Title: Videos in clinical medicine. Repositioning dislocated temporomandibular joints.

Authors: Zweifel DF, Pietramaggiori G, Broome M

Journal: The New England journal of medicine

Year: 2014 Feb 6

Volume: 370

Issue: 6

Pages: e9

DOI: 10.1056/NEJMvcm1301200

VIDEOS IN CLINICAL MEDICINE
SUMMARY POINTS

Repositioning Dislocated Temporomandibular Joints

Daniel F. Zweifel, M.D., D.M.D., Giorgio Pietramaggiori, M.D., and Martin Broome, M.D., D.M.D.

The following text summarizes information provided in the video.

From the Department of Maxillofacial Surgery, Lausanne University Hospital, Lausanne, Switzerland.

N Engl J Med 2014;370:e9.
DOI: 10.1056/NEJMvcm1301200

OVERVIEW

The temporomandibular joints are anterior to the ear. They are ginglymoarthrodial joints that permit both rotational and sliding movements. The temporomandibular joints, which are on each side of the lower jaw, join the mandible to the viscerocranium and allow the mouth to open and close.

CAUSES, PRESENTATION, AND MECHANISM

A common cause of dislocation of the temporomandibular joints is extreme opening of the mouth, as may occur when yawning, during prolonged dental treatment or intubation, or as a result of trauma caused by a physical altercation or accident.[1-3] Patients with acute dislocation of the temporomandibular joint usually present to the emergency department but may present to general medical or dental practices.

Patients with dislocation of both temporomandibular joints have malocclusion, an open bite, and empty articular sockets. Palpation of the empty sockets reveals pretragal hollowing (Fig. 1). In patients with dislocation of one joint, the chin is shifted to the contralateral side.

Figure 1. Patient with Dislocation of Both Temporomandibular Joints.

Dislocation occurs when the mouth is wide open and the condyle moves onto the articular eminence and slips forward, preventing the mouth from closing. The masticatory muscles tighten and hold the mandible in the new, aberrant position, which causes the muscles to contract further and lock the mandible in this painful position.

The majority of patients who present to the emergency department have dislocations that occurred 1 or 2 hours earlier. These dislocations can be treated easily, as described below. However, some patients, particularly institutionalized patients with neurologic disorders or elderly or infirm patients, have chronic dislocation. In such patients, a pseudo-articulation forms around the displaced condyle, which allows for some movement. It should be determined whether surgical intervention is warranted in these patients.

Dislocation occurs during mouth opening when the condyle rotates beyond 30 degrees and then begins a translational movement along the articular eminence. If for some reason the condyle moves farther forward and slips over the articular eminence, self-reduction becomes very difficult in persons with normal anatomy. Pain causes the masticatory muscles to tighten, locking the mandible in the new, aberrant position.

CONTRAINDICATIONS

The primary contraindication to the correction of temporomandibular joint dislocation is the presence of facial fractures. If there is suspicion of facial fracture, radiographic images of the affected area should be obtained and examined carefully for fractures before any attempt is made to reposition the mandible.

REDUCTION METHODS

The video demonstrates a simple technique for temporomandibular joint reduction. Other techniques include the classic so-called Hippocrates method, the wrist-pivot reduction, and the use of an interdental object, or "block," to lift the condyle back into place. These techniques are not discussed in the video.

EQUIPMENT

Only basic equipment is needed to perform the procedure. This equipment includes a chair with head support, protective glasses, a face mask, and nonsterile examination gloves. In addition, gauze pads can be wrapped around the clinician's thumb for protection during the procedure.

PREPARATION

Seat the patient in a chair that provides head support. Put on your glasses, face mask, and examination gloves. You may also want to wrap gauze pads around your thumb to shield it from the sharp cusps of the patient's teeth.

The reduction does not usually require the patient's use of muscle relaxants, sedatives, or a general anesthetic agent, but these agents should be considered for patients who have severe pain or who are unable to follow instructions when the mandible is repositioned (e.g., patients with cognitive dysfunction).

Figure 2. Placement of the Hands during the Repositioning of the First Temporomandibular Joint.

Figure 3. Placement of the Hands during the Repositioning of the Second Temporomandibular Joint.

PROCEDURE

Reposition the mandible one side at a time. Fix the patient's head between your body and your nondominant hand. Place the thumb of your dominant hand in the retromolar area of the side of the jaw to be repositioned, and grip the mandible with the rest of your hand (Fig. 2). This approach will allow you to verify the position of the condyle, which will serve as a reference point as you reposition the mandible.

Apply gentle but increasing downward pressure. Increase the force gradually, sometimes for up to 5 minutes, until you feel the condyle move; then push dorsally very slightly until you feel the condyle slide into the glenoid fossa. This dorsal movement is generally automatic, since the articular tissue retracts once the articular eminence has been surpassed.

After you reduce one temporomandibular joint, hold it in position with your nondominant hand by positioning a finger in front of the condyle. Then reposition the other temporomandibular joint in the manner just described (Fig. 3). Once you have repositioned the entire jaw, verify that the patient now has normal occlusion.

COMPLICATIONS

Complications are uncommon in this procedure. The most frequent problem is the inability to reduce the dislocation. If the first attempt at reduction is unsuccessful, consider administering a mild sedative, such as diazepam, to relax the masticatory muscles.

Another potential complication is subcondylar fracture, which may occur if too much force is applied in a posterior direction during repositioning. Although this complication is rare, it may occur in elderly patients or in patients with severe osteoporosis. The primary force during reduction should always be downward.

Early repeat redislocation is a clinically significant risk. It is therefore important to provide the patient with instructions in preventive aftercare.

AFTERCARE

Instructions in aftercare should explain that, during the 2 months following the procedure, the patient should refrain from exceeding an interincisal distance of one finger's width when opening the mouth and should support the chin with a fist when yawning (Fig. 4). For patients who have had repeated dislocation, the use of a fixation bandage after the procedure may be helpful; the bandage can be kept in place for 24 hours or longer, as needed.[1,4] It is also important to ask patients with repeated dislocations the reason for the dislocations and, if possible, to suggest preventive measures.

SUMMARY

Temporomandibular joint dislocation is easily diagnosed. If there are no facial fractures, repositioning should be performed as soon as possible, to avoid unnecessary discomfort for the patient. After the jaw has been repositioned, patients generally do well, provided that they follow the instructions for aftercare.

No potential conflict of interest relevant to this article was reported.
Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

REFERENCES

1. Miloro M, ed. Peterson's principles of oral and maxillofacial surgery. 2nd ed. Hamilton, ON, Canada: BC Decker, 2004.
2. McGoldrick DM, Stassen LF. Management of acute dislocation of the temporomandibular joint in dental practice. J Ir Dent Assoc 2010;56:268-70.
3. Ugboko VI, Oginni FO, Ajike SO, Olasoji HO, Adebayo ET. A survey of temporomandibular joint dislocation: aetiology, demographics, risk factors and management in 96 Nigerian cases. Int J Oral Maxillofac Surg 2005;34:499-502.
4. Chan TC, Harrigan RA, Ufberg J, Vilke GM. Mandibular reduction. J Emerg Med 2008;34:435-40.

Figure 4. Prevention of Repeat Dislocation.

During the 2 months following the procedure, the patient should refrain from exceeding an interincisal distance of one finger's width when opening the mouth and should support the chin when yawning.