

Coronal-splitting Reduction Genioplasty Combined with Bilateral Osteotomies of the Mandibular Inferior Border for Macrogenia

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Summary: There are various types of chin deformities, and the least established surgical method for deformity correction may be reduction for anteroposterior macrogenia. Anteroposterior macrogenia is commonly corrected by either setback genioplasty or burring reduction, but these approaches are less likely to produce aesthetically pleasing results. Both procedures have poor reduction effects because of the low response rate of soft tissues to skeletal alterations. There is a high likelihood of chin ptosis and flattening. Setback genioplasty can also yield step deformities at the inferior mandibular border. To overcome these drawbacks of conventional methods, I developed a novel technique of coronal-splitting reduction genioplasty. I have performed more than 83 procedures with a high success rate over the past 10 years. Alloplastic chin implant-shaped bone fragments were resected from the prominent bony chin, in which the average thickness of resected bone was 8.2 mm. Sufficient sagittal reduction effects were then achieved in most cases, although the soft tissue response rate remains 25%–50%, as reported in the literature. The no-degloving technique with cephalic suspension of the mentalis muscle prevents chin ptosis. Combined bilateral oblique osteotomies of the inferior mandibular border contribute to minimizing obvious postoperative chin flattening. Moreover, macrogenia can be large in multiple planes, including anteroposterior, vertical, transverse, or their combinations. This new technique can handle all three planes by combining both bilateral oblique osteotomies of the inferior mandibular border and burr osteotomy. Overall, these findings suggest that the coronal-splitting genioplasty method may replace conventional methods for correcting macrogenia. (*Plast Reconstr Surg Glob Open* 2024; 12:e5725; doi: 10.1097/GOX.00000000000005725; Published online 8 April 2024.)

INTRODUCTION

The chin has a strong influence on facial aesthetics and harmony on both frontal and profile views. Some quantitative analyses are used to assess the position of the chin relative to the overall face, nose, and lips.¹ Briefly, if the soft tissue pogonion lies anterior to the most projecting portion of the lower lip, anteroposterior macrogenia may exist.² Anteroposterior macrogenia is commonly corrected by either setback genioplasty with a plate or burring of the pogonion.^{3,4} However, these approaches are less likely to produce aesthetically pleasing results. First,

both procedures may provide insufficient surgical effects because of the low response rate of soft tissues to skeletal alterations.⁴ Second, there is a high likelihood of chin ptosis, which can be quite unaesthetic.^{5,6} Third, an unnatural, flattened appearance of the chin may result.⁷ Fourth, setback genioplasty can yield step deformities at the inferior border of the mandible.³

In 2011, I developed a new technique of coronal-splitting reduction genioplasty to overcome these drawbacks of conventional methods. This innovative technique was inspired by alloplastic chin augmentation for microgenia. I thought that, in contrast, an alloplastic implant-shaped bone fragment could be removed with better results for anteroposterior macrogenia. The osteotomy was performed in a similar manner as in sagittal splitting ramus osteotomy.

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