occlusal plane
Vertical dimension
Smile design
Anterior guidance
Long centric
Bruxism
Noise of TMJ
Occlusal splint
Ideal occlusion

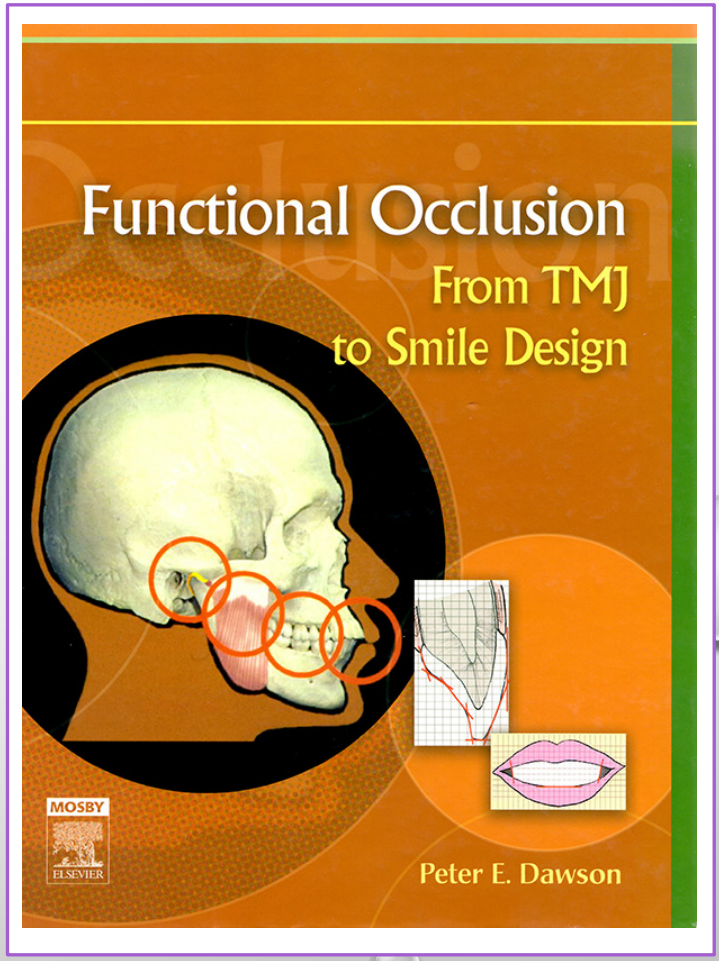
(Occlusion)

Osteoarthritis of TMJ

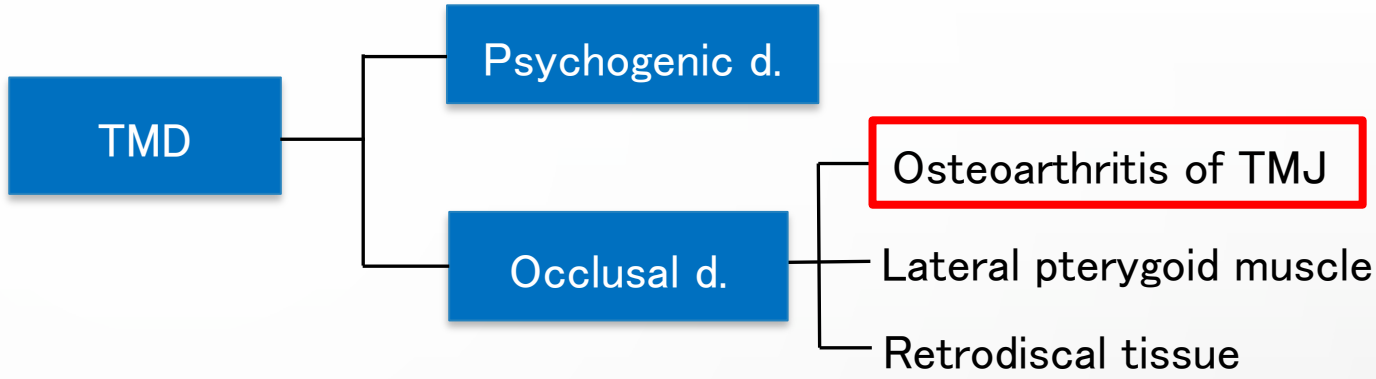
Contents

1. What is osteoarthritis of the TMJ
2. Definition
3. Causes
4. Pathophysiology and clinical symptoms
5. Examination
6. Examination, diagnosis and differential diagnosis
7. Basic treatment
8. Intra-articular fluid injection for osteoarthritis of TMJ
9. Perforation of the articular disk
10. Osteoarthritis of the elderly

References

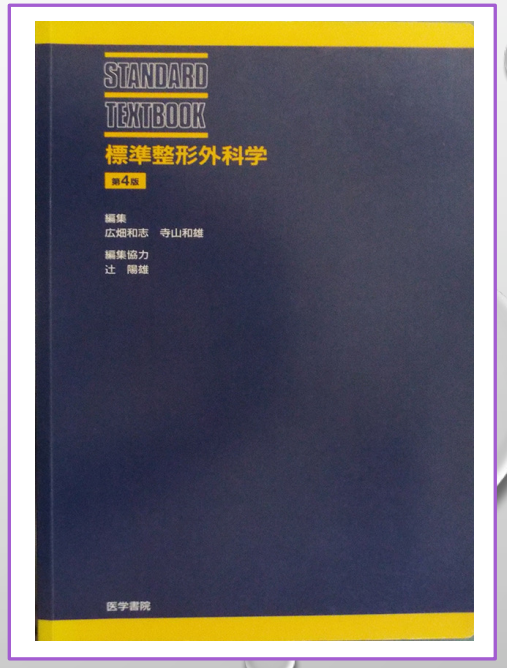


（Osteoarthritis of TMJ）



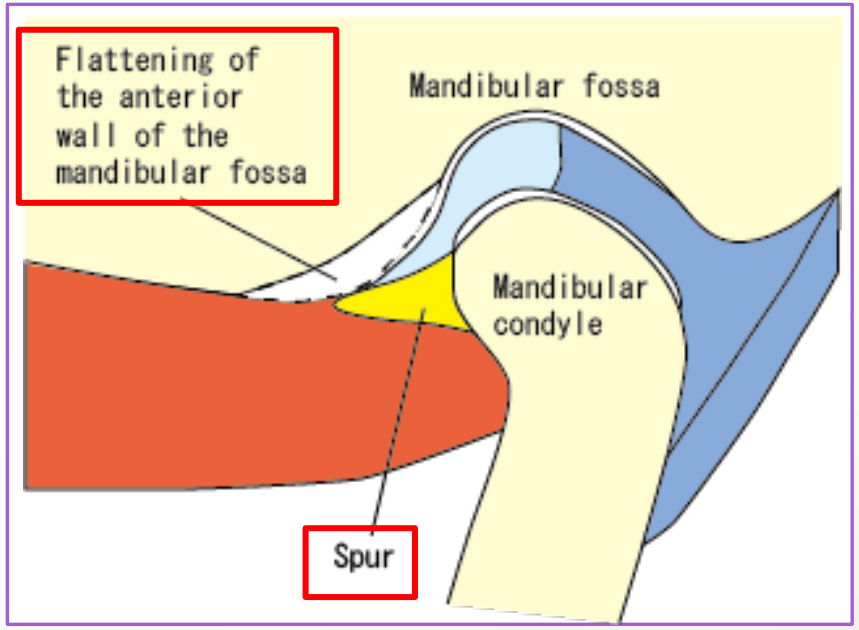
1. What is osteoarthritis of the TMJ

"Osteoarthritis of the TMJ" is among the diseases encompassed within occlusal diseases, as indicated by the above chart diagram. This condition corresponds with osteoarthritis as understood in the orthopedic domain and is acknowledged as the formal designation for the ailment. Given the absence of relevant literature regarding TMJ osteoarthritis within the realm of dentistry in Japan, comprehending the nuances of TMJ osteoarthritis necessitates referring to specialized orthopedic surgery texts as depicted in the lower right.



(Osteoarthritis of TMJ)

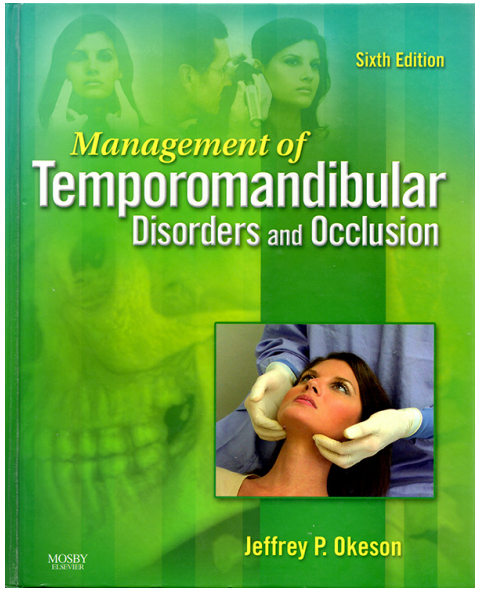
2. Definition



As per medical dictionaries and orthopedic literature, osteoarthritis is described as a degenerative deterioration of the joints involving a progressive degradation of cartilage or bone within these joint structures. In essence, osteoarthritis encompasses a scenario wherein diverse forces exerted on joints induce degenerative and regenerative alterations spanning the entire joint structure, culminating in an array of symptoms.

Consonant with the principles of osteoarthritis, osteoarthritis of the temporomandibular joint characterizes a situation where the components forming the TMJ—namely the bones and discs—are subjected to erosion. This erosion might lead to the flattening of the anterior wall of the mandibular fossa or the ossification and formation of bony spurs in the ligaments, as depicted in the illustration above to the right.

（Osteoarthritis of TMJ）



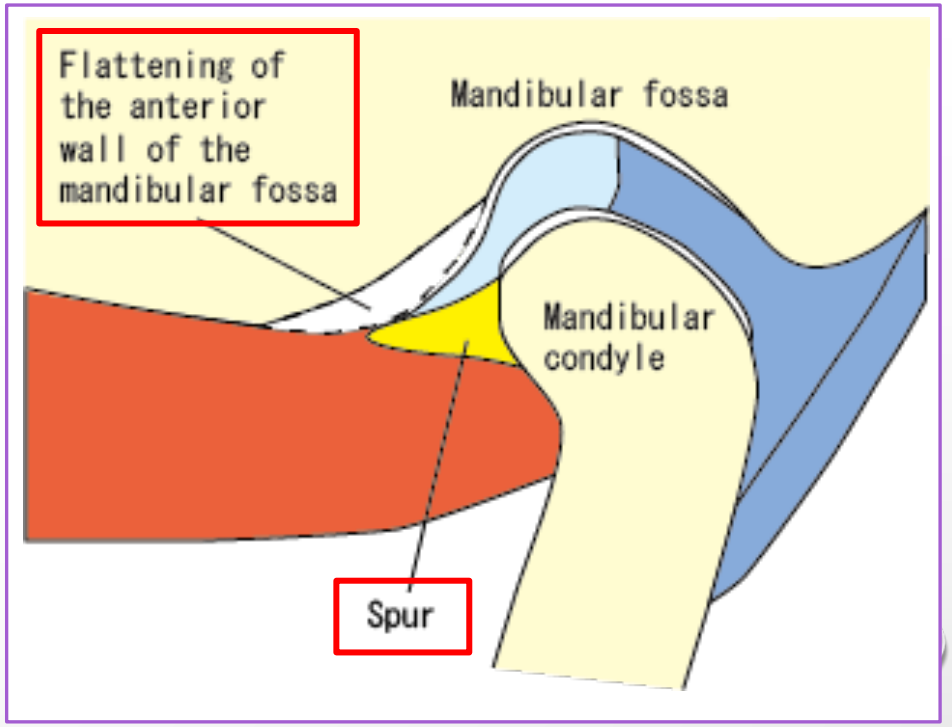
3. Causes

According to Okeson's "TMD and Occlusion," osteoarthritis of the TMJ is attributed to two primary causes.

The first cause stems from malocclusion, leading to persistent and chronic irritation of specific TMJ components. This irritation subsequently triggers degenerative changes and deformations within these components. Such instances commonly manifest in elderly individuals.

The second cause arises when a TMJ component sustains damage due to trauma and remains untreated for an extended duration, consequently impeding complete healing. This scenario is more frequently observed in younger patients and is typified by a history of prior jaw trauma.

（Osteoarthritis of TMJ）



4. Pathophysiology and clinical symptoms

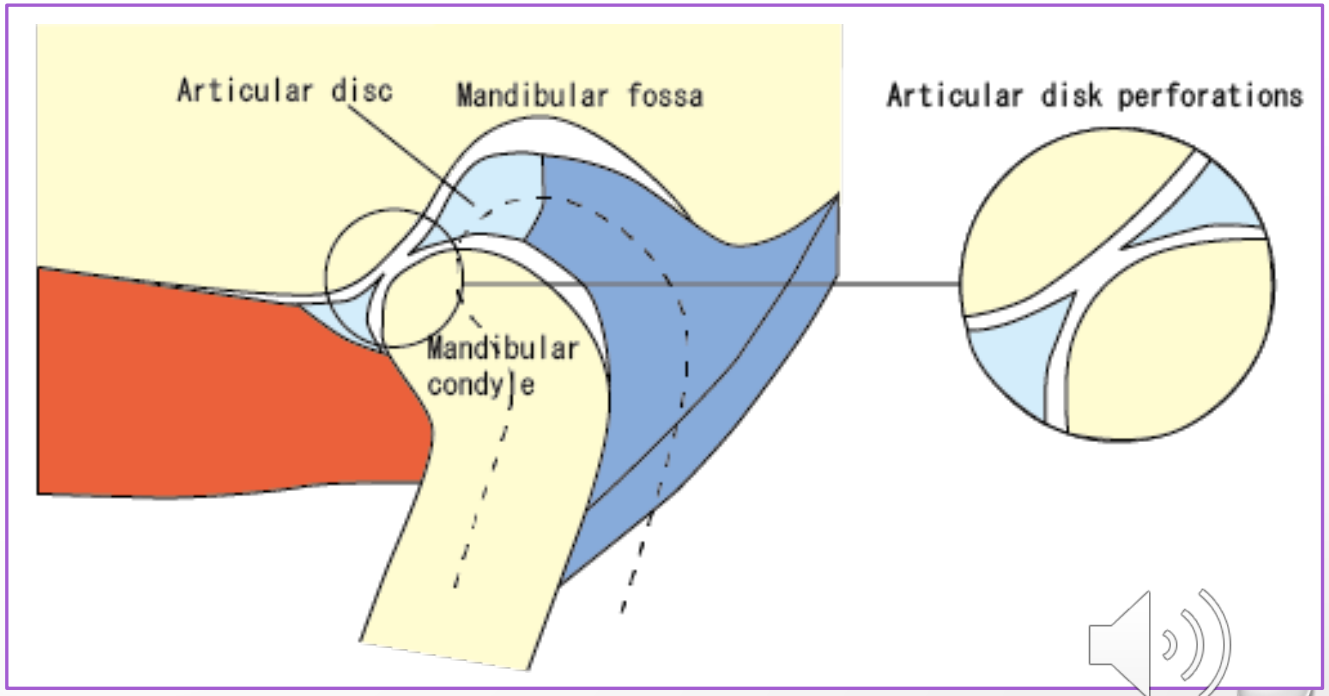
Pathology:

A condition in which degenerative and proliferative changes occur throughout the joint, causing a variety of symptoms.

Clinical Symptoms:

Symptoms are characterized by a stair-step progression of pain and limitation of movement. A crepitus sound may be heard when the mandible is moved.

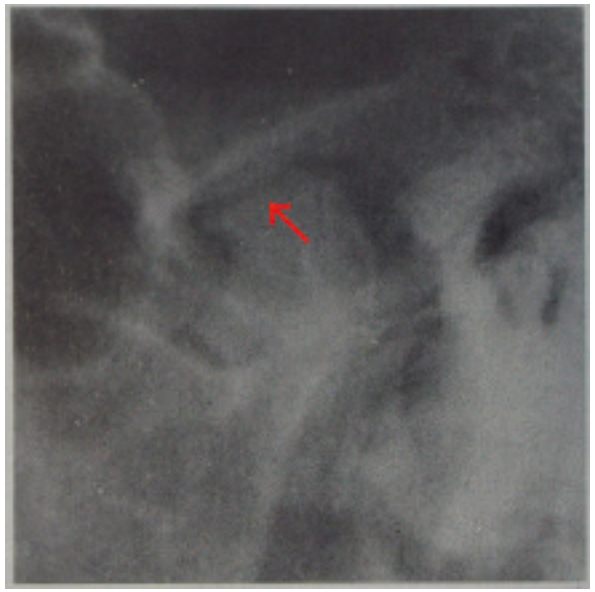
（Osteoarthritis of TMJ）



5. Examination

A central position induction and load-bearing test are performed. Characteristically, there are no abnormal findings on these examinations. On the other hand, strong pain localized to the temporomandibular joint may occur when the patient opens the jaw widely. This pain is thought to be caused by the mandibular condyle sliding forward in the maximum opening position and direct contact between the mandibular condyle and mandibular fossa at the perforation of the articular disc shown in the upper right illustration.

（Osteoarthritis of TMJ）

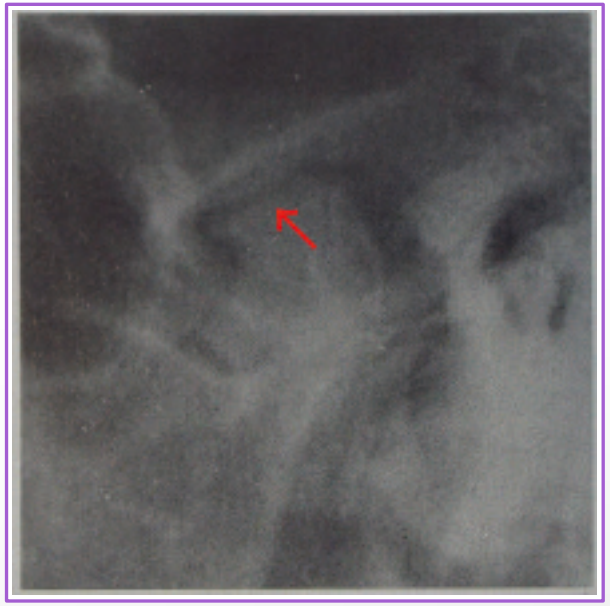


6. Examination, diagnosis and differential diagnosis

"Diagnosis and Differential Diagnosis":

Diagnosis is established through radiographic evidence revealing the flattening of the articular tuberosity, the presence of osteophytes resulting from bone's reactive growth, or ossification of initially soft tissues. This disease should be distinguished from diseases of the lateral pterygoid muscle and the retrodiscal tissue.

（Osteoarthritis of TMJ）

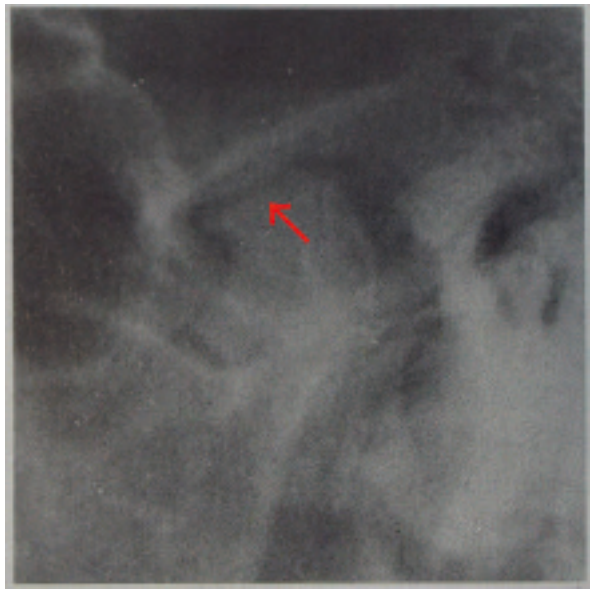


7. Basic treatment

Treatment of TMJ osteoarthritis involves causative therapy to eliminate malocclusion. However, once the TMJ component is deformed, it is difficult to recover to its original state. Therefore, in severe cases, symptomatic treatment is the mainstay of treatment.

On the other hand, patients who wear dentures with low occlusal diameters may improve their symptoms when they are fitted with dentures with appropriate occlusal diameters. The reason for this is thought to be that the mandibular condyle is stabilized and there is less opportunity for bone-to-bone contact between the mandibular condyle and mandibular fossa when the denture is given an appropriate occlusal height diameter.

（ Osteoarthritis of TMJ ）

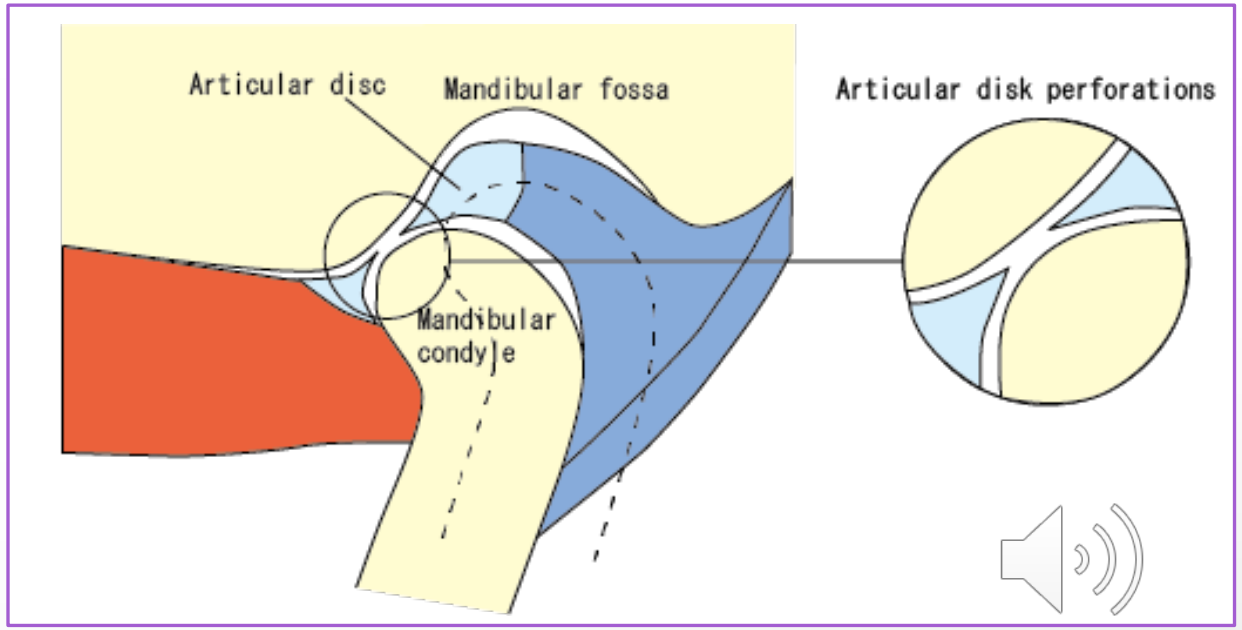


8. Intra-articular fluid injection for osteoarthritis of TMJ

One method of symptomatic improvement is intra-articular injection of steroid hormones into the TMJ. While this therapy is very effective in temporarily improving symptoms, its abuse should be avoided because it can exacerbate intra-articular deformities and sometimes cause bacterial infections.

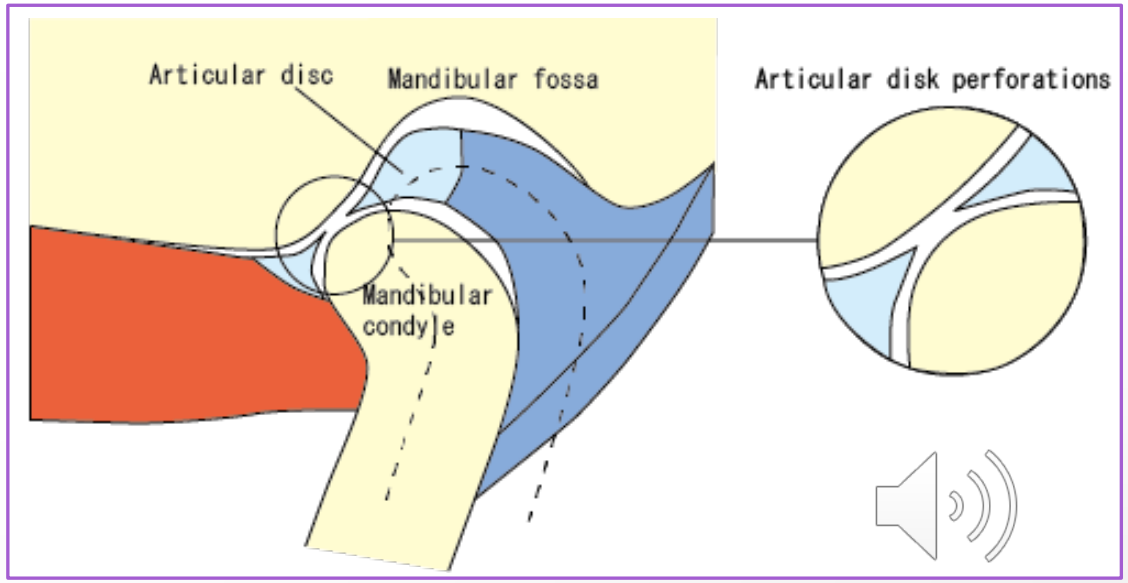
(Osteoarthritis of TMJ)

9. Perforation of the articular disk



As shown in the upper right illustration, osteoarthritis of the temporomandibular joint (TMJ) can progress to perforation of the articular disk. This perforation can be seen quite frequently in the TMJ joints of cadavers observed during oral anatomy practice at a university dental school. In this condition, the anterior portion of the central stenosis of the articular disk is perforated in a 1 to 2 mm circular shape. The perforation has a knife-edged edge, indicating that repeated forward movement of the mandibular condyle has caused wear and perforation of the articular disk. Most of the patients with disc perforation were edentulous and had significant resorption of the jaw crest. This perforated condition is very similar to that of osteoarthritis of the temporomandibular joint, and it is suspected that the deceased had some TMJ symptoms before his death.

(Osteoarthritis of TMJ)



10. Osteoarthritis of the elderly

On the other hand, not many elderly patients show severe symptoms due to TMJ osteoarthritis. However, it may be overlooked because the symptoms are not severe. In addition, since the symptoms of TMJ osteoarthritis worsen in a stair-step fashion, spontaneous pain and other severe symptoms may not occur in the early stages of perforation, but in the late stages when the perforation has expanded considerably, the periosteum has worn away, and bone-on-bone contact is established.

Dentists may be missing a significant number of TMJ osteoarthritis patients and neglecting them. It is hoped that more appropriate dental care will be provided in the future, as diagnostic and treatment methods for osteoarthritis of the temporomandibular joint advance.

Osteoarthritis of TMJ

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If you have any questions or doubts, please leave them in the public comment section below.

The next topic will be ″ Disability of lateral pterygoid muscle ″.