

## Chronic dislocation of temporomandibular joint persisting for 6 months: a case report

Chul-Hwan Kim, Dae-Hyun Kim

*Department of Oral and Maxillofacial Surgery, College of Dentistry, Dankook University, Cheonan, Korea*

**Abstract** (J Korean Assoc Oral Maxillofac Surg 2012;38:305-9)

Temporomandibular joint (TMJ) subluxation and dislocation are uncommon but very unpleasant and distressing conditions to patients. Subluxation of the TMJ is an excessively abnormal condylar excursion secondary to flaccidity and laxity of the capsule. When the condyle head excurses anterior to the eminence upon wide opening, it can return to the fossa by self-manipulation or non-surgical conservative reduction. Surgery is recommended if a complete dislocation, so-called open lock, occurs as a chronic or recurrent protracted condition that cannot be reduced voluntarily. A range of surgical procedures can be performed to limit condylar hypermobility including soft tissue tethering, creation of articular obstacles, removal of mechanical blockade and augmentation of articular eminence using different kinds of grafts. In the present case, a 74-year-old woman was diagnosed with a chronic TMJ dislocation that had lasted for 6 months. Bilateral condylectomy was performed and the post-operative results were good without functional limitations or recurrence.

**Key words:** Temporomandibular joint, Dislocations, Condylectomy

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### I. Introduction

The hypermobility disorder of the temporomandibular joint (TMJ) may be classified into hypertranslation, subluxation, and dislocation<sup>1</sup>. Among them, hypertranslation is an excessive forward movement of the condylar head at the mouth opening, but it has no clinical meaning. If the patient cannot control the dislocated maxillary bone without an outer force, it is called true luxation. The temporary or incomplete dislocation that the patient can overcome himself/herself within a few hours is called subluxation<sup>2</sup>.

Most patients suffering from dislocation visit the emergency room or the hospital as an outpatient due to habitual dislocation, which may be cured through manual reduction therapy without anesthesia but may be more difficult to treat due to the fibrous adhesions between the joint disc and condylus in case of higher frequency of dislocation.

The treatment of TMJ dislocation is largely divided into nonsurgical and surgical methods. Nonsurgical methods include arthroplasty of TMJ, physical therapy, occlusal adjustment, therapy using occlusion stabilization devices, drug therapy, intermaxillary fixation or sclerotherapy, etc. In case these nonsurgical therapies fail, or they become recurrent or chronic, the surgical method must be considered<sup>3</sup>. Frequently used surgical methods include condylectomy<sup>4-6</sup>, fixation, lateral pterygoid muscle myotomy technique<sup>7</sup> and zygomatic arch downfracture technique<sup>8</sup>, augmentation procedure using various kinds of planting fixtures<sup>9-11</sup>, etc.

In this case, wherein the chronic TMJ dislocation of a 74-year-old patient was treated with condylectomy and a good clinical result was obtained with no condylar movement disorder in the TMJ six months after the bilateral condylectomy.

### II. Case Report

A 74-year-old female patient visited our department. Having medical history of radiation treatment due to thyroid cancer, the patient was treated with manual reduction for dislocated jaw in a clinic for the first time two years ago. She had evaded reduction for fear of the pain that she

**Chul-Hwan Kim**

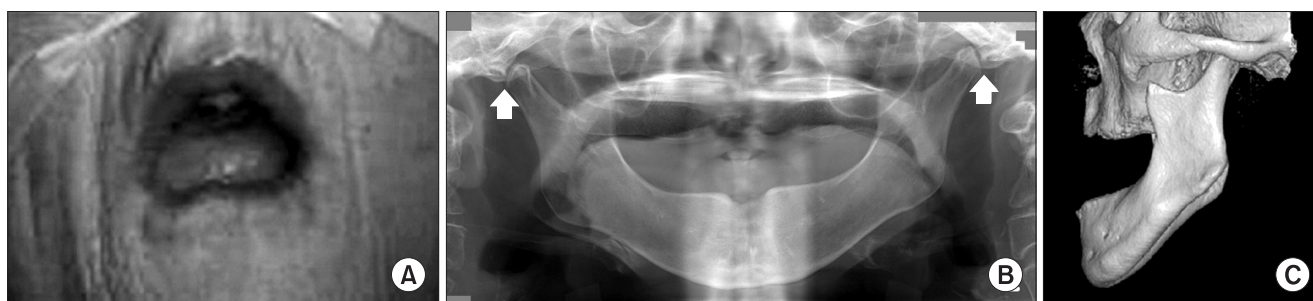
*Department of Oral and Maxillofacial Surgery, College of Dentistry, Dankook University, 119, Dandae-ro, Dongnam-gu, Cheonan 330-714, Korea*  
TEL: +82-41-550-1996 FAX: +82-41-551-8988  
E-mail: kimchoms@dankook.ac.kr

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experienced during the previous manual reduction, even though the dislocation recurred 6 months before her visit to our department. Her lower jaw was protruding forward at the time of her visit, and she could not masticate anything due to the continuous pain on the left jaw joint and dislocation of mandibular joint, drooling at the mouth opening. The panoramic and computed tomography images showed symptoms of osteoarthritis with bone deformation, confirming the dislocation of jaw.(Fig. 1) Traditional manual reduction

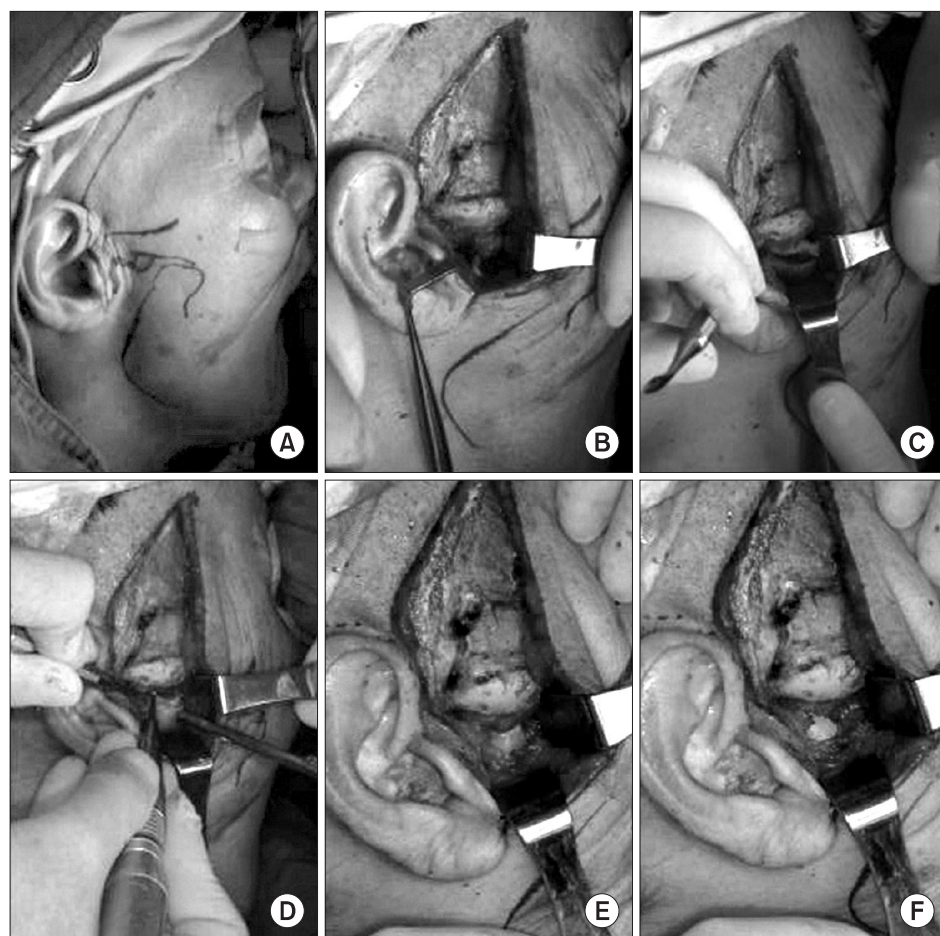
was performed but failed due to pain; thus, reduction was performed under monitored anesthesia care, with the affected area fixed with elastic bandages. Note, however, that the dislocation did not improve. Thus, surgery was decided after discussion with the patient and her guardian.

All the physical findings including the blood test and urinalysis conducted before the surgery showed normal results, and bilateral condylectomy was planned. Anatomical landmarks for zygomatic arch and condyle head were drawn



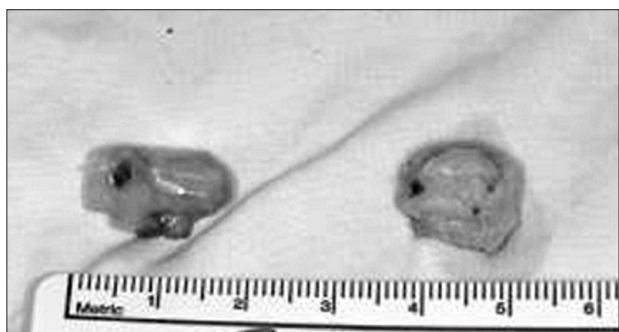
**Fig. 1.** Preoperative photo and X-ray. A. The patient always presents an open mouth. B. Both condyle fell through articular eminence (arrows). C. Computed tomography view.

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**Fig. 2.** Intra-operative view of the case. A. Modified preauricular incision line to expose the condyle head. B. Exposed right zygoma and condyle head. C. The right condyle head was resected. D. The resected condyle was polished by round bur. E. When the mouth opened, the condyle head was positioned at the same level of articular eminence. F. When the mouth closed, the condyle head sat on the condyle fossa.

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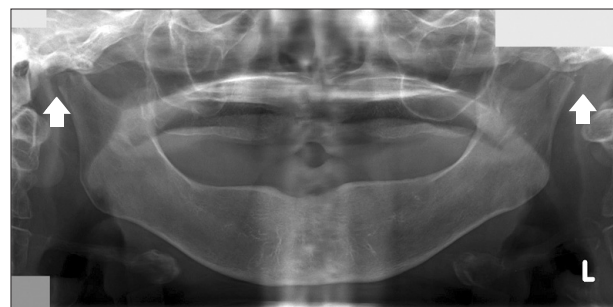
**Fig. 3.** Resected left condyle head and right condyle head.  
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on the surface of the patient's skin. Infiltration anesthesia was administered with 2% lidocaine (1 : 100,000 epinephrine) on the area of incision; to expose the zygomatic arch and condylar head, the skin was cut open through the preauricular incision approach. The articular capsule was incised horizontally, and the upper part of the mandibular fossa and condyle were exposed. The upper part of the condyle head was incised using cutting instruments under irrigation of water, with the incised mandibular condyle head trimmed to remove the sharp parts, washed with saline solution containing antibiotics, and subsequently sutured in a layered manner. The drainage tube was not used. (Figs. 2, 3)

After surgery, the patient was instructed to perform gradual mandibular opening movement by taking liquid food during the hospitalization period, but other intermaxillary fixation or occlusal adjustment or occlusion stability devices were not utilized. After being discharged from the hospital on the 7th day of surgery, the patient was instructed to take oral antibiotics, and analgesics for 7 days. One month after the surgery, the opening distance between edentulous ridges in the anterior teeth reached as far as 40 mm, and the panoramic image showed incised mandibular condyle on both sides. Two months after the surgery, dentures were made while the patient underwent physical therapy. (Fig. 4)

### III. Discussion

The hypertranslation of TMJ in hypermobility disorders is known as an excessive forward movement of the condylar head at the mouth opening; the extent of exact forward movement is not defined, but the condylar head is located on the forward part of the condylus at the widest opening of the mouth. Dislocation of the TMJ may occur in several directions such as forward, rear, upper, and outward



**Fig. 4.** The postoperative panoramic view revealed bilateral condylectomy (arrows).  
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directions, although forward dislocation occurs most frequently. It is a condition wherein the condylar head is moved to the forward part of the condylus and its open lock since the patient cannot control it himself/herself. It occurs because the contraction of the masseter muscle and temporalis causes the lower jaw to get out of the glenoid cavity, and the spasm of the following masseter muscle, temporal muscle, and pterygoid muscle hampers the mandibular condyle from going back to its original position. It is divided into acute dislocation and recurrent dislocation depending on frequency of occurrence; in case it continues to exhibit the same symptoms for over 3 weeks after its occurrence, and the open lock, it is called chronic dislocation.

The cause of acute dislocation is known to be excessive movement when opening the mouth due to injury, dystonic reaction, yawning, etc. It may occur while airway intubation for general anesthesia, tooth extraction, or endoscopic operation for digestive tract is performed<sup>3</sup>.

Chronic recurrent forward dislocation is observed in a patient with habitual dislocation and whose mandibular condyle turns toward the rear down, unable to return to its original position in case the inclination of the joint condylus is anatomically sharp. In most cases, acute recurrent dislocation may be treated through manual reduction, botulinum toxin injections<sup>12</sup>, autologous blood injection<sup>13</sup>, etc.

The recurrent forward dislocation of the TMJ has various causes, including local ones such as change of laxity due to injury of articulate capsule and ligament or internal derangement of the TMJ, prolonged degenerative arthropathic, functional disorder of the TMJ, morphological alterations of the temporomandibular condylus, or occurrence caused by drugs such as phenothiazine<sup>14</sup>. Systemic causes include systemic diseases such as Ehlers-Danlos syndrome<sup>15</sup>, liver cirrhosis, Parkinson's disease, or neurological diseases

such as hysteria.

The clinical symptoms of the TMJ include the change of occlusion and face, reduction of mastication function, etc. Once the dislocation of the TMJ occurs bilaterally or laterally, the mouth cannot be closed without pain, tension of mastication muscle increases dramatically, and pronunciation is impossible. The patient also drools. The lateral dislocation of the joint may be controlled relatively simply through manual reduction; if it develops into a chronic one, however, treatment is difficult because the spasm of the masticatory muscle worsens and increase in thickness of the joint disc rear tissue and fibrous adhesion occur as a result of inflammatory response. The dislocation of the TMJ may be treated with intermaxillary fixation, manual reduction, physical therapy, insertion of hardener in the upper articular capsule, occlusion adjustment, pharmacotherapy using nonsteroidal inflammatory drugs or muscle relaxants, or nonsurgical therapy that induces the myostatic contraction of maxillary bone levator muscles using oral appliances that limit condylar movement. Note, however, that surgery may be considered in case the dislocation occurs recurrently and habitually or when the nonsurgical treatment fails.

For the surgical treatment of TMJ dislocation, various methods through which the clinician facilitates the condylar mobility of the TMJ or artificially places an obstacle to limit condylar mobility have been introduced. The eminectomy of surgical treatments was described by Myrhaug<sup>4</sup> for the first time in 1951 and was later asserted by Irby<sup>3</sup>. It is one of the most universal treatments wherein the lower inclined path is made by cutting out the condylus positioned in the condylar mobility path; its prognosis are quite good, but radiological reexamination prior to surgery and careful attention during surgery are required since perforation on the cerebral ventricles may occur in case of pneumatization in the eminectomy process.

For the treatment that limits the mobility of the mandibular condyle, several methods have been introduced. Georgiade<sup>5</sup> and Merrill<sup>6</sup> announced a treatment method to prevent the dislocation of the TMJ by connecting the condyle and the articular capsule to the zygomatic arch with a dacron strip after Murphy publicized the method of folding the ligament of the TMJ for the first time in 1912. In 1929, Konjetzny<sup>16</sup> reported the fixation method using meniscoplasty, and Pogrel<sup>17</sup> attempted to prevent the dislocation of the TMJ using the temporal fascial flap.

The lateral pterygoid muscle myotomy by surgical methods for the dislocation of the TMJ was publicized by Boman

for the first time in 1949. It was a method of removing the obstacle and limiting forward condylar gliding mobility by carrying out muscle myotomy and removal of joint disc simultaneously. According to him, the recurrent symptoms of dislocation disappeared from all patients in a long-term follow-up survey after applying the method to 21 patients.

Practiced and announced by LeClere and Girard<sup>18</sup> in 1943, the zygomatic arch downfracture technique was a method of increasing the vertical dimension of zygomatic arch by displacing it to the downward side of the condylus after downfracturing the zygomatic arch. Thereafter, Dautery, Lawler, etc., utilized the method significantly, but it had some problems such as facial changes or summative fixation.

In the treatment of TMJ dislocation, the method by increasing the vertical dimension around the condylus using the insertions, the rib bone, costochondral graft<sup>19</sup> or vitallium mesh, bone plate, hydroxyapatite, etc., are mainly used. The method is so simple that complicated surgery can be avoided. It has a merit of minimizing the limit of functional movement for the mandibular condyle or occurrences of complications but it also has the demerit of transformation or fractures of materials due to the mechanical properties of the inserted materials<sup>15</sup>.

In this case, the dislocation was treated so that the TMJ can perform its normal functions by partially cutting out both sides of the mandibular condyle of the patient with dislocation of the TMJ and whose mandibular condyle went over the condylus, unable to return to its original position, although the dislocation was not recurrent. One month after the surgery, a good result of 40 mm mouth opening distance between ridges in the anterior teeth could be obtained.

For the treatment of TMJ dislocation, surgery may be an effective method in case the nonsurgical treatment fails or dislocation occurs recurrently and habitually. Various surgical treatments such as eminectomy, anchoring procedure, lateral pterygoid muscle myotomy, zygomatic arch downfracture technique, and technique to increase the condylus using artificial insertions were introduced as methods to prevent recurrent and habitual dislocation of the TMJ.

An effective treatment for a patient with dislocation of the TMJ is to secure sufficient volume of mouth opening and to make it function normally. To achieve such target, it is important to prevent re-dislocation after surgery and to maintain the mouth opening volumes through constant physical therapy.

The authors are reporting this sample case of bilateral condylectomy performed on a 74-year-old female patient

diagnosed with dislocation of the TMJ, and a satisfactory result was obtained without recurrent findings or functional mobility disorder of the mandibular condyle particularly complications six months after the surgery.

## References

1. Kim CH, Kim H. Surgical correction of recurrent habitual temporomandibular joint dislocation. *J Korean Assoc Oral Maxillofac Surg* 1998;24:365-9.
2. Merrill RG. Habitual subluxation and recurrent dislocation in a patient with Parkinson's disease: report of case. *J Oral Surg* 1968;26:473-7.
3. Irby WB. Surgical correction of chronic dislocation of the temporomandibular joint not responsive to conservative therapy. *J Oral Surg (Chic)* 1957;15:307-12.
4. Myrhaug H. A new method of operation for habitual dislocation of the mandible; review of former methods of treatment. *Acta Odontol Scand* 1951;9:247-60.
5. Georgiade N. The surgical correction of chronic luxation of the mandibular condyle. *Plast Reconstr Surg* 1965;36:339-42.
6. Merrill RG. Mandibular dislocation. In: Keith DA, ed. *Surgery of the temporomandibular joint*. London: Blackwell Publications; 1988:135-68.
7. Lawlor MG. Recurrent dislocation of the mandible: treatment of ten cases by the Dautrey procedure. *Br J Oral Surg* 1982;20:14-21.
8. Puelacher WC, Waldhart E. Miniplate eminoplasty: a new surgical treatment for TMJ-dislocation. *J Craniomaxillofac Surg* 1993;21:176-8.
9. Howe AG, Kent JN, Farrell CD, Poidmore SJ. Implant of articular eminence for recurrent dislocation of the temporomandibular joint. *J Oral Surg* 1978;36:523-6.
10. Whear NM, Langdon JD, Macpherson DW. Temporomandibular joint eminence augmentation by down-fracture and inter-positional cartilage graft. A new surgical technique. *Int J Oral Maxillofac Surg* 1991;20:357-9.
11. Mangi Q, Ridgway PF, Ibrahim Z, Evoy D. Dislocation of the mandible. *Surg Endosc* 2004;18:554-6.
12. Ziegler CM, Haag C, Muhling J. Treatment of recurrent temporomandibular joint dislocation with intramuscular botulinum toxin injection. *Clin Oral Investig* 2003;7:52-5.
13. Kato T, Shimoyama T, Nasu D, Kaneko T, Horie N, Kudo I. Autologous blood injection into the articular cavity for the treatment of recurrent temporomandibular joint dislocation: a case report. *J Oral Sci* 2007;49:237-9.
14. O'hara VS. Extrapyramidal reactions in patients receiving prochlorperazine. *N Engl J Med* 1958;259:826-8.
15. Beighton P, Horan F. Orthopaedic aspects of the Ehlers-Danlos syndrome. *J Bone Joint Surg Br* 1969;51:444-53.
16. Konjetzny GE. Die Behandlung der habituellen Luxation der sogenannten habituellen subluxation des Unterkiefers u d. Kiefergelenksknachens *Z Chir* 1929;56:3018.
17. Pogrel MA, Kaban LB. The role of a temporalis fascia and muscle flap in temporomandibular joint surgery. *J Oral Maxillofac Surg* 1990;48:14-9.
18. LeClere GC, Girard C. Un nouveau procede de butee dans le traitement chirurgical de la luxation recidivante de la machoire inferieure. *Mem Acad Chir* 1943;69:451.
19. Kaban LB, Perrott DH, Fisher K. A protocol for management of temporomandibular joint ankylosis. *J Oral Maxillofac Surg* 1990;48:1145-51.
20. Sato J, Segami N, Nishimura M, Suzuki T, Kaneyama K, Fujimura K. Clinical evaluation of arthroscopic eminoplasty for habitual dislocation of the temporomandibular joint: comparative study with conventional open eminectomy. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2003;95:390-5.