Meet the latest Komet innovations!

Peri-implantitis Kit
Intended for the surgical treatment of Peri-Implantitis, this kit is suitable for mechanical cleaning and smoothing of the implant surfaces made of pure titanium.

Advantages:
- Total length of 30 mm: Deep regions can be reached with ease
- Smooth result: The instruments come with a normal and an ultra-fine toothing. When used in combination, these can achieve a remarkably smooth surface.

“With biological implant complications increasing in prevalence, the Peri-Implantitis Kit from Komet is an absolute MUST-HAVE for any practicing clinician that treats peri-implant disease. Often, the implantoplasty aspect of treatment is difficult due to access. This is not an issue with this kit. The extra-long shanks and contour of the heads make this the ideal tool for navigating around restorations to remove roughened implant surface coatings.”

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Implantoplasty Treatment of Two Peri-Implantitis Cases

Dental implants are used extensively to replace both single and multiple missing teeth as well as edentulous arches. For many years, it was believed that long-term survivability was assured as long as an implant successfully osseointegrated. It is clear, however, that, like teeth, dental implants can suffer from both inflammation and bone loss. Left unchecked, peri-mucositis may progress to peri-implantitis, which can ultimately lead to loss of the implant and connected crown and prosthesis.

In 2017, the World Workshop on the Classification of Periodontal and Peri-implant Diseases and Conditions co-sponsored by the American Academy of Periodontology (AAP) and the European Federation of Periodontology (EFP) met to create a new classification system for periodontal and peri-implant disease and conditions. (1) Peri-implant mucositis is an inflammatory lesion of the soft tissues surrounding an endosseous implant in the absence of loss of supporting bone or continuing marginal bone loss. A cause-and-effect relationship between experimental accumulation of bacterial biofilms around titanium dental implants and the development of an inflammatory response has been demonstrated. (2) Peri-implantitis is defined as a plaque-associated pathologic condition occurring in the tissue around dental implants, characterized by inflammation in the peri-implant mucosa and subsequent progressive loss of supporting bone. (3)

The clinical and histological features of the periodontal and peri-implant lesions are similar in terms of size and microbial composition (gram-negative anaerobic rods, fusiform bacteria, motile and curved rods and spirochetes). Furthermore, the peri-implant lesions are characterized by modifications of some clinical parameters such as gingival index, bleeding index, and probing pocket depth (PPD), and they frequently evolve in a crater-like bone defect that surrounds the contaminated implant surface. In particular, adherence and colonization of microbiota on plaque-exposed biomaterials, like C.P titanium, are discriminant factors for the development of infection (14). Rough implant surfaces generally enhance initial adhesion, attachment and colonization of bacteria, and influence plaque formation and maturation (15). Consequently, these surfaces support the onset and growth of the peri-implant disease more than smooth implant surfaces (16).

Resective or regenerative surgical approaches are proposed for the treatment of peri-implantitis depending on the morphology and the shape of the bony defect (17).

In particular clinical conditions, such as peri-implantitis with suprabony defects, one-wall infrabony defects or buccal dehiscence in non-aesthetic regions, some authors suggested the application of resective surgery with ostectomy or osteoplastic, apically repositioned flaps (18, 19) and polishing of the transmucosal part of the implants (20) which is known as IMPLANTOPLASTY.

The end points of resective surgery are reducing PPD and gaining a soft tissue morphology that enhances good self-performed oral hygiene and peri-implant health.
The therapeutic approach of peri-implantitis surrounding rough implants comprises several aspects (21):

(a) removal of supragingival bacterial plaque.
(b) surgical approach with access flap.
(c) removal of granulation tissue and de-toxification of the exposed implant surface.
(d) correction of the anatomical architecture of the bone.
(e) modification of the roughness of implant surface (Implantoplasty).
(f) establishment of an efficient plaque control regimen.

Implantoplasty has been always a big challenge in implant dentistry due to several factors:
- Difficulty of accessing the affected surfaces with the size and the shape of the traditional burs available.
- The need for removing/replacing the prosthesis in order to reach the affected surfaces, due to the limited length of burs available in the market.
- Lack of burs with special cutting design for thread removal and titanium polishing with a reduced overheating possibility and efficient cutting.
- The probability of weakening the mechanical strength of the fixture after the application of random cutting burs with uncontrolled forces.

In the following two case reports, the implantoplasty concept has been applied in peri-implantitis cases utilizing a special rotary burs kit by Komet (kit 4684).

Case 1 demonstrates a single implant with crown in the #20 position. Bleeding on probing was present with minimal evidence of bone loss on the radiograph, and one may assume that peri-implant mucositis was the correct diagnosis. Clinically, 6 mm of pocket probing depth on the buccal aspect, tenderness on palpation, active suppuration and inflamed gingiva were detected.
Interestingly, when tissue is reflected there is clearly a cuff of inflammatory tissue with exposure of the roughened implant surface. It is unclear if residual excess cement was an issue due to supportive, non-surgical protocols that were employed prior to surgical intervention. Often, residual excess can only be verified with surgical exposure.(4-7)

As previously discussed, the management of implant infection should be focused on the control of infection, the detoxification of the implant surface, and regeneration of the alveolar bone. The resective therapy associated with mechanical polishing of implant surface (implantoplasty) seemed to positively influence the survival and the clinical parameters of oral implants affected by an inflammatory process.(8, 9).

Considering the minimum facial bone remodeling, the sufficient bone support, and the thick phenotype of the tissues available, an implantoplasty procedure was performed with no additional soft or hard tissue grafting. Rotary instruments were used under excessive irrigation, and the final polished surface was rinsed with Sodium Chloride solution before suturing the flap with 6/0 Polypropylene interrupted sutures.
The case was followed up for 8 weeks. Signs of inflammation were resolved. Long-term follow-up to be performed.

Case 2 illustrates moderate bone loss on the posterior right implant in the #20 area. Excessive occlusal load does not necessarily lead to bone loss; however, excessive occlusal load in the presence of inflammation does seem to lead to bone loss. Prosthetic design must include smooth intaglio convex surfaces to minimize plaque adherence and facilitate daily patient hygiene. Perhaps for patients who lack the ability or motivation to maintain a fixed removable prosthesis, removable implant prosthetics should be considered. It may be argued that if a patient has a terminal dentition exasperated by poor homecare or other factors such as smoking, or diabetes, implant therapy must include individualized supportive care to avoid or treat peri-implantitis.

Recontouring both the bone and the intaglio of the prosthesis distal to the #20 implant should improve the patient’s ability to reduce plaque and inflammation. The patient’s prosthesis clearly has plaque on the left-side concave surface but not on the right-side convex surface. The bone health on the right-side implants is superior to the left-side implants. Often, inadequate bone reduction occurs distal to posterior implants in fixed removable prosthetic cases. Restoring dentists need to give surgeons clear instructions so they may perform adequate bone reduction for appropriate prosthetic space and hygiene. Many peri-implantitis cases can be voided with proper planning and execution. In this case, the length of the distal cantilever may be a concern to some based on the opposing dentition. It will be interesting to monitor the future tissue health (bleeding on probing) and possible bone loss radiographically. If the peri-implantitis remains arrested in this patient, it would suggest inflammation rather than occlusion was the key element to bone loss and reinforce implantoplasty as an appropriate modality to treat peri-implantitis.


