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The boomerang osteotomy — A new method of reduction malarplasty

Yuji Nakanishi [a], Tomohisa Nagasao [b,*], Yusuke Shimizu [b], Junpei Miyamoto [b], Kazuo Kishi [b], Keizo Fukuta [a]

[a] *Verite Clinic, Osaka and Tokyo, Japan*
[b] *Department of Plastic and Reconstructive Surgery, Keio University Hospital, Shinjuku-Ward, Shinanomachi 35 Tokyo, Japan*

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Summary *Background:* To achieve optimal outcomes in reduction malarplasty, it is important to preserve the natural curvature of the cheek while reducing the zygoma prominence and the width of the midface. The present article introduces an effective technique that aims to achieve these purposes.
Methods: Through an intraoral approach, boomerang-shaped bone incision lines are marked on the anterior aspect of the zygomatico-maxillary junction. The lines are placed medial to the most prominent part of the zygoma. The zygomatic arch is divided at its posterior part through a small incision made in the pre-auricular region. By performing these manoeuvres, a unit of bone—composed of a part of the zygoma body and zygomatic arch — is mobilised. The mobilised bone is shifted medially, reducing the width of the midface and making the zygoma region less prominent. After performing reduction malarplasty for 89 patients (10 males and 79 females) using this technique, clinical outcomes were evaluated.
Results: Outcomes of the treatment was optimal, with over 80% of the patients evaluating the results as excellent in terms of effectiveness in malar prominence, facial width and symmetry.
Conclusion: Because the continuity of the main part of the zygoma body and zygomatic arch is preserved in our technique, medial transfer of the zygoma is enabled while preserving the natural curvature of the malar region and the superior—inferior position of the zygomatic arch. Because of these advantages, we recommend our technique as an effective technique of reduction malarplasty.

* Corresponding author. Tel.: +81 3 3353 1211; fax: +81 3 3352 1054.
E-mail address: nagasao@sc.itc.keio.ac.jp (T. Nagasao).

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Although a prominent zygoma is one of the features that characterise the crania of Oriental populations, this feature is not favoured in their cultures, ironically.[1,2] In many Asian countries, a prominent zygoma is associated with selfish and stubborn personalities. In particular, wide faces due to a prominent zygoma are considered unsightly for women, in whom a smooth contour of the midface — described as egg-shaped — is highly valued. Unevenness due to a prominent zygoma impairs the smoothness of the contour. There are even cultures that associate prominent zygomas with misfortune.[3] These cognitive backgrounds make reduction malarplasty one of the most common cosmetic surgeries in Asia.

Despite the popularity of reduction malarplasty, we perceive few existing surgical methods can provide satisfactory outcomes. Five conditions need to be achieved in reduction malarplasty. First, the width of the midface should be effectively reduced; second, the prominence of the zygoma should be flattened; third, the natural curvature of the malar region should be preserved; fourth, visible scars should be avoided; and fifth, the location of the zygomatic arch should be kept at the same superior—inferior level. To achieve these conditions, we have developed an original surgical technique. The present article introduces our technique and discusses advantages of the technique as compared with existing methods.

Materials and methods

Surgical techniques

Prior to operation, the degree of midface width reduction is decided through consultation with the patient and evaluation of cephalogram X-ray photographs. Under general anaesthesia, 0.5% lidocaine mixed with epinephrine (1:100 000) is infiltrated along incision lines. A 5-cm incision is made on the labiobuccal vestibular groove, and the periosteum on the maxilla is dissected. After exposing the zygomatico-maxillary junction, incision lines are marked referring to the most prominent part of the zygoma. Two

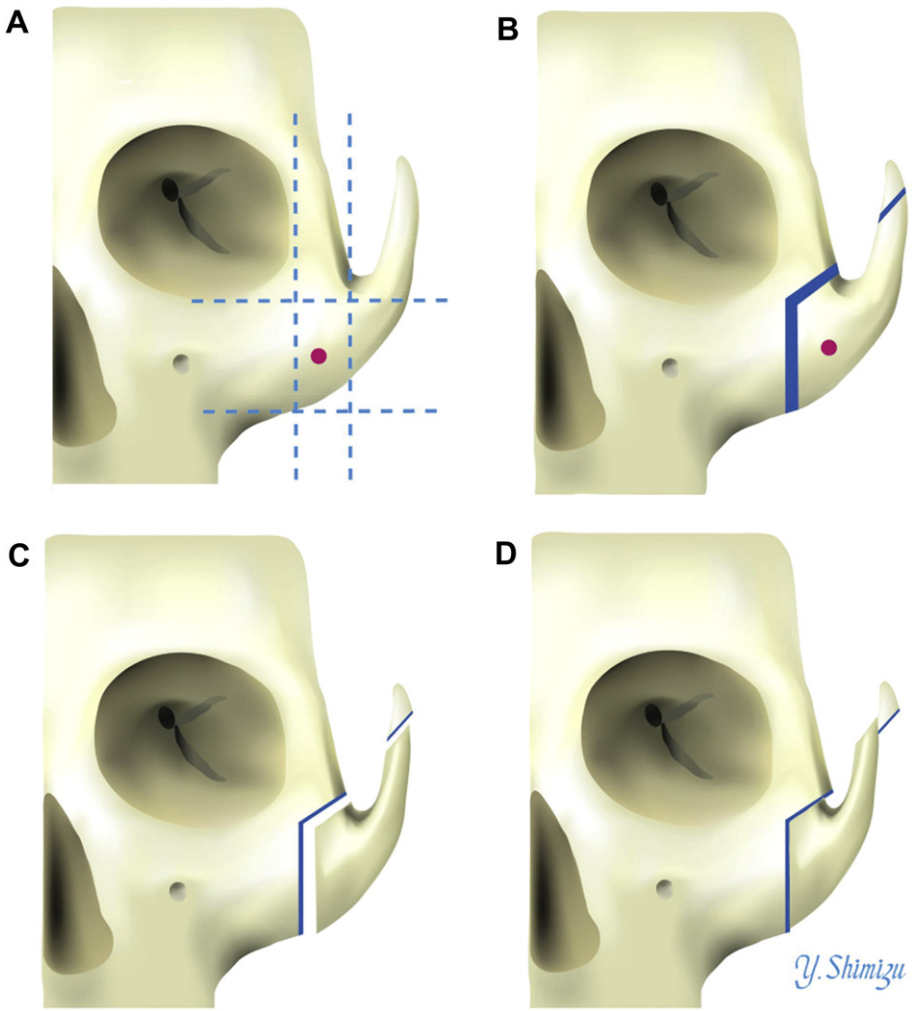

Figure 1 (*Left Above*) Location of the most prominent part of the zygoma body (red point) (*Right Above*) Incision of the Boomerang Osteotomy (*Left Below*) Mobilisation of the bone (*Right Below*) The complex of the zygoma body and zygomatic arch is shifted medially. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)