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Use of Bone Grafts or Modified Bilateral Sagittal Split Osteotomy Technique in Large Mandibular Advancements Reduces the Risk of Persisting Mandibular Inferior Border Defects.

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Abstract

PURPOSE: Healing of the inferior border of the mandible can be compromised in large advancements, leaving an unesthetic defect at the inferior border. The objective of this study was to compare different bilateral sagittal split osteotomy (BSSO) techniques to prevent the incidence of lower border mandibular defects.

MATERIALS AND METHODS: The authors undertook a retrospective multicenter cohort study comparing 3 BSSO techniques for advancements greater than 5 mm: traditional non-grafted BSSO (group A), traditional grafted BSSO (group B), and modified BSSO (group C). The space created by the mandibular advancement was measured. The presence or absence of a defect was determined 1 year after surgery by clinical and radiographic assessment. The bone defect outcome was associated with potential risk predictors (age, gender, side of SSO, and magnitude of mandibular advancement) by logistic regression analysis.

RESULTS: A total of 1,002 operative sites in 501 patients were included in the study. Age (mean, 26.8 yr; standard deviation, 11 yr), gender (310 female, 191 male), and mandibular advancement (right, 9.3 mm; left, 10 mm) were similar among groups ($P > .05$). The proportions of postsurgical lower border mandibular defects were 54.5% in group A, 1.3% in group B, and 10.6% in group C. The traditional grafted and modified BSSO techniques were significantly more effective in preventing the incidence of mandibular lower border defects compared with the traditional non-grafted BSSO technique ($P < .05$).

CONCLUSION: Surgeons are advised that the traditional non-grafted BSSO technique produces a large proportion of mandibular lower border defects. Use of bone grafts or the modified BSSO technique in mandibular advancements greater than 10 mm markedly decreases the risk of persisting mandibular inferior border defects.