

Technical note “Bucket-handle” genioplasty: a versatile technique for elongation of the face

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Genioplasty is a technique that has seen important changes over the last couple of decades, from a classical horizontal osteotomy of the anterior border of the mandible to the more complex osteotomies of the chin that are used today. It plays a pivotal part in the correction of facial deformities, and since its inception various modifications have contributed to solving the specific problems of the face.^{1,2} This technique introduces another dimension to the already-existing modifications of genioplasty.

The chin is degloved in the usual manner through a translabial vestibular incision from one canine to the other down to the inferior border. The mental nerves bilaterally are identified, and a transverse osteotomy made from the midline 5 mm below the apices of the anterior teeth and about 5 mm below the mental foramen, which extends far beyond a conventional genioplasty to a point just anterior to the first molar apices. The bony cut is carried across the two cortices towards the inferior border, keeping it about 3–5 mm short, using either a sagittal or a reciprocating saw. Having ascertained that the osteotomy is through the lingual cortex, a Smith’s spreader is introduced through the osteotomy in the midline and gradually opened up to a desired level of augmentation until it produces a greenstick fracture at the inferior border bilaterally, mimicking a “bucket-handle” movement. The chin is now secured in position using a 2.0 mm titanium “T-plate” in the midline (Figs. 1 and 2). The wedge-shaped space created is obliterated using either an autologous or allograft material of the surgeon’s choice.³ A two-layered closure is made

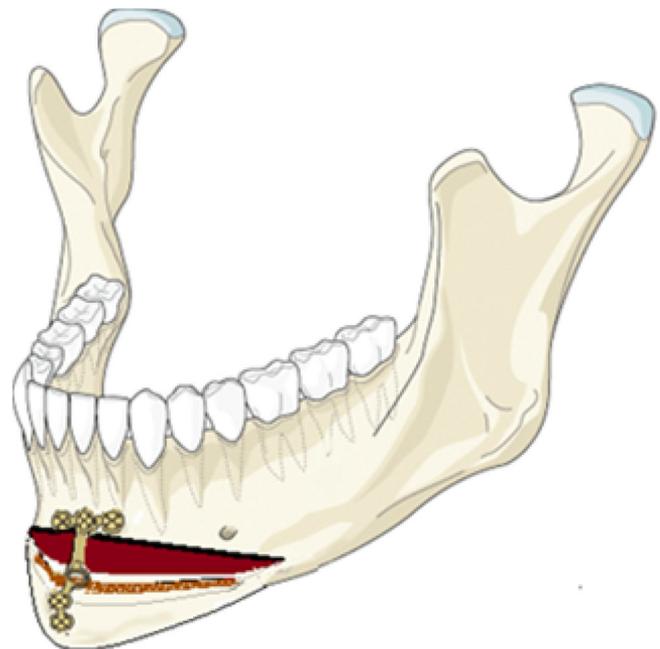


Fig. 1. Osteotomy showing the downward “bucket-handle” movement and the greenstick fracture at the inferior border bilaterally, with a 2 mm “T-plate” in the midline.

using 3/0 polyglactin 910 (Vicryl, Ethicon), which ensures a water-tight seal.

The technique is relatively simple, does not warrant any mobilisation of the osteotomy, and the greenstick fracture adds to the ease of handling and stabilisation. Maintenance of the continuity of the inferior border prevents a step deformity at the distal end of the osteotomy, and the midline is

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Fig. 2. Panoramic radiograph showing the “bucket-handle” movement, the wedge-shaped bony defect, the inferior border continuity, and the T-plate in the midline.



Fig. 3. Preoperative image showing severe labiomental intertrigo and vertical deficiency of the chin.

not altered by accident, which prevents the introduction of unanticipated asymmetry (an added advantage). The distal end of the osteotomy being 3–5 mm short of the inferior border facilitates the greenstick fracture, and does not allow it to move transversely or upwards. The interpositional grafts do not require any further stabilisation, as they are also wedged firmly in place. This is a useful and versatile technique when vertical augmentation of the lower third of the face is war-

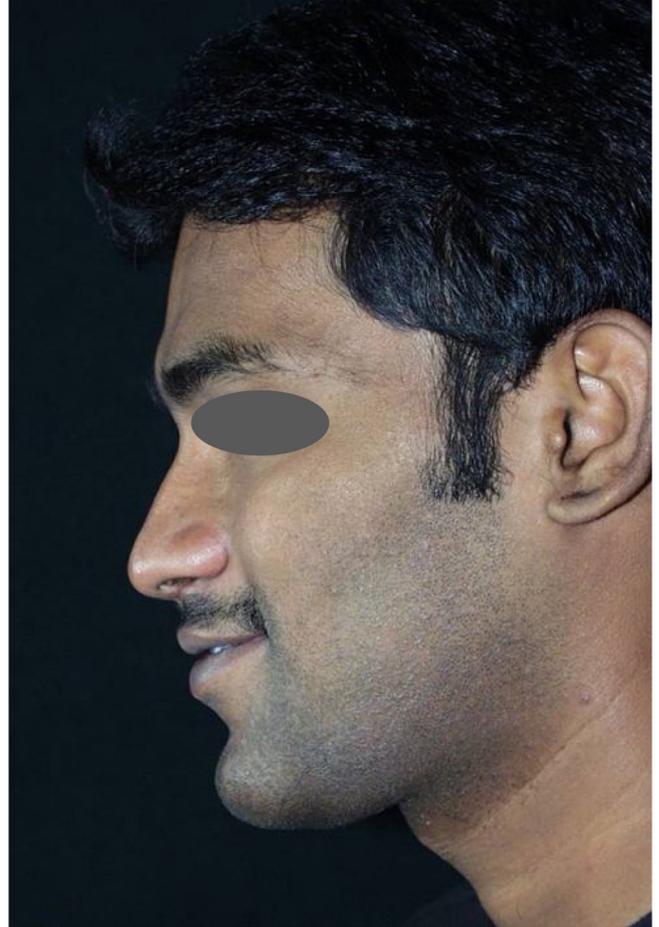


Fig. 4. Postoperative image showing correction of the labiomental intertrigo and vertical augmentation of the chin with elongation of the face.

ranted in the absence of sagittal deficiency. The technique can be extrapolated to various other clinical conditions such as correction of vertical deficiency of the chin, upturned chin with redundant soft tissue, severe labiomental intertrigo (Figs. 3 and 4), deficiencies of the lower third of the face with flabby lips, and it can also be used as an adjunct when correcting a square face.⁴

We have used the “bucket-handle” genioplasty for various interventions in more than 25 patients, and we think that it is a useful technical adjunct in the armamentarium of the orthognathic surgeon.

Conflict of interest

We have no conflicts of interest.

Ethics statement/confirmation of patient’s permission

Ethics approval not required. The patient’s permission was obtained.

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