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DISEASES OF PERI IMPLANT AND COLLABORATIVE TREATMENT PLANNING

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Traditional goals of the dental profession are to conserve the natural dentition for the life of the patient. In cases where dental disease presents, such as caries, periodontal disease, endodontic disease, etc, the goals are to restore the teeth and supporting structures to a state of health, function, and aesthetics. Periodontists, working in collaboration with restorative dentists, diagnose and treat gingivitis and the various forms of periodontitis—both chronic and aggressive—in an effort to help our patients keep their natural teeth. Clinical procedures such as the elimination of pathological pockets, crown lengthening, and rebuilding of the lost surrounding soft and hard tissues are some of the technique's periodontists use to control and reverse the disease process. If the natural tooth cannot be saved, periodontists are able to prepare the supporting tissues for any necessary restorative therapy. With the advent of dental implants, new options have become available for the replacement of teeth that could not be preserved. Currently, teeth with hopeless prognoses can be extracted and successfully replaced by implant supported restorations. For patients who present with poor bone quality or tissue deficiencies, periodontists are able to rebuild bone and soft tissue using ridge, sinus, and socket augmentation procedures along with autogenous and allogenic soft tissue grafts. In fact, success rates of implants placed in regenerated bone have been reported to be equal to that of implants placed in native bone.[1] The key to achieving long-term success of dental implants goes beyond just ensuring that they are placed in an ideal environment. Dental implant success also requires professional monitoring and careful maintenance by both the periodontist and restorative dentist. However, as periodontists and restorative dentists collaborate in placing and restoring an increasing number of dental implants, they have become aware of a new threat to implant survival: peri-implant diseases.

Peri-Implant Disease

Peri-implant diseases are typically categorized into one of 2 forms: peri-implant mucositis and peri-implantitis. Peri-implant mucositis is an inflammatory disease confined to the soft tissue with no sign of supporting bone loss. Moreover, peri-implant mucositis may be successfully treated using nonsurgical efforts if detected early. Peri-implantitis is defined as inflammation of the soft tissue surrounding an implant and is associated with progressive loss of supporting bone. Without proper treatment, peri-implantitis can result in loss of the implant.[2] The reported prevalence of periimplantitis varies depending on the definition and threshold of bone loss. Studies of peri-implantitis prevalence report a range of 6.6% to 36.6% of implants placed.[3] In a recent systematic review of the literature by Mombelli et al,[4] the disease was found in 20% of patients (corresponding to 10% of implants placed) within 5 to 10 years following implant restoration and natural bone remodelling. Even using the most conservative thresholds to define peri-implantitis in the various published studies, these numbers represent a significant number of implants developing peri-implantitis following placement of the final implant supported restorations.

Prevalence of Peri-implantitis

To understand the significance of this disease, one has only to look at research from the Millennium Research Group (an independent research organization) which reported that in 2012, 2.15 million implants were sold in the United States alone.[5] Assuming these implants were placed and restored; a 10% prevalence rate would mean 215,000 implants placed in one year only will suffer from peri-implantitis. A 5to10year extrapolation, assuming the same number of implants placed as in 2012 (despite the projection for these numbers to rise), would mean 1.275 million implants in 5 years and 2.55 million implants over a period of 10 years would be affected by peri-implantitis. This again is the prevalence of implants placed in the United States only. Based on the number of implants placed in the US, Europe, and Asia Pacific area, this number would increase approximately 5 times.[6] These data indicate a substantial number of implants that

will require peri-implant treatment to avoid implant loss. According to many researchers, peri-implantitis resembles periodontitis in etiology, the pathogens involved, and progression. As a result, it is common for the periodontist to be confronted with the diagnosis and treatment of implants affected with peri-implantitis. Periodontists should be considered key partners of the general and restorative dentist in helping to ensure that our patients keep their implants for life. While it is universally accepted that not all patients with peri-mucositis will develop peri-implantitis, it is recommended that peri-implantitis should be treated as soon as possible. Diagnosis is oftentimes first made by the treating dentist or his/her hygienist based on bleeding on probing around an implant combined with progressive loss of bone support. Although treatment strategies may vary, it has been reported from several reviews of the literature that nonsurgical therapy is not effective for treating peri-implantitis.[7] The goal of treatment must include arresting the disease process, and where possible, reversing bone and soft tissue loss.

Treatment of Peri-implantitis

Several reviews have discussed treatment options for peri-implantitis. Recently, research was published that looked at the regenerative treatment of 51 implants with a 3 to 7.5year follow-up period.[8] The bone fill and pocket reduction reported in this study was even more significant in light of the fact that there was no increase in peri-implant soft tissue recession following treatment. In fact, there was a reported gain in soft tissue levels ranging from zero to 4 mm and averaging more than one mm. This is encouraging for both the clinician and patient because it demonstrates that peri-implantitis can be treated while improving the aesthetics of the surrounding soft tissue. More research is necessary to optimize these results, but the ability to return a diseased implant to a state of health when compared to the time, cost, and pain involved in removing an implant, rebuilding bone and soft tissue and replacing and restoring a new implant is well worth the effort. A recent report published by the American Academy of Periodontology,3 "Peri-Implant Mucositis and Peri-Implantitis: A Current Understanding of their Diagnoses and Clinical Implications, " reviewed the diagnosis and prevention of peri-implant mucositis and peri-implantitis. This report3 provides a comprehensive review of the current knowledge of peri-implant mucositis and peri-implantitis, and is intended to guide dental professionals in their diagnoses and disease prevention.

Collaborative Maintenance of Implant Restorations

While any dental professional would prefer to help patients preserve the natural dentition, when that is not possible, dental implants provide an excellent replacement solution. During the past decade, research indicates that when properly placed, restored, and maintained, dental implants demonstrate survival rates of more than 95%.[9] Similar to natural teeth, the long-term maintenance of dental implants depends on a collaborative effort among the patient, periodontist, restorative dentist, and hygienist. In addition to diligent home care by the patient, regular professional maintenance and effective communication between the periodontist and restorative dentist has been shown to be the difference between implant failure or recurrence of peri-implant disease and successful long-term outcomes. Early diagnosis of disease or disease recurrence is most often in the purview of the general dentist who is monitoring and maintaining the health of the teeth and implants, and any findings or concerns should be efficiently communicated to the periodontist as needed. In this way, our profession is able to offer new and successful restorative options to our patients and ensure function and aesthetics for the lifetime of the patient.

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