

V-Stand—A Versatile Surgical Platform for Oromandibular Reconstruction Using a 3-Dimensional Virtual Modeling System

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Purpose: The challenge of oromandibular reconstruction (OMR) after oncologic resections has been repeatedly addressed in the literature. Although final oncologic margins can be decided only during surgery, various attempts have been made to create an ideal and accurate platform for OMR. The purpose of this article is to present the V-stand, a versatile surgical platform for OMR using a 3-dimensional (3D) virtual modeling system.

Materials and Methods: Seventeen patients requiring an OMR were included in the study. A presurgical computed tomogram was obtained and virtual resection and reconstruction with a free fibular flap were planned using 3D virtual surgery software. The mandible was reconstructed intraoperatively using the V-stand, which served as a template for the lower border of the mandible and the lateral aspects of the stand were fixed to the proximal mandibular segments using 2-mm titanium screws.

Results: Patients' average age was 53 years (5 to 72 yr). Median follow-up was 19 months (2 to 35 months). All reconstructed mandibles resulted in good function and esthetics.

Conclusions: The V-stand offers a safe and time-efficient method for OMR. It provides an excellent means for accurate spatial positioning of a fibular free flap. The V-stand preserves the original dimensions of the reconstructed mandible and can overcome surgical ablation modifications because it is not dependent on the precision of the resection, but rather provides a mold for the entire mandible.

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The challenge of reconstructing a mandibular continuity defect is a well-discussed topic in the literature.¹⁻⁴ Among the causes for such a defect are ablative mandibular surgeries, inflammatory conditions of the

jaw (eg, osteomyelitis, medication-related osteonecrosis of the jaw, and osteoradionecrosis), trauma, and congenital defects, with the first accounting for most cases.⁵

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