

# 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



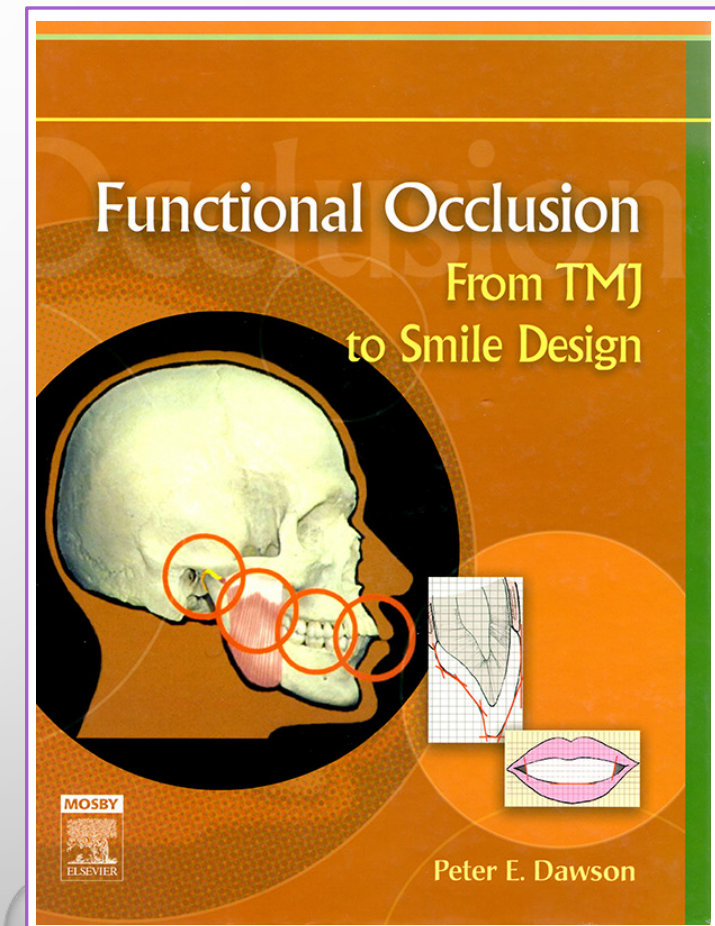
( OCLUSION )

# Disease of retrodiscal tissue (provisional name)

## Contents

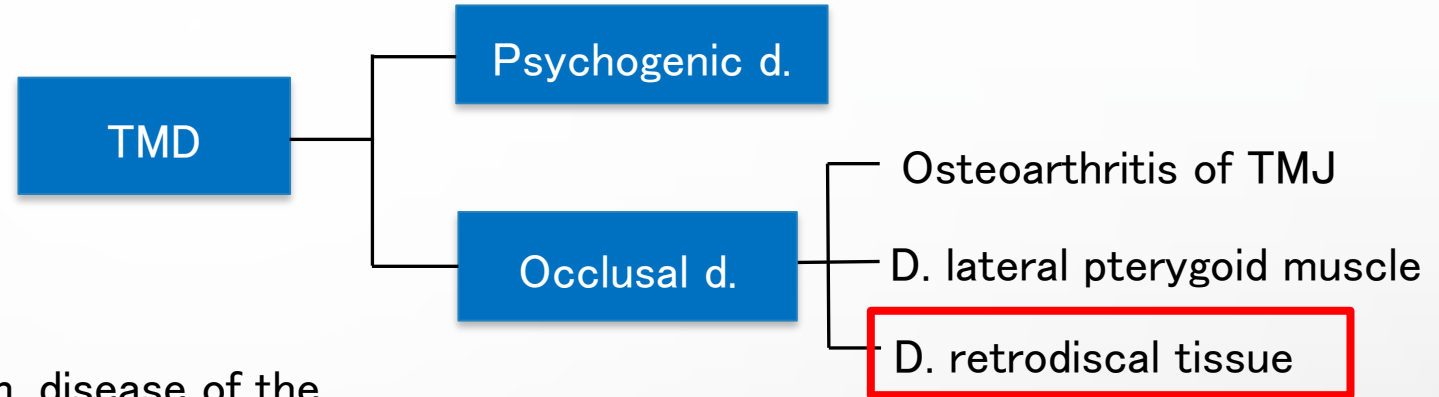
1. What is a disease of retrodiscal tissue
2. Pathology
3. Definition, frequency and pathology
4. Symptoms and examination
5. Diagnosis and differential diagnosis
6. Causes
7. Repositioning of a displaced articular disk
8. Course and treatment of retrodiscal tissue damage
  - (a) Early stage
  - (b) Middle stage
  - (c) Late stage
  - (d) Last stage

## References



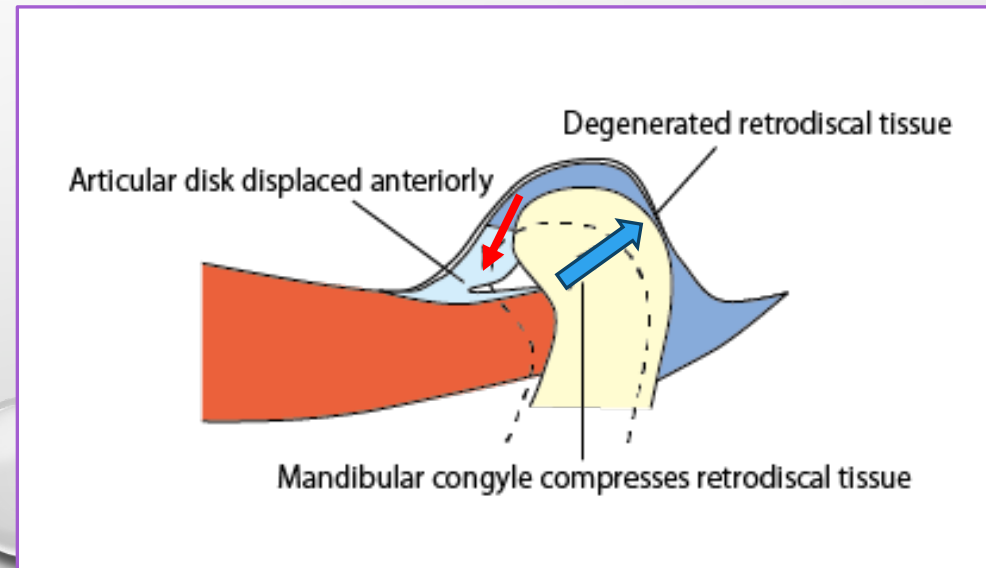
# ( Disease of retrodiscal tissue )

## 1. What is a disease of retrodiscal tissue



As shown in the upper right chart diagram, disease of the retrodiscal tissue is one of the occlusal diseases. This disease is also referred to as anterior displacement of the disk.

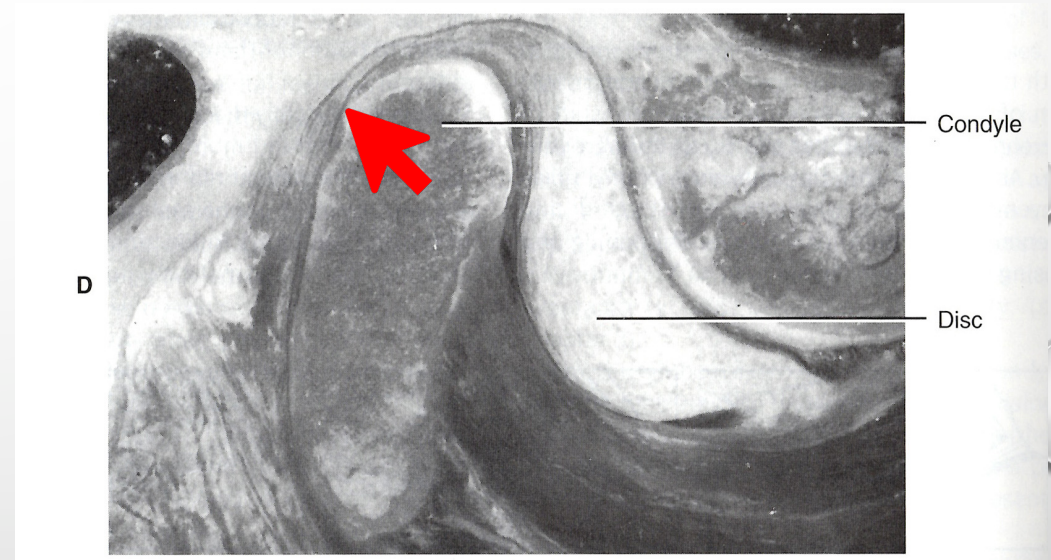
As shown in the lower right illustration, disease of the retrodiscal tissue are conditions in which the mandibular condyle chronically compresses the retrodiscal tissue in the direction of the blue arrow, resulting in degeneration of the retrodiscal tissue and loss of its function. As the disease progresses, the mandibular condyle moves in the direction of the red arrow and changes its position, simultaneously changing the occlusal relationship.



# ( Disease of retrodiscal tissue )

## 2. Pathology

The photograph on the right is a pathology photo of a disease of the retrodiscal tissue. (from Okeson's TMD and Occlusion) In this photograph, the articular disk appears to be displaced anterior to the mandibular condyle. However, in reality, the mandibular condyle has intruded into the retrodiscal tissue in the direction of the arrow, and the retrodiscal tissue is damaged. Therefore, the anterior displacement of the articular disk is only one of the pathological conditions; the main body of the disease is the degeneration and dysfunction of the retrodiscal tissues of the disk due to chronic compression by the mandibular condyle.

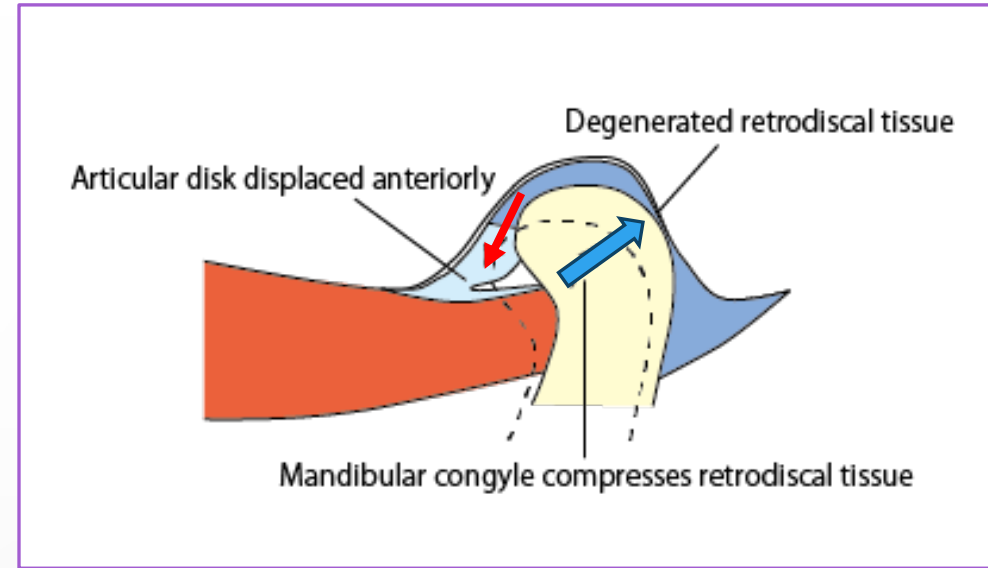


from Okeson's Temporomandibular Disorders and Occlusion



# ( Disease of retrodiscal tissue )

## 3. Definition, Frequency, and Pathogenesis



### Definition:

The mandibular condyle exerts sustained pressure on the retrodiscal tissues. The result is degeneration of the retrodiscal tissue under chronic pressure.

### Frequency:

Frequently occurs in individuals who have only anterior teeth in contact and no molars engaged.

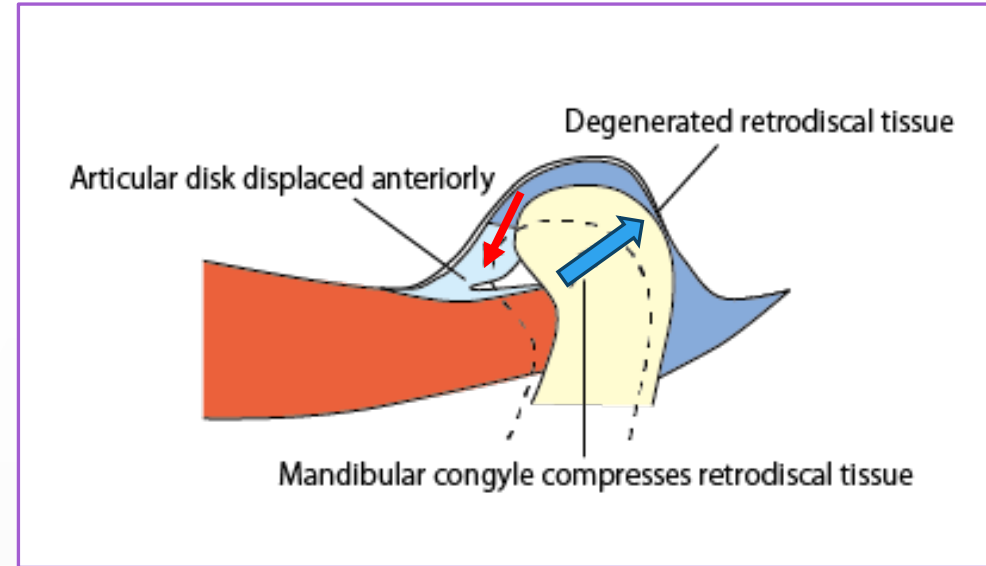
### Pathogenesis:

The retrodiscal tissue degenerate and lose the function, causing the disk to become malpositioned, especially in an anterior shift. The position of the mandibular condyle in relation to the mandibular fossa is also altered, and occlusion is affected. Based on the dislocation of the articular disk, the condition can be divided into three stages of progression: "no dislocation of the articular disk," "possible restoration," and "no restoration possible". As the disease worsens, it can cause severe difficulty in opening the mouth.



## ( Disease of retrodiscal tissue )

### 4. Symptoms and medical examination



#### Symptoms:

Retrodiscal tissue is composed of tissue rich in blood vessels and nerves. Therefore, retrodiscal tissue degenerates when subjected to repeated chronic pressure. As a result, patients experience intense pain in the retrodiscal tissue.

In the initial stage, the TMJ joint area is painful with localized pain during occlusion. In the second stage, joint noises, such as crackling noises, occur. As the condition worsens, patients experience difficulty opening their mouth. The condition may progress to the point where the patient is unable to open his or her mouth at all.

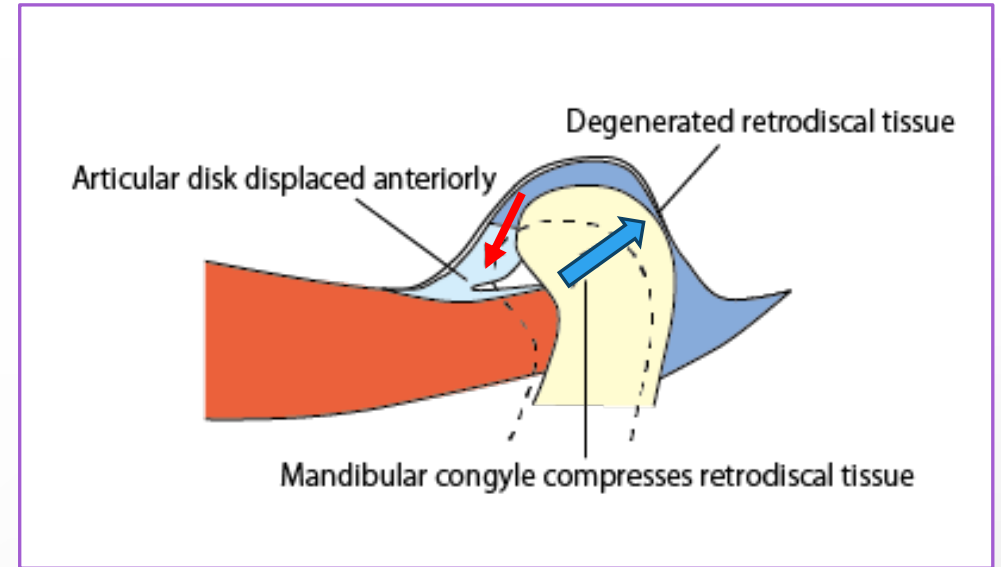
#### Examination:

We will attempt to restore the articular disk and check for improvement of symptoms.



## ( Disease of retrodiscal tissue )

### 5. Diagnosis and differential diagnosis



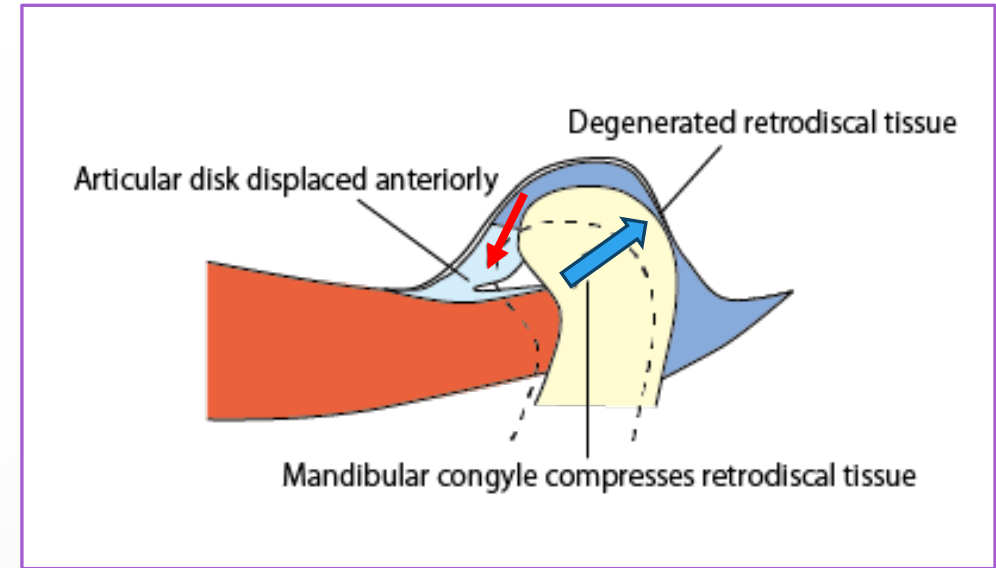
Attempt to restore the articular disk and confirm the state of restoration. A definite diagnosis is made when the position of the painful mandible is confirmed by load testing, and it is confirmed that the mandibular condyle is pressing on the posterior tissues of the disk.

Differentiation from diseases of the external pterygoid muscle and osteoarthritis of the TMJ is necessary.



# ( Disease of retrodiscal tissue )

## 6. Cause



The force of the mandibular condyle moving backward and upward is thought to be caused by the mandible moving backward when the molars lose molar engagement and only the anterior teeth are in contact.

A possible cause of backward mandibular movement is the submission of the anterior teeth due to the use of a molar-only splint over a long period of time, and the subsequent contact of the anterior teeth only when the splint is removed. Other cases are said to occur when the occlusal surfaces of molars are inadvertently abraded, when prosthetics with occlusal interference are placed on the anterior teeth, and also when full-mouth splints with improper occlusal surfaces are used for a prolonged period of time.





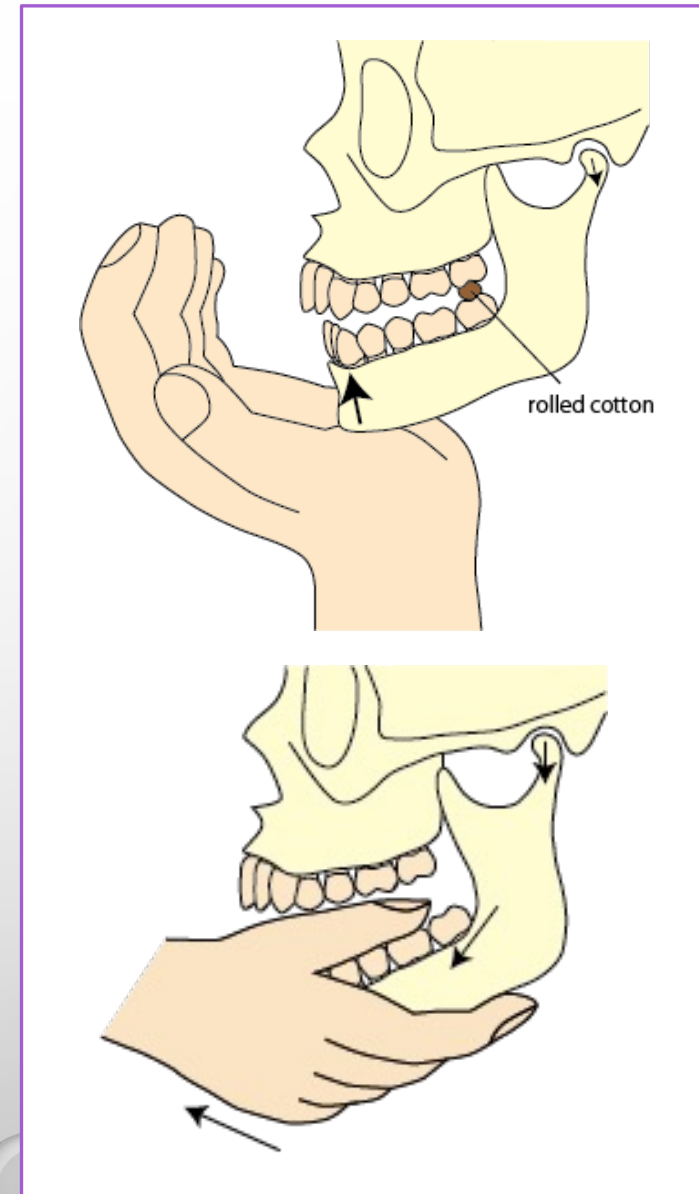
## ( Disease of retrodiscal tissue )

### 7. Repositioning of a displaced articular disk

When the loss of function of the retrodiscal tissues leads to an anterior dislocation of the articular disk that does not return, articular disc reposition is performed. There are two methods of articular disc anterior reposition.

First, as shown in the upper right illustration, a cotton roll is placed between the upper and lower molars to push up the lower anterior portion of the mandible from below (upward arrow) and apply force to pull the mandibular condyle away from the mandibular fossa (downward arrow) to create a gap for the articular disk to return to its original position.

Second, as shown in the lower right illustration, the thumb is placed on the occlusal surface of the mandibular molars and the other four fingers are placed on the undersurface of the mandible. By slowly applying force in the direction of the arrow, the mandibular condyle is moved away from the mandibular fossa to create space for the articular disk to return to its original position.



## ( Disease of retrodiscal tissue )

### 8. Course of treatment and treatment methods

Disruption of the retrodiscal tissue does not result in an instantaneous anterior dislocation of the articular disk. It is thought to progressively become more severe over the following stages. Treatment methods differ for each stage of progression.

#### (a) Early stage

In the early stage, there is no degeneration of the retrodiscal tissue. Pain occurs when the retrodiscal tissue is compressed. If the malocclusion can be resolved at this stage, the symptoms will improve immediately and the disorder of the retrodiscal tissue can be completely cured.



## ( Disease of retrodiscal tissue )

### 8. Course of treatment and treatment methods

#### (b) Mid-term

In the middle stage, the retrodiscal tissue gradually degenerate and lose their function, and the joint disk gradually becomes displaced anteriorly. Initially, the anteriorly displaced disk can be repositioned by the patient, but as the disease progresses, it becomes increasingly difficult to do so. The treatment at this stage is to guide the mandible into the centric relation with the disk repositioned and to establish a stable occlusal relationship. However, the position of the mandibular condyle in the induced centric relation changes gradually as the retrodiscal tissue recovers. Therefore, the occlusal adjustment will be performed many times until the original centric relation is restored and the symptoms disappear. The dentist should inform the patient of the need for repeated occlusal adjustments before beginning treatment.

Disorders of the retrodiscal tissue at this stage are curable.



## ( Disease of retrodiscal tissue )

### 8. Course of treatment and treatment methods

#### (c) Late stage

In the late stage, the retrodiscal tissue have lost their function, and the patient is unable to restore the disk on his/her own. At this stage, the joint disc needs to be restored and further treatment to maintain the restored state is necessary. In order to maintain the restored condition of the articular disk, an occlusal splint with an ideal occlusal surface is applied to the patient's entire jaw. The occlusal surface of the occlusal splint are adjusted over a long period of time (one to two years) to restore the retrodiscal tissue. Although the treatment period is long, complete healing can be expected.



## ( Disease of retrodiscal tissue )

### 8. Course of treatment and treatment methods

#### (d) Last stage

In the last stage, the retrodiscal tissue have lost their function and cannot be restored even with joint disk restoration methods. In this case, the goal of treatment is to achieve an occlusal relationship in the adapted centric relation. Usually, a treatment period of two to three years is required. Once the adaptive centric relation is established, the masticatory function can be restored to the point where it does not interfere with daily life.



# Disease of retrodiscal tissue (provisional name)

## References

- 1)保母須弥也:咬合学事典、書林、東京、1979.
- 2)Peter E. Dawson : Functional Occlusion From TMJ to Smile Design, MOSBY, St. Louis, 2007.
- 3)外川正:入門顎関節症治療のための咬合分析と診断, 金原出版, 東京, 2009.
- 4)外川正, 武田泰典, 加藤貞文, 阿部 隆, 千葉健一, 水間謙三, 岡田 弘:いわゆる「顎関節症」から分離して扱うべき疾患—とくに隣接医科との整合性を考慮して—, 日本歯科評論, 624:171~180, 1994.
- 5)Niles F. Guichet : Occlusion, Anaheim, Calif. , 1977.
- 6)最新医学大辞典, 医歯薬出版, 東京, 1987.
- 7)福井次矢:内科診断学第2版、医学書院、東京、2008.
- 8)Okeson JP : Long-term treatment of disk-interference disorders of the TMJ with anterior repositioning occlusal splints. J Prosthet Dent 1988 ; 60 : 611-616.
- 9)Dawson PE : Bad advice from flawed research. AGD Impact April : 30-31, 1995.



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

The next topic will be “ Centric relation ”.