The Journal of Emergency Medicine, Vol. 47, No. 6, pp. 676–681, 2014

0736-4679/$ - see front matter

ELSEVIER

http://dx.doi.org/10.1016/j.jemermed.2014.06.050

Techniques and Procedures

THE "SYRINGE" TECHNIQUE: A HANDS-FREE APPROACH FOR THE REDUCTION OF ACUTE NONTRAUMATIC TEMPOROMANDIBULAR DISLOCATIONS IN THE EMERGENCY DEPARTMENT

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☐ **Abstract—Background: The traditional intraoral manual reduction of temporomandibular joint (TMJ) dislocations is time consuming, difficult, and at times ineffective, and commonly requires conscious sedation. Objectives: We describe a novel technique for the reduction of acute nontraumatic TMJ dislocations in the emergency department (ED). Methods: This study was a prospective convenience sample population during a 3-year period at two university teaching-hospital EDs where acute nontraumatic TMJ dislocations were reduced utilizing our syringe technique. Demographics, mechanism, duration of dislocation, and reduction time were collected. Briefly, the "syringe" technique is a hands-free technique that requires a syringe to be placed between the posterior molars as they slide over the syringe to glide the anteriorly displaced condyle back into its normal anatomical position. Procedural sedation or intravenous analgesia is not required. Results: Of the 31 patients, the mean age was 38 years. Thirty patients had a successful reduction (97%). The majority of dislocations were reduced in <1 min (77%). The two most common mechanisms for acute TMJ dislocations were due to chewing (n = 19; 61%) and yawning (n = 8; 29%). There were no recurrent dislocations at 3-day follow-up. Conclusion: We describe a novel technique for the reduction of the acutely nontraumatic TMJ dislocation in the ED. It is simple, fast, safe, and effective.** © 2014 Elsevier Inc.

☐ **Keywords—TMJ; temporomandibular; dislocation; reduction; procedures; emergency department; acute; nontraumatic**

INTRODUCTION

Acute nontraumatic temporomandibular joint (TMJ) dislocations are usually the consequence of excessive mouth opening, for example, tooth extraction, laughing, yawning, or taking a large bite of food. Anterior TMJ dislocations are the most common form in nontraumatic dislocations of the jaw. The emergency physician (EP) routinely relies on the traditional method of intraoral reduction of the TMJ, which commonly requires procedural sedation or substantial intravenous analgesia. The literature reports two alternative methods for the reduction of TMJ dislocations. In 2004, Lori et al. describe a variation of the intraoral approach, and in 2007, Chen et al. describe an extraoral or external approach. Both of these methods require the physician to manually manipulate the mandible (1,2).

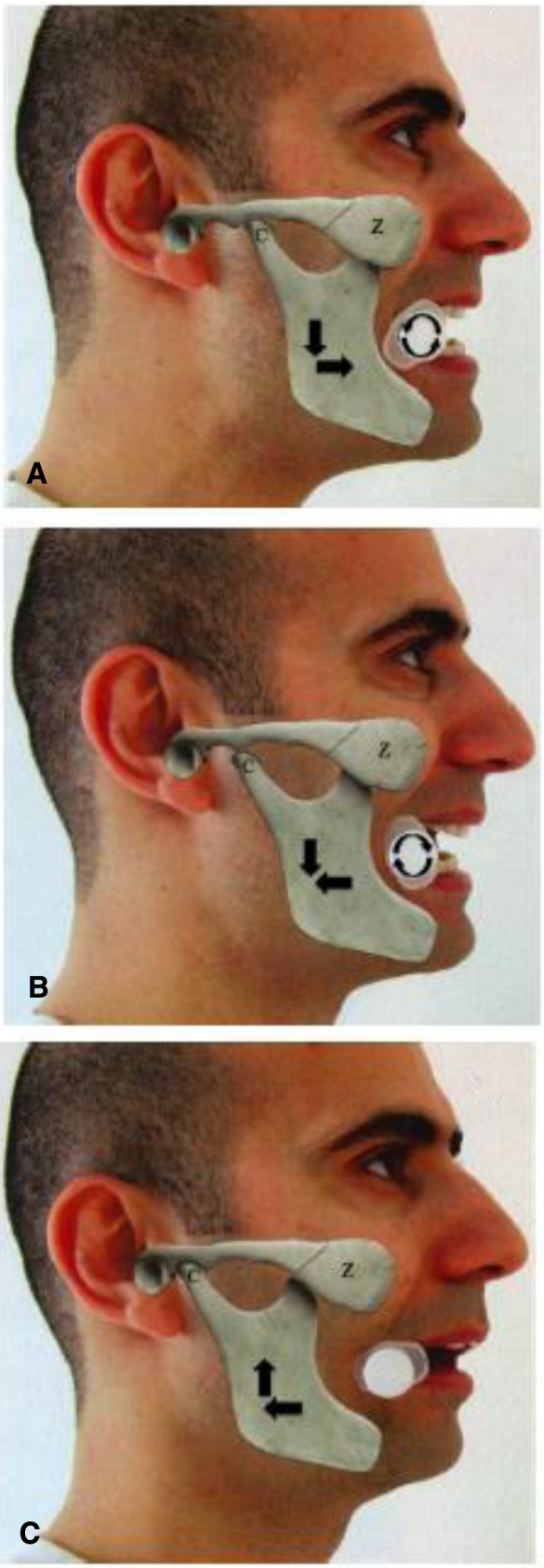
Importance

The traditional intraoral approach is time consuming, difficult, and at times, ineffective. It is also not without risk to the patient or the EP (1,3–6).

Goal of this Investigation

We introduce a simple and novel technique for the reduction of acutely nontraumatic TMJ dislocations using a

RECEIVED: 21 January 2014; FINAL SUBMISSION RECEIVED: 14 March 2014;
ACCEPTED: 30 June 2014



hands-free approach. This technique is safe, rapid, and effective without the need for procedural sedation or intravenous analgesia.

MATERIAL AND METHODS

Study Design

This was a prospective convenience sample study.

Setting and Selection of Study Participants

This study was conducted in the emergency departments (EDs) at two university teaching hospitals with an annual ED census of 62,000 and 108,000. Thirty-one consecutive adult subjects that presented to the ED for acute nontraumatic TMJ dislocations during 2008–2011 were enrolled. These subjects represented a convenience sample population because two emergency physicians performed all the reductions. This maintained standardization because all the reductions were performed in the same manner. A focused history was taken from all subjects that included the mechanism of dislocation, time of dislocation, and prior history of dislocations.

New Technique

The technique we propose is effective and may be rapidly performed. The only piece of equipment utilized in our technique is a 5-mL or 10-mL syringe. With the patient in a sitting position, the physician places the syringe between the posterior upper and lower molars or gums on the affected side. The patient is asked to gently bite down and grasp the syringe as the patient is instructed to roll the syringe back and forth, resulting in the reduction of the dislocated TMJ. Selection of the syringe size varies with each patient. The size depends upon the distance between the upper and lower molars or gums and the patient's ability to open the mouth on the affected side to accommodate the syringe size. The mechanics of our technique utilize the syringe as a rolling fulcrum upon which the mandible and maxilla apply slight downward pressure as the syringe is grasped between the teeth or gums. As the molars or gums roll over the syringe, it produces a gliding motion as the mandible slides posteriorly. The condyle that is displaced anterior to the articular eminence of the temporal bone moves posteriorly to

Figure 1. (A) Dislocated temporomandibular joint (TMJ) where the condyle is displaced anterior to the articular eminence with syringe placement between the posterior molars. (B) Gliding of the mandible posteriorly as the molars roll over the syringe. (C) Normal TMJ with syringe placement. Z = zygomatic bone, C = condyle.