



Contents lists available at ScienceDirect

# Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology

journal homepage: [www.elsevier.com/locate/jomsmmp](http://www.elsevier.com/locate/jomsmmp)

## Technical note

# Application of percutaneous zygomatic arch osteotomy for protrusion deformity of the zygoma following facial fracture surgery

Hideto Saijo\*, Yoko Kawase-Koga, Yoshiyuki Mori, Ichiro Seto, Masanobu Abe, Kazumi Ohkubo, Kazuto Hoshi, Tsuyoshi Takato

Department of Oral-Maxillofacial Surgery, Dentistry, and Orthodontics, University of Tokyo Hospital, Tokyo 113-8655, Japan

## ARTICLE INFO

### Article history:

Received 17 October 2011

Received in revised form 4 September 2012

Accepted 10 September 2012

Available online 9 November 2012

### Keywords:

Percutaneous zygomatic arch osteotomy

Protrusion deformity

Facial fracture

Zygomatic arch

Facial nerve

## ABSTRACT

We report herein on use of a percutaneous zygomatic arch osteotomy that is simple, safe, and less invasive than conventional methods on patients in whom protrusion deformity of the zygoma following facial fracture surgery. Even though osteotomy is performed percutaneously, this technique entails a lower risk of facial nerve damage compared with other extraoral approaches, and the method is both minimally invasive and simple.

No serious postoperative side effects were observed and the facial symmetry was achieved.

© 2012 Asian AOMS, ASOMP, JSOP, JSOMS, JSOM, and JAMI. Published by Elsevier Ltd. All rights reserved.\*

## 1. Introduction

Among facial fractures, the zygoma not only has comparatively weak resistance to external force, but also protrudes in a position that renders it vulnerable to external force, meaning that fractures of the zygoma and zygomatic arch are more frequently encountered than any other midfacial fracture, and have more complex complications [1]. In addition, as evaluation of the reduction level depends on visual inspection and perspectives of the surgeon, many authors have noted that postoperative deformities especially protrusion can easily arise [2,3]. Therefore, follow-up after open reduction is important to check for postoperative asymmetry. We report herein our experience with malarplasty only using percutaneous zygomatic arch osteotomy for protrusion deformities following facial fracture surgery.

## 2. Technique

The feature of this procedure is that a small chisel approximately 5 mm in width (nasal osteotomy chisel) is used through the skin

directly above the zygomatic arch to perform direct osteotomy of the arch, after which infrafracture is undertaken (Figs. 1 and 2) [4,5]. First, the protruding zygomatic arch is marked on the facial skin, after which the estimated course of the temporal branch of the facial nerve is also marked on the skin. The temporal branch of the facial nerve runs along a line joining the earlobe with the outside of the eyebrow [6,7]. Small incisions approximately 2 mm in length are made in the skin directly above the zygomatic arch at the beginning and end of the conjectured course of the temporal branch of the facial nerve, and a nasal osteotomy chisel is used to perform osteotomy of the zygomatic arch at each location. Osteotomy is performed from below for the anterior zygoma and from above for the posterior zygoma, and is the point requiring the greatest caution to avoid causing facial paralysis. After osteotomy has been performed, the protruding arch is compressed manually. The skin incisions are closed with a single 6-0 black nylon suture. No special dressing to apply pressure to the zygoma is used postoperatively (Fig. 3a and b).

## 3. Case report

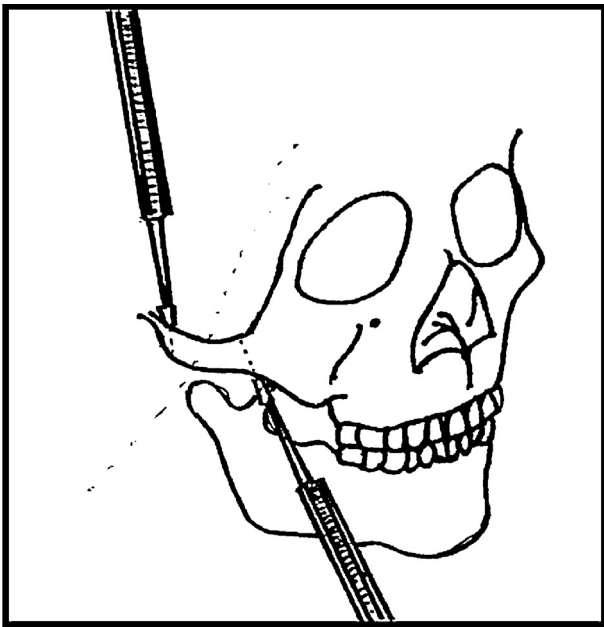
### 3.1. Case 1

A 31-year-old man was brought to our hospital by ambulance after being involved in a traffic injury. Multiple bruises of the body, fracture of the left clavicle, and pneumocephalus were observed as systemic findings at presentation. In the maxillofacial region, a Le Fort II fracture, left zygomatic fracture, nasal fracture, tooth fractures in the upper and lower jaws, and contusions of the

\* AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

\* Corresponding author at: Department of Oral-Maxillofacial Surgery, Dentistry, and Orthodontics, University of Tokyo Hospital, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113-8655, Japan. Tel.: +81 3 3815 5411x33714; fax: +81 3 5800 8669.

E-mail address: [saijoh-ora@h.u-tokyo.ac.jp](mailto:saijoh-ora@h.u-tokyo.ac.jp) (H. Saijo).



**Fig. 1.** Course of the temporal branch of the facial nerve and the anterior and posterior portions of the zygomatic arch. The temporal branch of the facial nerve forms a line joining the earlobe and the outside of the eyebrow, and percutaneous osteotomy using a small nasal osteotomy chisel is performed in front of and behind this line. Osteotomy of the anterior portion of the zygomatic arch is carried out from below, and osteotomy of the posterior portion is performed from above, avoiding damage to the facial nerve.

oral mucosa were observed. He recovered well following open reduction and internal fixation and satisfactory outcomes were obtained with the occlusion. However, a slight facial asymmetry was observed postoperatively as a result of external protrusion of the left zygoma.

As the cause of the deformity was protrusion of the zygomatic body and arch, 1 year after initial surgery we performed malarplasty combined with percutaneous zygomatic arch osteotomy under general anesthesia. Osteotomy of the zygomatic arch was performed in two locations in the anterior and posterior regions of the arch. For the zygomatic body, protruding area was trimmed using a round bar through an intraoral incision. Postoperatively, asymmetry was improved and patient satisfaction achieved. Additionally we confirmed zygomatic symmetry by imaging (Fig. 4a–d).

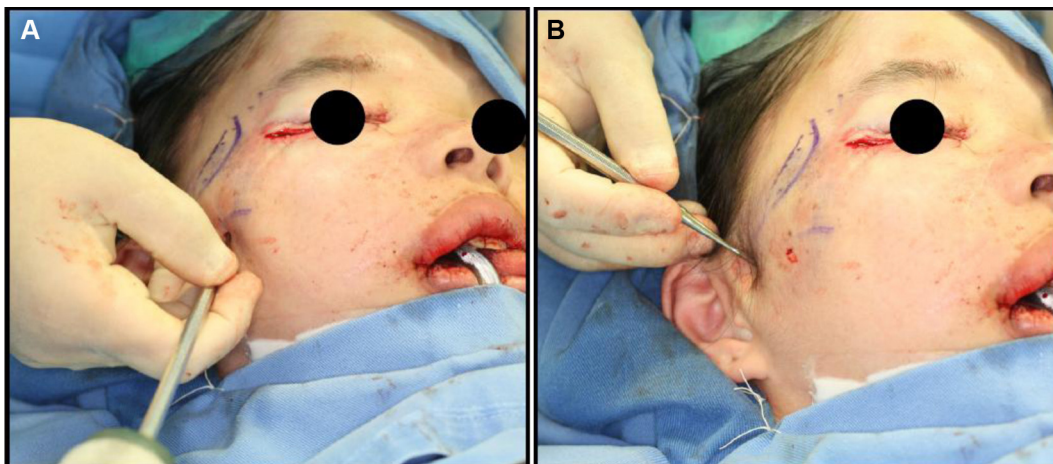


**Fig. 2.** Nasal osteotomy chisels. The tip is small, with a width of approximately 5 mm.

### 3.2. Case2

A 44-year-old woman was examined in our department for a main complaint of impaired occlusion as a result of multiple facial fractures after being brought to nearby hospital by ambulance caused of a traffic injury. Abdominal wall hematoma and right radial fracture were observed as systemic findings at presentation. In the maxillofacial region, a Le Fort I fracture, left zygomatic fracture, bilateral condyloid process fractures, bilateral coronoid process fractures, and midline fracture of the lower mandible were found. She recovered well following open reduction and internal fixation and satisfactory outcomes were obtained with the occlusion, but the facial asymmetry was observed due to external protrusion of the left zygoma.

As the cause of the asymmetry was a protrusion of the left zygomatic body and arch, 1 year after initial surgery we performed malarplasty under general anesthesia. As in Case 1, bone reduction of the zygomatic body was achieved using a round bar as well as percutaneous osteotomy of the zygomatic arch. Postoperatively, asymmetry was improved and patient satisfaction was achieved (Fig. 5a–d).



**Fig. 3.** (a) Osteotomy of the anterior zygomatic arch is performed from below. (b) Osteotomy of the posterior part of the zygomatic arch is performed from above.

Download English Version:

<https://daneshyari.com/en/article/3159395>

Download Persian Version:

<https://daneshyari.com/article/3159395>

[Daneshyari.com](https://daneshyari.com)