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Technical note

The stair step genioplasty: a modification of the oblique sagittal sliding genioplasty

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The genioplasty has been a versatile procedure in the repertoire of a maxillofacial surgeon ever since it was conceptualised by Trauner and Obwegeser in 1957.[1] In most situations, a chin procedure improves the overall aesthetic profile and renders a better definition to the jaw line, which explains the evolution of various modifications. We introduce a modification to the existing oblique sagittal sliding genioplasty[2] that can augment the chin further than conventional techniques of advancement.

Technique

This technique comprises four osteotomies: two vertically descending oblique sagittal cuts, and two horizontal connecting cuts, which split the chin into two components, the superior and the inferior.[2] The two vertical cuts run inferiorly and posteriorly from the level of the mental foramen about 5 mm anterior, and culminate at the inferior border. These are connected across by two horizontal cuts, the superior one 5 mm apical to the canine root, and the second horizontal cut 8-10 mm inferior to the previous one (which keeps it just short of the lingual cortex) (Figs. 1 and 2). The first osteotomy is completed through the lingual cortices; the chin is then mobilised and advanced to its full cortical thickness, and fixed in position with 2.0 mm plates. The second horizontal connecting cut is completed through the lingual cortex to mobilise the inferior component, which is then further advanced to its full cortical thickness (Fig. 3), and secured in position using two 2.0 mm plates (Fig. 4). The sharp margins of the osteotomised segments are smoothed and the wound closed in two layers.

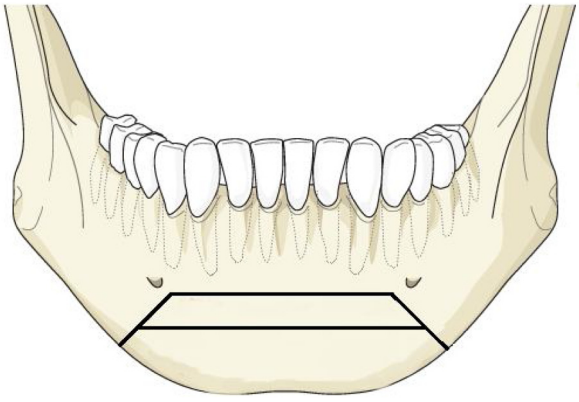

Fig. 1. Diagram showing oblique sagittal osteotomy cuts connected by two horizontal osteotomy cuts.

The double sliding genioplasty is a useful modification of the oblique sagittal sliding genioplasty, in which a large advancement of the chin is achievable. Although this technique involves twin osteotomies, the handling and fixation of the superior component is easy because it is first moved as a mono-bloc before the inferior component is cut. The fixation of the superior component before the second osteotomy also adds to the straightforwardness of the second, and enables comfortable handling and fixation of the inferior component.

The design of the stair step genioplasty also takes advantage of the oblique sagittal sliding genioplasty in terms of providing better osseous contact between all the segments

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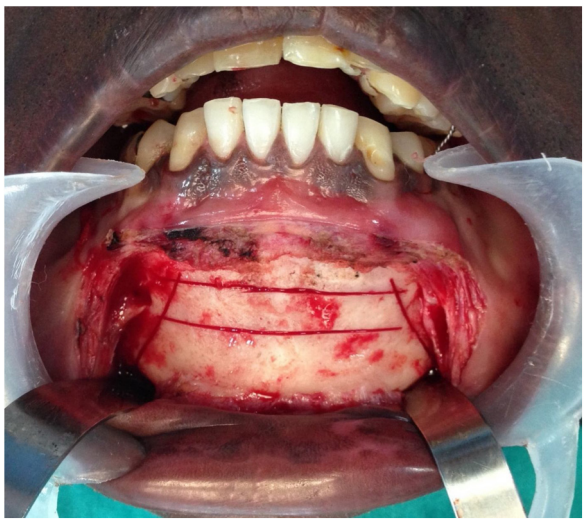

Fig. 2. Clinical photograph of the osteotomy cuts.

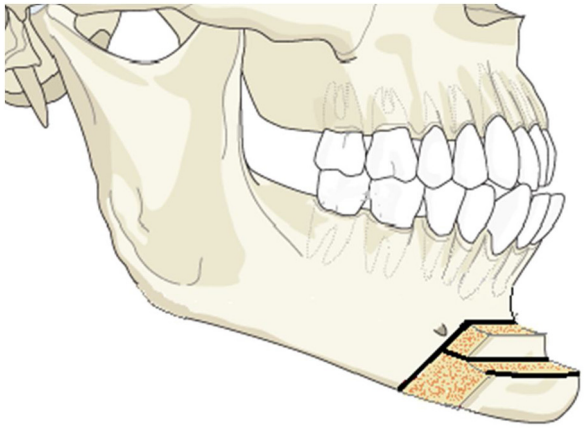

Fig. 3. Diagram showing the completed stair step genioplasty with the double cortical advancement.

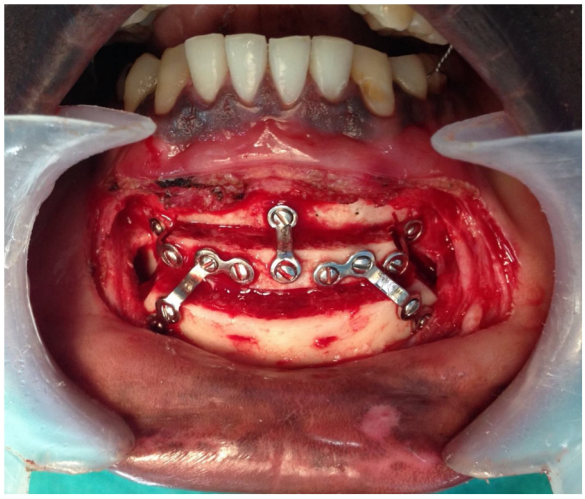

Fig. 4. Clinical photograph showing the completed stair step genioplasty and fixation.

of the osteotomy. It also provides maximum flexibility with regard to the degree of advancement desired, since the movement of the two fragments can be easily controlled. The double step also gives a better labiomental contour, unlike conventional genioplasty. However, the technique can be used only when the mandible is more than 25 mm higher than the apices of the incisors.

It is applicable in various clinical conditions such as severe class II skeletal profiles, bilateral ankylosed deformities of the temporomandibular joint, and other facial deformities[3] that warrant a huge advancement of the chin. This technique has been carried out in several cases of "bird face" deformities with gratifying results.

Conflict of interest

We have no conflicts of interest.

Ethics statement/confirmation of patient's permission

Ethics approval was not required. The patient's consent was obtained.

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