REHABILITATION TECHNIQUES FOR ATROPHIC MAXILLAE: A NARRATIVE LITERATURE REVIEW

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Background: The rehabilitation of atrophic maxillae represents one of the greatest challenges in contemporary implantology, requiring in-depth knowledge of different available techniques and precise criteria for selecting the most appropriate approach. Maxillary atrophy, characterized by progressive loss of bone volume, significantly compromises conventional treatment options with dental implants, affecting approximately 40% of edentulous patients with 15% presenting severe atrophy that prevents conventional implant placement.

Objective: To conduct a narrative literature review on contemporary techniques for atrophic maxillae rehabilitation, analyzing their indications, advantages, limitations, and clinical results based on evidence published between 2014 and 2025.

Methods: A comprehensive narrative literature review was conducted including systematic reviews, meta-analyses, and relevant clinical studies published in the last decade. The search was performed in PubMed/MEDLINE, Scopus, Web of Science, SciELO, and Cochrane Library databases using specific descriptors related to maxillary atrophy, All-on-Four technique, zygomatic implants, and immediate loading protocols. Twenty-five high-quality references were selected following rigorous inclusion and exclusion criteria focusing exclusively on contemporary evidence from 2014-2025.

Results: Both the All-on-Four technique and zygomatic implants demonstrate high success rates exceeding 95% in long-term follow-up studies, with specific indications based on the degree of atrophy and individual anatomical characteristics. The All-on-Four technique proves effective for moderate atrophy cases (Cawood and Howell classes III-IV), offering advantages including reduced treatment time, lower morbidity, and immediate loading possibilities. Zygomatic implants constitute an excellent alternative for severe atrophy cases (classes V-VI), particularly with the anatomy-guided approach (AGA) that reduces complications and improves prosthetic outcomes. Immediate loading protocols demonstrate comparable results to conventional protocols when applied with rigorous criteria, offering significant quality of life improvements. Risk factor control, including systemic disease management and smoking cessation, proves fundamental for long-term success.

Conclusions: Contemporary atrophic maxillae rehabilitation requires a multidisciplinary and individualized approach, with evidence-based selection of the most appropriate technique for each clinical case. Current techniques offer predictable and effective solutions for complex cases that were previously considered untreatable, with technological advances in digital planning and biomechanical analysis contributing to improved outcomes and greater treatment predictability. The integration of digital technologies and refined surgical protocols promises continued advancement in this challenging field.

Keywords: Maxillary atrophy, Dental implants, All-on-Four, Zygomatic implants, Oral rehabilitation