



Peri-Implantitis Management in All-on-4 Treatment Concept™ Cases

A procedure for correcting defects around tilted and horizontal implants

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As the popularity of the All-on-4 treatment concept (Nobel Biocare; www.nobelbiocare.com) continues to rise in the treatment of fully and partially edentulous cases and in the early treatment of “terminal dentitions,” the focus on long-term follow-up and care of these cases becomes more important. Tilted implants offer a specific challenge because they enter the alveolar structures at a 45° angle and, when seated to the desired level, already create a potential defect as half of the coronal portion of the implant is below the osseous crest or, in some cases, left above the ridge.¹⁻⁶ At the time of surgery, the ideal solution to correct for subcrestal platform or supracrestal platform implant placement involves leaving the distal aspect of the implant subcrestal and the medial aspect of the implant at the alveolar crest. Bone-level implant designs are preferred for these types of procedures. With proper placement and correct selection of the angled or straight multi-abutments at the initial surgical procedure, the biologic seal formed by the gingival tissues to the multi-abutments and coronal aspect of the bone-level implant fixtures remains intact throughout the entire healing phase, as well as throughout the construction of the definitive prosthesis.⁷⁻⁹ However, alterations to the well-defined

clinical protocols, improper bone reduction techniques, insufficient debridement of residual tooth sockets (in partially edentulous cases), improper implant depth placement in the alveolar crest, poor closure techniques, and a lack of preservation of a sufficient volume of attached, keratinized tissues can all lead to early-onset bone defects around the coronal aspects, precipitating peri-mucositis or peri-implantitis in these types of cases.¹⁰⁻¹⁹

Peri-Mucositis/Peri-Implantitis

In peri-mucositis, the disease process is confined to the soft tissues, with no loss of supporting bone around the dental implant(s).¹⁴⁻¹⁹ Bleeding on probing, suppuration, and probing depths generally less than 4 mm are the main indications when diagnosing peri-mucositis cases.¹⁴⁻¹⁹ In peri-implantitis, the symptoms that are observed are the same as in peri-mucositis cases with the addition of supporting bone loss noted around the implant(s).¹⁴⁻¹⁹ Significant factors leading to the development of peri-implantitis include poor hygiene, improper space under the prosthesis, poor

anteroposterior spread, and excessive load distribution. It is commonly understood and accepted that peri-mucositis is a precursor to peri-implantitis, and that the bacterial flora present in these case types (Gram-negative anaerobic bacteria) are similar to those generally seen in advanced periodontitis lesions.²⁰⁻²²

When bacteria adhere to titanium surfaces, a biofilm layer forms that can lead to infection and the development of peri-mucositis and/or peri-implantitis.¹⁴⁻²² Successful management and treatment of both peri-mucositis and peri-implantitis requires the removal of this biofilm layer.²³⁻²⁷ Peri-mucositis will often be successfully managed by this process, while peri-implantitis usually requires a much more involved process to manage the loss of the supporting bone around the implant.²⁸⁻²⁹ This process includes the sterilization, detoxification, and decontamination of all implant surfaces affected by the peri-implantitis destruction.³⁰⁻³⁶

Treatment Options

Peri-mucositis can generally be managed by non-surgical, minimally invasive means and



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(1.) Pretreatment clinical view.