A Prosthetic Concept for Temporary Implant-Supported Restorations

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Introduction

Bone possesses the capacity for functional adaptation due to its capability to respond to changes in loading with remodeling of internal structure. Such bone adaptation after reentry operation of endosseous implants can achieve an optimum biomechanical situation as long as the loading forces are not excessive.

Temporary acrylic restorations are used to limit occlusal forces and to reshape the emergence profile of gingival tissue. FRIALIT®-2 ProTect flexible abutments are used at time of implant uncoverly to produce temporary acrylic restorations. A procedure is described which is able to limit occlusal load transfer and allows to customize peri-implant soft tissue contour at stage II surgery.

Influence of crown length on bone deformation

Increasing height of crown enhances stress level of cortical bone level linearly

Laboratory fabricated acrylic crown

Shortened FRIALIT®-2 ProTect according to occlusal height

Clinical try-in of customized FRIALIT®-2 ProTect abutment

Cemented temporary crown in situ - note soft tissue margin

Chairside temporary crown

Placement of FRIALIT®-2 ProTect abutment for direct screw-retained provisional restoration

Acrylic crown on FRIALIT®-2 ProTect for customization of soft-tissue emergence profile

Laboratory fabricated bridge

Temporary bridge with FRIALIT®-2 ProTect abutment

Temporary restoration stabilizes occlusion but limits transversal forces

Conclusion

Two factors are considered as decisive to prevent overloading and resulting peri-implant bone resorption: Occlusal load and restoration-abutment flexibility. While occlusal load can hardly be limited, the transversal load transfer to the bone can be reduced by the use of acrylic restorations on temporary abutments. Only one third of the moments are created in the bone compared to standard titanium abutments at the same deflection at the occlusal plane. Besides biomechanical benefit the use of customized temporary crowns enables the clinician to manage the soft tissue in esthetically challenging cases. The poster presents a rationale to gradually load implants with a temporary abutment (FRIALIT®-2 ProTect) after the initial bone interface has been established.

Literature


Poster Presentation

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