

# International Guest Editorial

## MAXIMIZING AESTHETIC OUTCOMES WITH IMPLANT TREATMENT

Implants have been introduced to dentistry for approximately half a century with enhanced knowledge to achieve successful outcomes in the last two decades. It has now provided a predictable treatment option in restoring partial and complete edentulism for both aesthetics and function. Prosthetically driven, the aesthetic outcome of an implant supported prosthesis is a cumulative process of careful diagnosis, treatment planning and execution.

Diagnosis and treatment planning phase presents the utmost critical phase, clinicians need to recognize the aesthetic deficiency/potential problem, be able to correct the pre-existing aesthetic deficiency and minimize the occurrence of complications.<sup>[1]</sup> The three main areas to take note include (i) Bony height and width, (ii) Gingival contour and type, (iii) anatomical variations. The clinical findings arise from these areas will guide implant placement and decision on the need for correction/enhancement. Surgical techniques have been proposed that maintain the volume of the ridge as much as possible or enhanced it.<sup>[2]</sup>

Besides evaluation of the ridge form, an evaluation of the gingival form and adjacent teeth plays an equally important role to ensure acceptable aesthetic outcomes. The clinical parameters to be evaluated include patient's smile line, the amount of keratinized gingiva, the amount of gingival recession on adjacent teeth and the height of the adjacent dental papilla. Conventional diagnostic wax-ups or digital simulation can be used to evaluate tooth length and the potential for vertical grafting to avoid the overly long restoration. Placement of implants into areas with diminished ridge height as well as minimal keratinized gingiva will lead to excessive crown lengths and poor aesthetic outcomes.<sup>[3]</sup>

The execution of prosthetic phase should complement the surgical phase to arrive at the desired aesthetic results. Carefully planned laboratory work is essential to replicate the adjacent tooth shape and shade, and the mere placement of the restoration affects the buccal ridge profile.<sup>[4]</sup> At the level of the crestal bone and mucosa, an implant differs significantly from a tooth in terms of possessing a smaller diameter with a circumferential shape instead of the triangular cross-section observed in natural incisor teeth.<sup>[5]</sup> With this in mind, appropriate management of a provisional restoration may help to develop the contour of the peri-implant soft tissue so that an optimum emergence profile can be mimicked.

Various literature has been documented to enhance gingival contour using provisional restorations. Bichacho and Landsberg<sup>[6]</sup> recommended the use of a cervical contouring concept utilizing a customized temporary restoration to reshape the soft tissue around implants with a focus on the marginal soft tissue level and the facial zenith position. Rompen et al advocated the use of a concave transmucosal profile with an objective to minimize facial gingival recession.<sup>[7]</sup>

To maintain the gingival margin form and level with or without bone augmentation, the contour and smoothness of the restoration contacting the gingival tissues is critical to maintain the peri-implant tissue health. This emphasizes the importance of prosthetically driven implant outcomes.

## References

1. Buser D, Martin W, Belser UC. Optimizing esthetics for implant restorations in the anterior maxilla: Anatomic and surgical considerations. *Int J Oral Maxillofac Implants*, 2004;19(suppl):s43–s61.
2. Chen ST, Beagle J, Jensen SS, Chiapasco M, Darby I. Consensus statements and recommended clinical procedures regarding surgical techniques. *Int J Oral Maxillofac Implants* 2009; 24(suppl):s272–s278.
3. Kan JY, Rungcharassaeng K. Immediate placement and provisionalization of maxillary anterior single implants: A surgical and prosthodontic rationale. *Pract Periodontics Aesthet Dent* 2000; 12:817–824.
4. Jemt T, Lekholm U. Measurements of buccal tissue volumes at single-implant restorations after local bone grafting in maxillas: A 3-year clinical prospective study case series. *Clin Implant Dent Relat Res* 2003;5:63–70.
5. Gallucci GO, Belser UC, Bernard JP, Magne P. Modeling and characterization of the CEJ for optimization of esthetic implant design. *Int J Periodontics Restorative Dent* 2004;24:19–29.
6. Bichacho N, Landsberg CJ. Single implant restorations: Prosthetically induced soft tissue topography. *Pract Periodontics Aesthet Dent* 1997;9: 745–752.
7. Rompen E, Raepsaet N, Domken O, Touati B, Van Dooren E. Soft tissue stability at the facial aspect of gingivally converging abutments in the esthetic zone: A pilot clinical study. *J Prosthet Dent* 2007;97(suppl 6):s119–s125.

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