PERI-IMPLANTITIS

Recognition, Prevention, and Treatment

May 10, 2019
Disclosure

• Private practice in “Periodontics”
• Utilize multiple implant systems & designs
• **Not** employed by any company or University
• **Not** received personal grants or subsidies
• Have received sponsorship for lectures
• ODA compensation for this seminar
Increasing Complications: Why?

• More dental implants being placed
• More inexperienced implant dentists
• Inadequate training courses taken
• Lectures relaying unrealistic simplicity
• Aggressive treatment of non-ideal sites
• Unproven materials / techniques
• Longer term follow-ups up to 30 years
• Increased Peri-implantitis over time
“Peri-implantitis” Seminar Objectives:

• Cover peri-implantitis with an “Evidence Based Approach”
• Review diagnosis and recognition of peri-implantitis
• Identify peri-implantitis “Risk Factors” (Etiology)
• Include peri-implantitis experiences from our Private Practice
• Discuss preventative approaches to reduce peri-implantitis
• Show non-surgical and surgical peri-implantitis treatments
Peri-implantitis

• Recognition
• Prevalance
• Etiology
• Risk Factors
• Prevention
• Treatment
2017 EAO / AAP World Workshop #4 on “Peri-Implantitis”

• “Peri-implant Health”: absence of visual signs of inflammation & BOP

• “Mucositis”: presence of visual signs of inflammation and bleeding on probing. Strong evidence that Mucositis is caused by PLAQUE.

• “Peri-implantitis”: a pathological condition occurring in tissues around dental implants, characterized by inflammation in the peri-implant connective tissue and progressive loss of supporting bone

• “Peri-implant Soft and Hard Tissue Deficiencies”: multifactorial etiology for tissue shrinkage e.g. tooth loss, infection, trauma

• Journal of Periodontology / Volume 89, Issue S1
• Frank Schwarz, Jan Derks, Alberto Monje, Hom-Lay Wang
Crestal Bone Loss: Clinical Effects

• Periodontal
  • Bleeding, exudate, pain

• Esthetic
  • Recession, redness, swelling

• Implant loss

• Implant fracture

• Mandibular fracture
<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Therapy</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>History of Periodontitis</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Poor Plaque Control</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Implant: (design / surface)</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Prosthesis: (fit / poor hygiene access)</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Iatrogenic: (excess residual cement / implant position / surgical trauma)</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Diabetes / Smoking</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Bone Deficiency</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Keratinized Mucosa</td>
<td>✔️</td>
<td>☑️</td>
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<tr>
<td>Genetic Susceptibility</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Systemic Diseases / Load</td>
<td>☑️</td>
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<tr>
<td>Radiotherapy</td>
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</tbody>
</table>
“Cluster Failures” of Dental Implants:

Genetic Susceptibility? or Contamination? / Titanium Allergy? / Foreign Body Reaction?

- 770 implants, 4 failures, 128 patients
- 4 failures all occurred in 1 patient (All on 4)
  Drago, C in J Prosth, 2017

- 8,337 implants, 592 failures, 1,406 patients
- 56.5% of failures occurred in 4.77% of patients
  Dental Clinics of North America, 2017
ABSTRACT: RESULTS: The influence of smoking on the healing process around implants has been explored for potential disruption of the healing process and periimplant disease development. Despite the discussed results in many studies, most of the analyzed literature shows a scientific basis to determine smoking as a risk factor for periimplant disease development, considering that smoking increases the susceptibility to periimplant disease. However, future studies excluding confounding factors are needed.

CONCLUSION: Smoking is a real risk factor that increases the likelihood of development of periimplant disease.
2017: Peri-Implant Bone Loss: An Overview of Systematic Reviews

• 41 Systematic Reviews included

• Summary of Risk Factors:
  • Periodontitis: Aggressive > Chronic
  • Smoking: Maxilla > Mandible
  • Gender: Men > Women

Implant Dentistry, 2017
Fixed Implant Reconstructions: Biological and Prosthetic Complications:

**Oral Hygiene Risk factor**

- **Peri-implantitis:**
  - 1.81% good oral hygiene (n=55)
  - 5.72% moderate oral hygiene (n=174)
  - 13.44% poor oral hygiene (n=409)

- **Marginal Bone Loss:**
  - 0.18mm with good oral hygiene
  - 1.62mm with periimplantitis

- **Other Risks:** Bruxism / heavy smoking

Excess Cement and Peri-Implantitis: Systematic Review and Meta Analysis

• 26 studies, 945 patients, 1,010 cemented restorations

Conclusion:
• Excess cement was a risk factor for Peri-implantitis

Peri-implantitis Treatment

Evaluating Implants

Peri-implant Mucositis
Peri-implantitis
Peri-implantitis Treatment

Mucositis

- Scaling + OHI
- Rinses
- Lasers
- Antibiotics
- Surgery

Peri-implantitis

- ?
- X
- X
- ?
- ?
Peri-Implantitis: Treatment Options

Peri-implantitis has been defined as a localized lesion involving bone loss around an osseointegrated implant. Its prevalence has been widely reported8 depending on the chosen threshold and specific study, varying from as low as two percent to as high as 58 percent of implants. Although a well-accepted threshold and prevalence is currently unavailable, it would appear that peri-implantitis occurs in about one out of every ten implants.2,3 Despite this high frequency, treatment options for peri-implantitis are poorly studied. A 2013 Cochrane review concluded that the evidence available on peri-implantitis treatment is of insufficient quality and quantity and that more research is needed.24

Peri-implantitis is not only frequent, but a serious complication. Implants have the potential to last a patient’s entire life and peri-implantitis can lead to disintegration and early loss of implants and their supported prosthesis. To treat such lesions, one may approach it similarly to periodontitis as both diseases share many features. Both diseases can be initiated with peri-implant pathoses and both have similar clinical presentations, including deep probing depths and bleeding. Even the microbiology cultured from both are similar.2,27 But histologically and pathologically, the diseases vary. The microbiology of peri-implantitis is more diverse than that of periodontitis, with lower levels of red complex species.24 Histologically, peri-implantitis is much more infiltrative near the alveolar crest and often lacks a protective layer of tissue over the bone as so typically.