

When Failure is Not an Option

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Research Question

“What treatment modalities are most effective at treating peri-implantitis (PI)?”

Most Effective Treatment of PI

Dental implants are one of the most innovative ways to support dental prosthetics. They can support heavy physical loads. However, infection causes inflammation and bone loss around implants. Studies indicate that there are many factors that can increase the risk for PI. These factors include:

- Smoking
- Pre-existing periodontal disease
- Oral hygiene, quality of prosthetic reconstruction
- Some systemic conditions and medications (10).

There are a significant amount of treatment options for PI that range from surgical, nonsurgical, antibiotics, and even lasers. While reviewing studies related to PI, it was apparent that using more than one treatment option works well. Multiple studies looked at the use of antibiotics after surgical debridement and decontamination. The results showed there were high success rates for the implants and most implants reduced periodontal behaviors such as deep pockets and recession (7). The difference between successful treatment and failure may revolve around the degree of chronic inflammation associated with bone loss, as well as biocompatibility of the implant to tissues. (12). Early detection and treatment of mucositis, peri-implant bone loss, and peri-implantitis appear to be key factors that determine the prognosis of implant-supported restorations.



PI and Treatment Options

- PI is an inflammatory condition characterized by loss of supporting bone in the tissues surrounding the implant (3).
- Bacterial infections play the most important role in the failure of dental implants (4).
- Studies have also shown a similarity in bacterial flora associated with PI and periodontitis (3).
- Most effective treatment options for PI
 - Surgical Therapy
 - Anti-infective Therapy
 - Local Debridement
 - Implant surface decontamination
 - Er:YAG Laser which emits light with a wavelength at a setting that is infrared light (9).

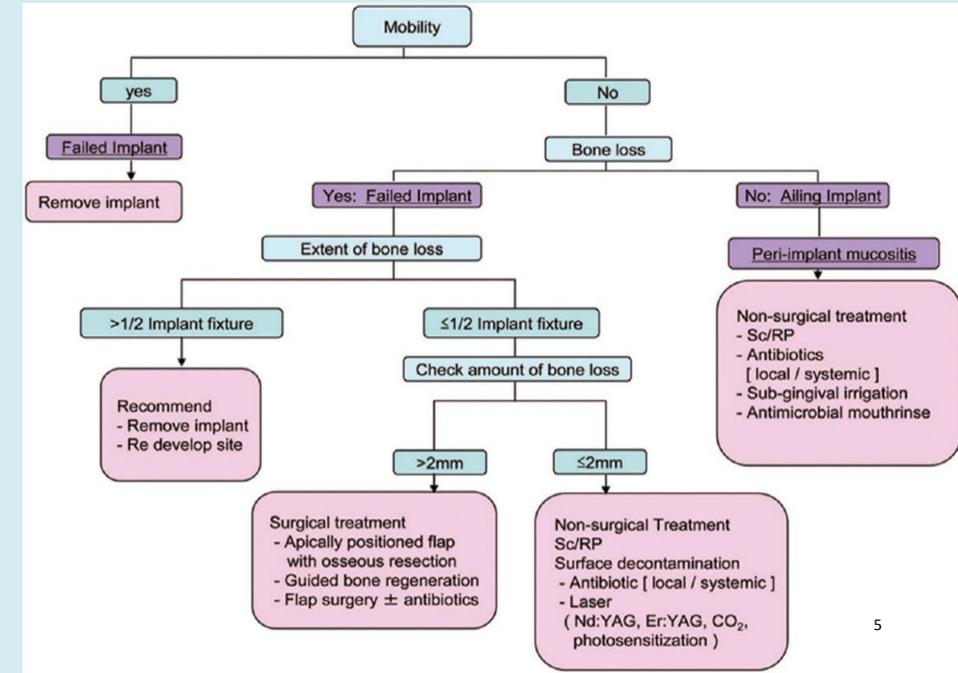
Literature Review of PI

- Surgical treatment of PI is effective in the long term (6).
- Implants with non-modified rather than modified surfaces have a better outcome (6).
- Using anti-infective therapies have proven to be effective in resolving inflammation and improving alveolar bone levels (4).
- Anti-infective therapies must be coupled with another strategy (surgical, mechanical, etc) for dealing with PI (4).
- The combination of surgery and post-operative antibiotics on patients with PI showed a success rate of 92% for a 12-month disease free period (7).
- Treatment with the use of an Er:YAG Laser showed a decrease in plaque index, pocket depths and attachment loss (8).
- Osseous resective therapy conducted on 31 patients; 86 total implants, who were treated with bone recontouring found that 48% of the patients had no recurrent peri-implantitis (10).
- Implants with initial to moderate peri-implantitis treated with mechanical debridement accompanied by glycerin-based powder air polishing in a 6 month period was found to have improved PPD and CAL (11).
- Glycerin-based powder air polishing to be effective in reducing inflammation of peri-implantitis (11).
- Osteoblasts adhere more rapidly to rougher titanium surface (12).
- The most beneficial treatment option to remove pathogenic bacteria was air-abrasive polishing (12).



Let's Talk

- There are many different treatment types for peri-implantitis.
- Antibiotics are a good treatment option for long-term success. However, they can not be used alone and must be used in combination with other treatments (4).
- Laser usage on PI showed significant health outcomes. Although the findings were slightly inconsistent with each patient; some implants showed an increase in these outcomes (8).
- Osseous resective therapy showed there was only about a 50% chance of success (10).
- Glycerin-based powder air polishing also showed a decrease in inflammation. The roughness of the titanium plays a role in bacteria formation of PI (11).
- Limitations to these studies include the number of patients used and factors that are observed.
- There is a need for further studies to look into more combination treatments. What combinations work best? What combinations work less effectively?
- Other studies should look into additional factors such as age, gender, geographical, etc.



What to IMPLANT in Your Office

There are many factors that can contribute to the inflammation related to peri-implantitis. The previously mentioned research concluded that the most effective modalities in the treatment of PI should likely be used in combination with one another. These treatments consist of mechanical debridement, antibiotics, and biocompatibility of osteoblasts with titanium. These treatments are highly effective in eliminating PI: PI will reoccur if the patient does not have adequate home care.

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