

Non-Surgical and Surgical Management of implants, in Health vs. Disease

Optimizing treatment therapies and outcomes with implants

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Course Description:

Implants have been revolutionary, but the long-term management can still be tricky. Whether it is the anatomy, the soft tissue management, or other factors, we still observe various complications around implants over time. During this course, we are going to review several techniques and instruments to maintain implants and attempt to improve their prognosis and longevity.

Introduction

A lot of questions. A lack of consistency.

Outline of presentation

Basic information about implants

The beginning: Dr. Brånemark

Implants are great! Cases

Implants vs. Other treatment options to replace teeth

Important concepts

1. Anatomy: Periodontium vs. Peri-implant soft tissue
 - a. And we'll discuss later how it relates to probing ...
 - b. Anatomy during healing, Case
2. Platform-switch and Biologic Width, Case
3. Screw-retained vs. Cement-retained prostheses
 - a. We'll talk further about cement complications later

Cases: focusing on those concepts and soft tissue response

Brief review of other procedures in relation with implant therapy

1. GBR/bone grafting of the ridge after severe horizontal ridge resorption and deficiency
2. Atraumatic extraction with immediate implant placement #25, #7, #14, #19
3. Implant-supported mandibular overdenture (2 cases, 1 with Stage 2 APF)
4. Extractions of remaining mandibular teeth, alveoloplasty, immediate implants placement, including 2 temporary implants
5. Indirect sinus augmentations
6. Direct sinus augmentation
7. Explantations, GBR, implant placement

Problems with implants and complications (~10 cases)

Nowadays, there are 15 million implants placed a year, and some studies state that the incidence of peri-implant diseases is 48%.

Goals and contributions from RDHs

Work-up and Process around an implant: Walking through a case

- Work-up
- Exploratory surgery, atraumatic extraction, and GBR/site preservation
- Healing
- More work-up
- Implant placement
- Final restoration

Maintenance plan

Patient education, Motivation, and OH instructions

1. Brushing
2. Toothpastes: beware of fluoride, acidulated, and whitening toothpastes
 - a. Destruction of TiOxide layer and else
3. Interdental aids
4. Floss and dental tape
5. Oral irrigation
6. Mouth rinses
7. Tongue cleaner

Maintenance

- Probing or not? Definitely yes (maybe one possible exception)
 - o Metal or plastic probes? (catch 22)
- Instrumentation
 - o Ultrasonic scalers
 - Sonic, ultrasonic (magnetostrictive vs piezoelectric), and insert tips
 - At most, Ultrasonic, no plastic insert tips, mostly for calculus
 - o Scalers/hand instruments
 - Carbon-fiber, titanium, gold, plastic, Teflon, graphite
 - Healthy implant and soft tissue → plastic
 - Inflammation and/or calculus → titanium or graphite or carbon-fiber
 - o Polishing
 - Rubber cup/pumice, air polishing, GPAP/Glycine
 - GPAP or rubber cup/pumice or non-abrasive paste

Risk Factors

List of most risk factors

1. Microbiologic factors
 - a. Disease progression, microbiology, and the vicinity to periodontal disease
 - b. History of periodontal disease
2. Systemic factors
 - a. Medical considerations: DM, smoking, History of radiation...
 - b. E-cigarettes and marijuana

3. Local factors
 - a. Occlusion
 - b. Open contacts and food impaction
 - c. Prosthetic considerations and emergence profile
 - d. Cement
 - e. Corrosion
 - f. Titanium debris
4. Soft tissue factors
 - a. Anatomy and its significance again
 - i. 2 mm of AT around implants
 - b. Recession around implants
 - c. Types of procedures
 - i. We will talk further about this and show cases in plastic surgery section

Peri-Implant Disease

Diagnostic tools:

- Evaluation of oral hygiene
 - o Plaque assessment
 - o Calculus
- Evaluation of peri-implant marginal tissues
 - o Mucosal condition
 - o Probing Depths (case)
 - o Bleeding on probing
 - o Suppuration
 - o Recession
 - o Clinical attachment level
 - o Width of peri-implant attached tissue
 - o Peri-implant sulcus fluid
- Evaluation of the bone-implant interface
 - o Mobility
 - o Pain/discomfort
 - o Resonance frequency analysis
- Radiographic evaluation
 - o Conventional radiographs (cases)
 - o CBCT
 - o Panoramic
- Evaluation of the implant-to-teeth relation
 - o Contacts, embrasures, emergence profile
 - o Occlusion

Review of each tool's significance for proper diagnosis

Classifications of peri-implant diseases

- Becker et al (2007)
- Misch (2008): ICOI/PISA

- Froum and Rosen (2012)
- Vandana et al (2015)

Prevalence

Peri-implant Mucositis

Definition

Treatment strategies

- Patient education and OHI*
- Management of risk factors*
- Ultrasonic scaler if calculus is present*
- Manual scaling instruments*
- Local delivery of drugs in peri-implant pockets
- Chemotherapeutic agents: rinses and irrigation
- Occlusal and/or restorative adjustments*
- Management of possible cement
- Re-evaluation of results and plan for periodic maintenance

(*Already discussed in previous sections)

Chemotherapeutic agents

1. Local drug delivery
2. Systemic antibiotics

Endoscopic debridement and videoscope → visualization of cement or calculus

Conversion of peri-implant mucositis to peri-implantitis

Peri-implantitis

Definition

Treatment strategies

- SRP or no SRP?
- LANAP/LAPIP
- Surgical therapies (diagram)
 - Decontamination
 - Mechanical
 - Titanium brush, implantoplasty, sandblasting system
 - Chemical
 - CHX, tetracycline, minocycline, citric acid, hydrogen peroxide, sodium hypochlorite, sterile saline, sodium hypochlorite
 - Laser
 - Er:YAG, CO2, Nd:YAG, Diode
 - Photodynamic therapy
 - Resective procedure
 - Indications (similar to pocket reduction in perio disease) and contraindications

- Possible implantoplasty
 - Case
 - Regenerative procedure
 - Indications and contraindications
 - Materials
 - Bone grafts
 - Membranes
 - Other regenerative factors
 - Case
 - Literature
 - Peri-implant plastic procedures*
 - Cases
- Zirconia implants

Outcome

Evaluation of results

Prevention and maintenance plan

- At least PMR q3-6 months
- In cases with history of periodontal/peri-implant disease and/or risk factors: q2-3 months

Compliance

Other complications with implants

Fractured parts (case)

Fractured implants (case)

Implant removal

Treatment strategies

Case

Conclusions

References

Thank you!