

10 Keys for Successful Esthetic-Zone Single Immediate Implants: Importance of Biotype Conversion for Lasting Success

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Abstract: The concept of 10 keys for successful esthetic-zone single immediate implants is an evidenced-based summary for the treatment planning and replacement of a hopeless tooth in the maxillary anterior sextant. It includes two treatment-planning, five surgical, and three prosthetic keys. These keys are aimed at minimizing soft- and hard-tissue complications to achieve an optimal long-term esthetic implant restoration. Based on the 10 keys, which were described in a prior publication and are reiterated herein, the management of an immediate implant in the esthetic zone is considered a complex SAC procedure (SAC = straightforward, advanced, and complex). The present article highlights the importance of connective tissue grafting as part of the 10 keys and its role in biotype conversion and esthetic success that endures.

LEARNING OBJECTIVES

- Identify the 10 keys for successful restoration of esthetic-zone single immediate implants
- Discuss the importance of autogenous subepithelial connective tissue grafts for the long-term maintenance of facial contours and esthetics
- Explain why the placement of an implant in the esthetic zone is a "complex SAC" procedure

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As described previously by the authors, the concept of 10 keys for successful esthetic-zone single immediate implants is an evidenced-based approach to treatment plan and immediately replace a hopeless tooth with a dental implant in the maxillary anterior sextant.¹ The 10 keys comprise two treatment-planning, five surgical, and three prosthetic keys. The goal is to minimize soft- and hard-tissue complications to attain an optimal long-term esthetic implant restoration.

As has been discussed in the literature, immediate implant placement in the esthetic zone requires the clinician to be knowledgeable and experienced in a variety of areas. These include esthetic diagnosis, minimally invasive extraction techniques, oral plastic surgical procedures (eg, hard- and soft-tissue grafting, "gummy smile" correction/crown lengthening), and accurate 3-dimensional (3D) implant placement/restoratively driven planning and placement based on cone-beam computed tomography (CBCT) analysis.¹⁻⁴ Tissue-contour management requires prosthetic knowledge of provisionalization techniques to sculpt

peri-implant tissue for developing submergence contour from the implant shoulder to the mucosal zenith to adequately support the tissue. Final impression techniques must capture and transfer this submergence contour, or "transitional zone," to be duplicated in the final crown.¹ Under these guidelines the surgical and restorative treatment in the esthetic zone is considered a "complex SAC" procedure, according to the straightforward (S), advanced (A), complex (C) (SAC) classification system.⁵

In a 2009 systematic review, Chen et al suggested potential risk of facial gingival recession of up to 30% of all cases.⁴ They identified pre-existing defects of the facial bone, thin facial bone, thin soft-tissue biotype, and facial malposition of the implant as potential risk factors for gingival recession following immediate single-tooth implant placement. Recent systematic reviews by Levine et al² and Chen et al⁴ and consensus statements by Morton et al⁶ were written to organize the diagnosis, planning, and treatment of single-tooth implants in the esthetic zone, along with the treatment of complications around them. Their conclusions