# A Case of Long-standing Temporomandibular Joint Dislocation: Restoration of Oral Function Following Condylectomy

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**Background: Temporomandibular joint (TMJ) dislocation can be categorized into three groups: acute, habitual or recurrent, and long-standing. Long-standing TMJ dislocation refers to a condition that persists for more than one month without reduction. Long-standing dislocation of the TMJ is rare and the most challenging and difficult to treat of the three.**
**Case Report: The present case study relates to a 53-year-old woman with long-standing TMJ dislocation of a year's duration who presented for treatment. Due to this condition, she was unable to take food orally, and nutrition was managed by gastrostomy tube feeding. She also suffered from schizophrenia and had been admitted to a closed hospital. Bilateral mandibular condylectomy was performed, restoring oral function. However, post-reduction, an open bite remained, restricting the types of food that she could eat. Additional intermaxillary fixation and intermaxillary traction would have been required for an optimal outcome, but they were not possible for this patient.**
**Conclusion: Despite an inability to provide comprehensive treatment, due to patient-related factors, occlusal and masticatory functions were restored to adequate levels following bilateral condylectomy alone. This enabled oral feeding and improved her quality of life.**

**Key words: condylectomy, long-standing dislocation, oral function, temporomandibular joint**

## INTRODUCTION

Dislocation of the temporomandibular joint (TMJ) typically occurs when the mandibular condyle becomes displaced out of the glenoid fossa and anterior to the articular eminence. One or both mandibular condyles can be affected with most cases presenting bilaterally [1]. Dislocation of the TMJ is a common condition which occurs for a variety of reasons. Predisposing and etiological factors include extreme mouth opening during yawning (46%), motor vehicle accidents and other trauma, dental treatments, medications, especially the anti-emetics metoclopramide and compazine, which produce extrapyramidal effects, joint hypermobility associated with systemic diseases such as Ehlers–Danlos and Marfan syndromes, congenital joint weakness, intubation, and psychogenic and neurological disorders [2, 3].

Usually, acute and habitual or recurrent dislocations are manually repositioned at once. However, long-standing TMJ dislocation does not relocate with manual reduction and often requires surgical treatment [4].

Long-standing dislocation is extremely rare but causes significant discomfort and impaired quality of life for the patient [5].

## CASE REPORT

A 53-year-old female patient was referred to the department of Oral and Maxillofacial Surgery at Tokai Hachioji Hospital, with the chief complaint of inability to close her mouth. She had been admitted to a closed hospital for schizophrenia.

Since the patient was in a closed ward, temporomandibular joint dislocation was overlooked for a long period of time. When it was noticed, reduction was already difficult and was managed by gastrostomy tube feeding as a fallback option. Her physique was somewhat slim, but her nutritional intake was normal. She was in a sub-stupor state owing to schizophrenia, but she was able to communicate.

On examination, an anterior open bite of 23 mm, a notable preauricular depression and a restricted range of mandibular motion were observed. Radiological examination was undertaken using panoramic radiography and computed tomography (CT). The panoramic view showed mandibular condyles displaced anteriorly well beyond the articular eminences (Fig. 1A, B). CT scan results confirmed the panoramic findings and showed cupping of the lateral pole of the condyle consistent with pseudoarticulation with the zygomatic arch (Fig. 2A, B).

She was diagnosed with anterior dislocation of the TMJ and unsuccessful attempts were made to reduce the "open lock" under local anesthetic in the outpatient

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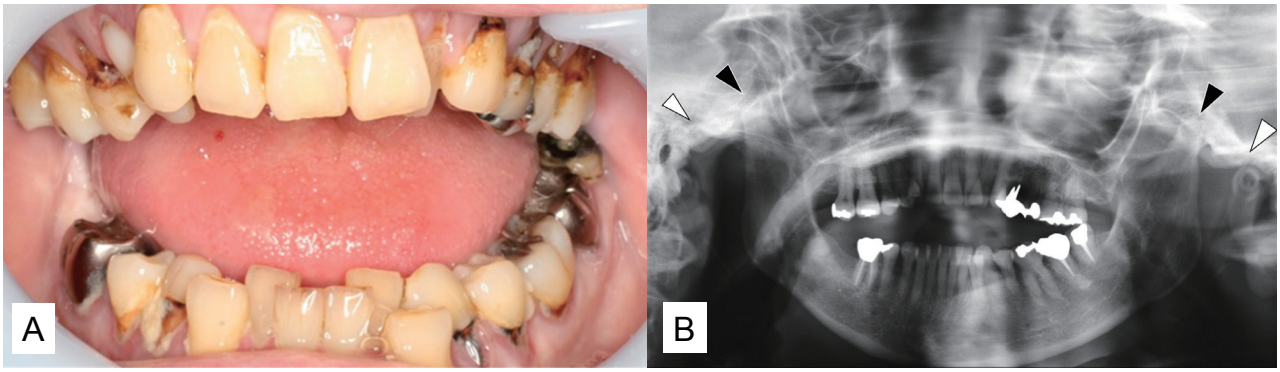


**Fig. 1** A. Intraoral photograph demonstrating an anterior open bite due to chronic bilateral TMJ dislocation. B. Panoramic view. The mandibular condyle (black arrow) is displaced out of the glenoid fossa (white arrow) and anterior to the articular eminence.

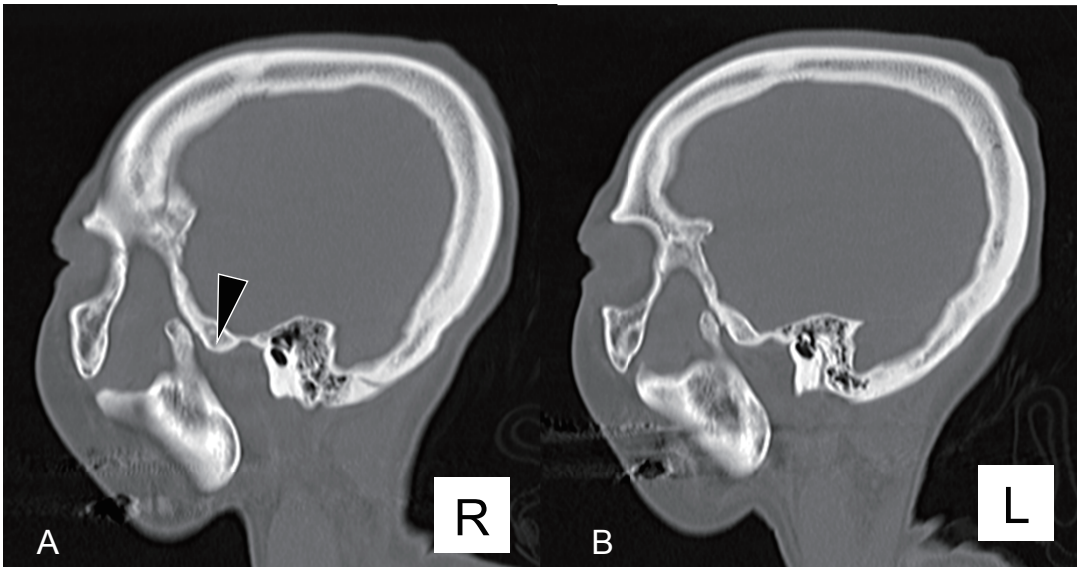


**Fig. 2** A, B. CT (sagittal plane) scan showing the condyle dislocated anterior to articular eminence (black arrow).

setting and under general anesthesia and muscle relaxants in the operating room. A clinical decision was made at that time that the patient would require a condylectomy to reduce the mandible to its appropriate position. Informed consent for the surgery was sought from the legal guardian as the decision-making ability of the patient was impaired. The risks and benefits of surgery were fully explained, orally and in writing, and written informed consent was obtained.

On re-hospitalization, surgery was performed under general anesthesia. Due to the anterior displacement of the condyles, the standard periauricular incisional technique used to access the TMJ was not possible and a submandibular approach was selected.

The advantage of this method was that it did not damage the soft tissue because it only reached the condyle neck by removing the masseter muscle attached to the mandible. In addition, the approach from the submandibular region was suitable for pulling the mandible downward, so it was easy to clearly indicate the condyle neck. The masseter was released from the masseteric tuberosity, and the TMJ was accessed. The surrounding tissue was then dissected to allow for visualization of the TMJ neck, and condylectomy was performed (Fig. 3). Following bilateral condylectomy, the mobilized mandible was reduced into its correct position and oral closure was achieved. The postoperative course was good, but intermaxillary fixation was not possible due to schizophrenia. Therefore, early occlusal contact between the molars and an anterior open bite resulted (Fig. 4A, B). However, it became possible for the patient to take in food orally, and nutritional management via a gastrostomy feeding tube became unnecessary.

## DISCUSSION

A long-standing or protracted dislocation is defined as a dislocation that is not reduced immediately [6]. No clear guidelines or standards have been set to define a duration distinguishing chronic from acute dislocation [1]. Long-standing TMJ dislocation usually occurs when a case of acute dislocation is left untreated or is inadequately treated. Over time, the anterior positioning of the condyle results in soft tissue fibrosis, and muscle spasms. The longer the duration of time that has elapsed from the initial dislocation, the greater the severity of these changes, resulting in a need for more complex procedures to reduce the joint [5].

Multiple reports detailing methods of reducing TMJ dislocations surgically have been published. Some

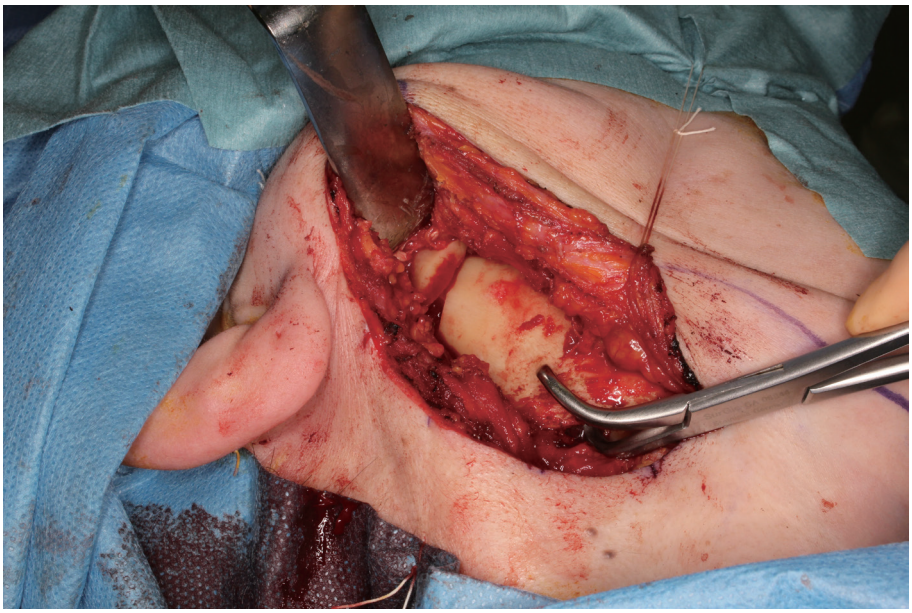

**Fig. 3** The TMJ neck was approached from the submandibular incision and excision was performed.

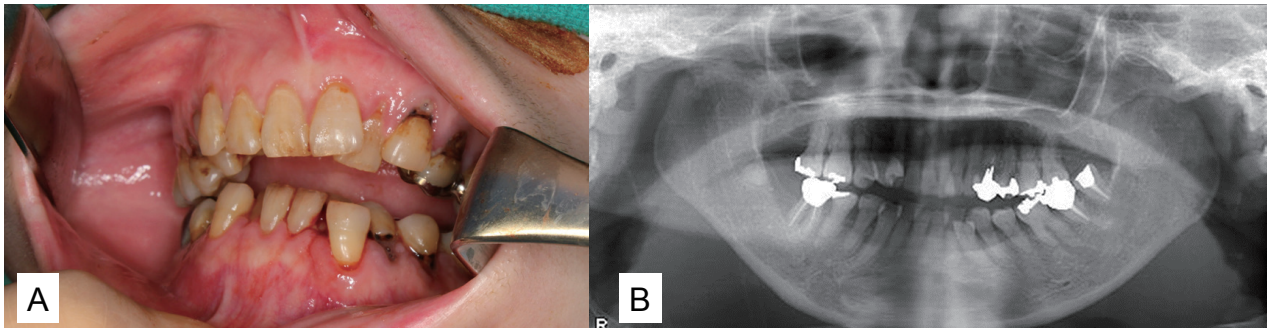


**Fig. 4** A. Postoperative oral findings. Following bilateral condylectomy, the mandible became movable and the mouth could be closed. However, an anterior open bite remained.
B. Panoramic view after 9 days after surgery. The anterior teeth have an open bite, but the molars are occluded.

of the surgical techniques used in the treatment of long-standing TMJ dislocation include condylectomy, condylotomy with or without coronoidotomy, coronoidectomy alone, inverted L-shaped ramus osteotomy, modified vertical ramus osteotomy, myotomy, periosteal stripping, traction with wire to the mandibular border, and meniscectomy [7, 8]. Lee *et al.* described in their case report the reduction of prolonged bilateral TMJ dislocation by midline mandibulotomy [9]. An intraoral approach was used to perform mandibulotomy, and each hemimandible was manipulated independently to obtain reduction. Other authors have used a closed condylotomy technique [10].

There are currently no guidelines or protocols as to which surgical method is best and for which situations. The report by Huang *et al.* [1], suggested a treatment strategy which proposed that dislocations of shorter than 3 weeks be treated first by attempting closed reduction with or without local anesthesia, then by deep sedation or general anesthesia if the initial approach should if the initial approach failed. For dislocations lasting 1–3 months, open reduction with stripping of the periosteum, muscles, and traction with wire or other retractors was suggested. The recommendation for more than 6 months duration was open reduction and condylectomy, condylotomy, myotomy, and/or a TMJ prosthesis. For 3–6 months duration, stripping should be attempted first, as in the 1–3 month group, and if unsuccessful, treatment recommendations for more than 6 months should be followed.

Wij-menga *et al.* reviewed a total of 40 patients, including three whom they directly oversaw, and found that closed reduction was successful in only eight, whereas condylectomy was the most common procedure in the 32 patients who were treated surgically [11]. Gottlieb, Whinery, and Vero also recommended the use of condylectomy for such patients [12–14].

The current case involved treatment of long-standing TMJ dislocation that had persisted for about 1 year. Therefore, condylectomy was selected in accordance with the recommendations of Huang *et al.* [1].

The principal problem was that following surgery, the bilateral absence of the TMJs meant that as the mandible was raised, the molars came into early contact, resulting in an anterior open bite. Typically, it is necessary to perform intermaxillary fixation and intermaxillary traction after surgery to guide the patient to the central occlusal position. However, due to the comorbid diagnosis of schizophrenia, it was impossible to perform these procedures. Many patients

with long-standing TMJ dislocation suffer from mental illness and neurological disorders, and additional treatment is often difficult.

Segami *et al*. [15] reported on the treatment of 16 cases of long-standing TMJ dislocation. All these patients presented with multiple coexisting conditions and either dementia or a mental disorder, and in this situation, they proposed that a short and minimally invasive operation that prioritizes reduction alone should be provided for high-risk patients with a reduced ability to tolerate the more aggressive and comprehensive surgical options that target occlusal adjustment as well. The area should also be supported with a bandage, or other similar device, after reduction, to prevent repeated dislocation. Although techniques to prevent recurrence may be used, these should be considered in the context of the patient's general condition and should only be regarded as a secondary goal of treatment [15].

Against a background of published and recommended treatment protocols, the present case report describes the treatment of long-standing TMJ dislocation in a patient with a comorbid psychiatric disorder. Despite an inability to provide comprehensive treatment, due to patient-related factors, occlusal and masticatory functions were restored to adequate levels to allow for oral feeding and improved quality of life.

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