Creating and Maintaining Peri-Implant Health

Paul A. Levi Jr.
Welcome to the Greater New York Dental Meeting

Greater New York Dental Meeting™
Executive Headquarters
200 West 41st Street, Ste. 1101, New York, NY 10036
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Sponsored by New York County & Second District Dental Societies

All programs and exhibits are held at the Jacob K. Javits Convention Center (unless otherwise indicated)
11th Avenue between 34th and 39th Street, New York City

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COURSE REGISTRATION
Pre-registration is required for all continuing education courses with the exception of the “Live” Dentistry and Affiliated Groups. Your seat will be held for 15 minutes after the start of the course; after that, those without tickets will be seated according to space availability. When the room is filled, no additional people will be admitted due to fire department regulations. If you have not pre-registered, please be prepared to select an alternate session to attend.

Tickets
Tickets are required for all courses excluding Live Dentistry. Tickets for all functions can be purchased at all general registration booths located in the Registration Area on the Upper Level in the Crystal Palace and online.

6 Days of Education Seminars, Hands-on Workshops & Essays
Friday - Wednesday

4 Days of Exhibits
Sunday - Wednesday

General Registration Hours
Friday, November 29          12:00 Noon - 4:30 P.M.
Saturday, November 30         8:00 A.M. - 4:30 P.M.
Sunday, December 1 - Tuesday, December 3 8:00 A.M. - 5:30 P.M.
Wednesday, December 4       8:00 A.M. - 4:30 P.M.

Exhibit Hall Hours
Sunday, December 1 – Tuesday, December 3 9:30 A.M. - 5:30 P.M.
Wednesday, December 4 – 9:30 A.M. - 5:00 P.M.

FREE “Live” Dentistry
Hi-Tech 450 Seat Arena

SUNDAY
9:45 - 11:45
VOCO America, Inc.
Drs. Ron Kaminer & Marc Geissberger
Restorative

9:45 - 11:45
Shofu
Dr. Ron Kaminer
Restorative

1:30 - 2:45
Philips Sonicare
Dr. Gerard Kugel
Whitening

1:30 - 2:45
First Fit
Drs. Frederick E. Solomon
Cyrus Tahmasebi
Digital

3:30 - 5:15
3Shape
Dr. Sundeep Rawal
Digital

3:30 - 5:15
Align:I Invisalign
I Itero
Drs. Karla Soto &
Christian Coachman
Restorative

MONDAY
1:30 - 2:45
Millennium
Dr. Sundt D. Thanik
Laser

TUESDAY
9:45 - 12:00
Glidewell
Dr. Justin Chi
Digital

WEDNESDAY
9:45 - 12:00
Apa / CareCredit
Drs. Michael Apa
Aesthetic

2:00 - 4:15
Benco / Vatech
Dr. Aeklayva Panjali
Implant

John Quiñones
Monday, December 2nd
12:00 - 2:00 - Ticket 4010
$125.00

Celebrity Luncheon Speaker

3D Printing & Digital Dentistry Conference

Dental Laboratory Technicians Programs

Sleep Apnea Symposium

Oral Cancer Symposium

World Implant Expo
5th Annual Global Orthodontic Conference

3rd Annual Pediatric Dentistry Summit

12th Annual INVISALIGN® - GNYDM EXPO
4 Days of Programming:
Sunday - Wednesday

Botox and Facial Fillers Seminar & Workshop

Over 1,700 Exhibit Booths
Creating and maintaining peri-implant health

Dr. Paul A. Levi, Jr.
Greater New York Dental Meeting

December 1, 2019

Today’s agenda

1. Considerations that are needed before and during the placement of implants in order to achieve and preserve peri-implant health
2. Barriers to peri-implant health
3. Maintaining peri-implant health:
   1. By the clinician
   2. By the patient.

Krista

- 28 year old woman
- Main concern: “Bleeding and swollen gums around my implants.”
- Medical history positive for birth control pills
- Dental history and examination: dental implants to replace congenitally missing 20 and 29. No caries, no proximal restorations, referred by general dentist because of bleeding and “radiographic changes” implant area of #29

Clinical findings

- 2-5 mm probing depths
- 45% bleeding on probing
- Generally 2-5 mm gingiva and keratinized mucosa
- Absence of attached gingiva teeth #s 21 & 28
- No visible recession
- Possible radiographic bone loss associated with implants in the areas of teeth #s 20 & 29
- Presence of large exostoses facial and lingual mandible
Post-op 06-25-2015

Immediately post surgery one week

Pre- and one-week post-surgery

Thirty-two months post-surgery

Thirty-two months post-surgery

¿Questions?

- Should the osteotomes have been removed before the placement of the implants?
- Should a tissue-level and not a bone-level implant have been placed?
- Should the implant have been placed more coronally than it was?
- Why is there an open contact?
Peri-implant health

Begins before the implants are placed

Critical considerations
- The characteristics of a dental implant
- What our patients expect from dental implants
  - Information from clinicians
  - Information from the media (Internet, advertising from implant companies)
- The differences between implants and natural teeth and how they affect the placement of an implant

Considerations for maintaining peri-implant health
- How peri-implant health is defined:
  - Bleeding on probing: yes/no
  - Progressive bone loss (threads exposed)
- What is the etiology of peri-implant diseases?
  - Peri-implant mucositis
  - Per-implantitis
- How is peri-implant health maintained?
  - The patient's responsibility
  - The dentist's responsibilities
- What is the role of the occlusion in maintaining peri-implant health?

Factors to consider before placing an implant

Patient factors:
- Tobacco use (4.7X greater prevalence, peri-implantitis)
- Occlusal factors (parafunction)
- Systemic diseases (uncontrolled diabetes, HIV, other immune suppressive conditions, which might inhibit Wolff's Law: Bone in a healthy person or animal will adapt to the loads under which it is placed)

Evangelos Papathanasiou*:
Factors to consider before placing an implant

Patient factors:
- The patient's desire for an implant
- The patient's dental hygiene techniques, consistency
- Their emotional stability
- Aesthetic considerations
- A past/present periodontitis (6X higher prevalence, peri-implantitis)
- Past-implant failures

Before placing an implant consider the factors that can lead to peri-implant mucositis and peri-implantitis

Physical factors*:
- Bone volume and quality
- Position of implant platform within the bone: (3 dimensional: mesial, distal, facial, lingual, crestal, apical)
- Platform switch

Could the bone loss have been prevented?
Many considerations:
1. Implant position (proximity)
2. Implant type:
   a. Surface (HA)
   b. Cemented
   c. Splinted
   d. Contoured?
3. Patient's ability and access to clean
4. Patient's hygiene instruction
5. Tobacco use
6. The patient's occlusion?
7. Parafuncional habits?
8. Number of implants

Lack of dental/periodontal health can lead to loss of peri-implant health

Peri-implant mucositis and peri-implantitis

Peri-implant mucositis
Peri-implantitis

No bone loss
Bone loss

All bacterially caused infections
To date the literature does not support implant bone loss solely due to occlusal overload with an integrated implant
Another type of implant where access is key to maintain health!

What is wrong here? No access for hygiene!

The prevention and treatment of peri-implant diseases depends upon the patient having the...

1. Motivation – Patient and Clinician
2. Accessibility for hygiene – Clinician
   a. Surgeon
   b. Restorative clinician
   c. The patient needs to be able to access to the restoration and any portion of the abutment or implant exposed to microbial biofilm. (Coronal to the epithelial attachment)
3. Hygiene techniques: Clinician and Patient

Motivation can be an awesome task; however, excellent results and the patient's health depends upon it.

This will become... ...this, without motivation, technical skill and accessibility

Books

Philosophy:
Uses clear pictures and drawings with understandable text.

Would you ignore this?
If you bleed from any other part of your body you would do something about it. Yet you suffer from traces of blood when you brush your teeth, risking gum disease and eventual tooth loss. Don’t turn a blind eye to bleeding gums. Contact your dentist immediately.
Dental implants are a popular and effective way to replace missing teeth.

The American Dental Association's public statement online regarding implants states:

Dental implants are low maintenance.

BioHorizons implants are covered by a lifetime warranty.

Online information:

- What is reality?
- What is the response of patients?
- What are the considerations for placement?

The brochure’s take-home points:

- How many root form implants were placed in 1977?
- How long can implants last?
- How many years was 1977 or before?
Let us consider the anatomy of a tooth vs implant cross sections at level of crest of bone.

Due to the undulating CEJ of a natural tooth, the bone height is variable by 2.5 mm interproximally, apically, and which creates the papilla. Additionally, the cross sections of a natural tooth vary buccally and distoapically.

Implant platforms are circular, and they are narrower than most natural teeth that they replace.

Size and shape of implant platform as compared with a natural tooth.

Tooth vs. Implant Considerations for maintenance.

**Tooth**
- Epithelial attachment
- Connective tissue attachment (fibers/cementum)
- Perpendicular orientation of CEJ fibers
- Presence of cementum
- Presence of a PDL
- Undulating CEJ (Coronal interproximally, apical cervical)

**Implant**
- Epithelial attachment
- Connective tissue adhesion
- Parallel orientation of CEJ fibers
- Absence of cementum
- Absence of a PDL (ankylosis)
- Flat CEJ (platform–abutment interface)

Tooth vs. Implant Considerations for maintenance.

**Tooth**
- Varying widths of the cross section of bone emergence: varied between 3.5–10 mm
- Crown restoration emergence can be made to mimic original
- Cross section of root emerging from bone is generally oval

**Implant**
- Platforms have widths of approx. 3–6 mm
- Crown restoration emergence is dependent on platform width
- Cross section of platform is circular

Implant susceptibility to inflammation.

- Degidi M et al.* showed that the diminished blood supply and parallel orientation of fibers makes implants more susceptible to inflammatory diseases than periodontal tissues.
- This can be verified immunohistochemically through increased formation of inflammatory infiltrate, nitric oxide, VEGF, lymphocytes, leucocytes, etc.


Implant research is like trying to hit a moving target.

Or catching a moving bus!
Great variety of implant anatomy, types, and positions

- Types of implants: many manufacturers, varying materials (titanium alloys, zirconium and combinations)
  - Tissue level - polished collar
  - Bone level - rough surface to platform
- Position of implant
  - Facial
  - Lingual
  - Mesial
  - Distal
  - Proximities to adjacent natural teeth and other implants
- Depth
- Size of implant
  - Platform diameter vs tooth size and edentulous area width

Placement of implant and maintenance

- Depth of implant placement
  - Polished collar
  - Rough surface to the crest
- Position of implant with respect to opposing arch
  - Buccal
  - Lingual
- Interocclusal space

Varying implant anatomy, types and positions in bone

- Types of implants
  - Tissue level - polished collar
    Recommended for non-aesthetic areas
  - Bone level - rough surface to platform
    Often used in aesthetic areas
  - Straight or tapered
    Variety of thread pitches and designs

Implant surfaces

- If rough surface implants are in communication with the oral microbiota, it is difficult/impossible for the patient and the clinician to maintain hygiene, which allows for biofilm formation and retention and predisposes the patient to peri-implant diseases.

Maintaining health of peri-implant tissues

1. Motivation - Patient and Clinician
2. Accessibility for hygiene - Patient & Clinician
   a. Surgeon
   b. Restorative clinician
3. Hygiene techniques for the clinician & patient

Position of implant

Too facial
- Requires ridge-lap

Too lingual
- Requires ridge-lap
Soft tissue surrounding the implant:
Can the patient maintain plaque control?
- Thickness of the surrounding mucosal tissue
- Zone of masticatory mucosa
- Height of gingiva surrounding the implant
- Presence of a papilla
- Absence of a papilla
- Soft-tissue crater

Keratinized (masticatory) mucosa is preferred surrounding implants

Creating an environment of masticatory mucosa will allow for a deepening of the vestibule and providing keratinized mucosa (KM). KM will assist in accessibility and comfort for complete plaque removal using a sulcular brushing technique.

Soft tissue surrounding the implant and the ability for maintenance

Appears adequate

Can lead to peri-implantitis

Design of the implant prosthesis

Implant overdenture:
- Generally most easy to clean the abutment (Locator abutment)
- Must clean the recipient part on the prosthesis
- More difficult to clean if bar with clip-on female part
- Use a tissue level implant
- Do not submerge polished collar of the implant below the crest of the bone

Implant overdenture

Biofilm/plaque removal is needed on:
- the implants
- the framework
- clip attachment of the prosthesis
Single crown implant prosthesis considerations

- Crown design and ability for the patient to clean depends upon:
  - Buccal or lingual position of the platform
  - Apical-crestal position of the platform is 3mm below the CEJ is too far apical?
  - Proximity of the implant next to a natural tooth or implant
  - Topography of surrounding bone

Ability for the patient to remove biofilm

- Crown design depends upon:
  - Diameter of platform versus the mesiodistal width of the crown to create a contact or contacts
  - Whether or not the implant is in the aesthetic zone.

NB: The aesthetic zone is in the eye of the beholder (the patient)

Single implant problem

Name: JFA
Age: 69 years old
Sex: Male
Race: Caucasian
Occupation: Retired

Implant #19

JFA complained of food collection in 2010 beneath the screw-retained crown. Prosthetics decided to close the interproximal area. Note: after 5 years...

PPD
Tooth # 15
Buccal
Lingual

MP
Extraction bone loss
Following prosthetic redesign of the crown because of the food collection

Note: chronic inflammation and suppuration
When discussing implant therapy with our patients, we need to explain the differences between the natural tooth being replaced and the implant replacing it.

Restoration Contour: A risk indicator for peri-implantitis: Cross-sectional radiographic
• Restoration emergence angle and emergence profile (convex, straight, concave) were assessed to determine whether they are associated with peri-implantitis.

Restoration Contour: A risk indicator for peri-implantitis (Results)
• The results suggest that an over-contoured restoration on a bone-level dental implant (wide emergence angle and convex profile) may have a negative impact on the peri-implant health, and increase the risk of developing peri-implantitis
• For the tissue-level implants, neither emergence angle nor emergence profile is associated with an increased prevalence of peri-implantitis, and therefore, no emergence angle or profile recommendation can be ascertained.

Restoration Contour: A risk indicator for peri-implantitis

Implant position
(Non-infection)
How is implant success defined?
Function?
Esthetics?
Comfort?
24-year-old female 3rd-yr dental student

- CC: I have spontaneous low-level pain in the apical area of implant #7 (not 10), which is aggravated at awakening and upon pressure.
- History of lateral incisor agenesis, Rx: Bilateral block graft and implant placement 4 years ago by her oral surgeon.
- Clinical exam: probing depths (PD) teeth #7 and 10 are 2-3 mm circumferentially, no BoP, 2-3 mm keratinized mucosa, No PD beyond MG.
- ARA Peri-implant clinical health!

What's the etiology of the pain?

What's the therapy for the pain?

Initial therapy

- Adjusted the occlusion in functional and all excursions
- Assured that the patient was wearing her occlusal guard and that the guard was adjusted to her occlusion
- Observe to determine if there was resolution of the discomfort, and if not do a CT graft.

Follow-up

- The pain did not subside, and the patient requested the connective tissue graft.
- Alternatives were explained:
  - Flap and do an implantoplasty
  - Use acellular dermal matrix rather than a CT graft
- The patient requested the CT graft and the graft was obtained from the tuberosity tissue.

Surgery: connective tissue graft

Post-Surgery

Day of surgery
20 days post
No more pain!

7 days post
Questions?
• Etiology of discomfort?
• Why on the right and not on the left?
• What did the connective tissue do to eliminate the discomfort?
• Many unanswered questions!

Single crown implant prosthesis
• Crown design depends upon:
  • Mesiodistal width between implant and natural tooth
  • Or between two implants
  • The wider the space, the larger the crown might be mesiodistally. If the crown is made to block the food, then can the crown be cleaned by the patient or by the clinician?
  • The narrower the distance between the crown and the natural tooth or implant the narrower the crown will be and this could create difficulty in accessing the apical portion of the crown for cleaning.

When designing the crown of a single implant restoration
Always consider the patient.
Is it possible for the patient to clean the prosthesis?

Multiple implants

The areas must be accessible for plaque removal by the patient and the clinician
• Prosthetic design considerations:
  • Multiple crowns next to one another separate
  • The number of supporting implants and mesiodistal proximity to each other
  • Multiple crowns next to one another splinted

Hybrids
Flange?
No flange?
Designing of a hybrid prosthesis: with or without a flange???
Implant supported hybrid prostheses
With flange, difficult or impossible to clean for clinician and patient
Easier to clean than with flange

Multiple implants
- Implant supported hybrid prosthesis
  Design of prosthesis with respect to the proximity of the framework to the crest of the ridge
  Too close to crest of the ridge to clean

Implant supported fixed bridge
The design of the pontic (Oval, bullet shaped, ridge lap, wide at cervical or tapered
Platform is well below the proximal crest of the ridge
The emergence angle is narrow
Best to maintain embrasures open for plaque removal by the patient

What the public can see on the Internet
Implant supported hybrid prosthesis

Dental implants are low maintenance?

Maintenance of health also depends upon... Occlusion!
Excessive occlusal forces on an immediate implant placed in 2016
- A 35-year-old systemically healthy female
- Presented in 2016 with fractured #10
- The tooth was extracted and an immediate Straumann Roxolid 3.3x14 implant was placed

Vertical fracture secondary to occlusal overload

Explant: vertical fracture

Note wear facets

Maintenance of implant health: necessitates occlusal protection

Implant failure due to bruxism
- 65-year-old partially edentulous patient
- Smokes one pack of cigarettes per day
- History and evidence of severe bruxism
- States that he is very stressed
- CEO of major corporation

Maxillary left ridge was split to create bone volume for implant placement

Initial radiographs
Why the fracture?
- Severe bruxer
- Inappropriate crown:root ratio
- No cross arch stabilization
- Implant diameter did not match tooth diameter
- Guard was made for the mandibular teeth when it should have been made for the maxillary teeth.

Conclusions on occlusion
- Crown:root ratio should be minimum 1:1, shorter implants increases the failure rate (Block et al. 1996, Garito 1999)
- Use of wide diameter posterior implants (min 1.5 mm of bone circumferential is necessary (Garito 2000)
- Decrease the risk of fracture by:
  - Splinting, occlusal load distribution, number of implants, long & wide implants, occlusal guard

Maintaining health of peri-implant tissues
1. Prevention - Patient and Clinician
2. Recall visits for hygiene - Patient & Clinician
3. Hygiene techniques for the clinician & patient

Techniques and devices for plaque removal by the patient and the clinician

Patient and professional hygiene
- Patient plaque removal daily is a key issue in preventing peri-implant infections
- Frequent professional examinations and hygiene therapy must be done post implant placement.
- Professional hygiene therapy must be done carefully yet thoroughly
- Air-polishing can reduce peri-implant bleeding*

Devices for patient plaque removal
- Brush Manual or Power
- Floss/tape
- Rubber tip
- End tuft brush
- Interproximal brush
- Super Floss™
- Bridge threaders
- Water irrigator

**Brush: Manual or Power?**
Your patient is considering changing from manual to power brushing. **Are power toothbrushes more effective than manual?**

**Know your patient to help decide**
- Brush: Manual or power, end tuft, sulcus

**Techniques for patient plaque removal**
1. **Brushing:**
   a. Intrasulcular SBT "Stationary Bristle Tip technique (Bass)"
   b. Modified Stillman's Non-intrasulcular
2. **Flossing:**
   a. Faccial, lingual and occlusal motion (like drying one's back with a towel)
   b. Flossing with occlusal motion only
3. All flossing techniques adapt "C" shape around crown and/or abutment and/or implant body

**Stationary Bristle Tip (Bass) Technique**
*Manual toothbrush or power brush:
1. Aim brush towards the middle of the tooth angled slightly towards the gum crevice.
2. Press the bristles into the gum crevice, **vibrate the handle** and keep the bristle tips stationary on the tooth in the crevice. NO SCRUBBING!

**Modified Stillman's Technique**
A sweep motion; however is NOT Intrusalcular:
Recommended to be used only immediately after single-stage or immediate implant surgery or if gingival ulcerations as in aphthous or herpetic ulcers.
Not recommended for regular use otherwise.

**Patient plaque control**
*Optimal plaque removal is essential
Brush with triclosan toothpaste twice daily with a sulcular Stationary Bristle Technique
Rinse with essential oil or CPC mouthrinse twice daily
Floss, end tuft and interproximal brushes
NaOCl in Monojet syringe 3x/week around framework
\[ \frac{1}{4} \) teaspoon NaOCl (2.5ml) in 16oz H2O (500ml)

*Protocol developed by Dr. Paul Fletcher*
Bridge threads

Dental floss or dental tape can be used in conjunction with bridge threader in order to facilitate its insertion under splinted crowns.

Interproximal brushes

Patient devices – interproximal brushes and Super Floss™

Interproximal rubber tips

The pressure of the rubber tip against the mucosal tissue obliterates the crevice between the implant and mucosal tissue and helps to clean the subgingival environment.

Water Irrigating Devices

To clean inaccessible areas between the teeth and gums using a water Pik™ is better than no cleaning.

Clinician's Supplies, Instruments, and Devices
**What is offered today for Non-surgical implant therapy**

- Comprehensive examination
- Titanium curettes
- Polishing cup
- Air and water irrigation
- Air polishing with erythritol powder
- Laser therapy

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**Professional hygiene therapy for implants**

**Nart 1 Association of Preventive Maintenance Therapy Compliance and Peri-Implant Diseases: A Cross-Sectional Study / Periodontal October 2017**

- Peri-implant maintenance > 2X/Yr. for healthy patients crucial to prevent peri-implantitis
- Risk factors for compliance:
  - Hx. Periodontitis, severity and extent
  - Smoking

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**Cumulative Implant Maintenance Protocol at least every 3 months**

- Probing (BOP):
  - Gentle probing to resistance (Coronal aspect of the epithelial attachment)
  - Evaluation of plaque levels/inflammation/BOP/Sup
  - Polish (rubber cup and/or Air polish with Glycine
  - Observe hygiene techniques
- Suppression:
  - ADD: Mechanical Debridement curettes, ultrasonics, air polisher

*Adapted from Dr. Paul Fletcher protocol

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**Cumulative Implant Maintenance Protocol at least every 3 months**

- 4-5mm w/ BOP or > 5mm w/o BOP:
  - ADD: NaOCl/H2O2 irrigation-before, during and after debridement
    - 0.25% Sodium Hypochlorite (NaOCl) for Chemical Irrigation
  - Potent antiseptic and disinfectant
  - Naturally occurring in neutrophils, macrophages and monocytes
  - Accepted as a safe mouth rinse by the ADA
  - Does not corrode titanium
  - Do not combine NaOCl with Chlorhexidine

*Adapted from Dr. Paul Fletcher protocol

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**0.25% Sodium Hypochlorite (NaOCl) for Chemical Irrigation**

Mix: 5ml (1 teaspoon) of 6% NaOCl Household bleach in 125ml (4oz) of water

*Our standard size rinsing cup holds 150 ml (5oz) of liquid

- Irrigate before, during, and after debridement [3X]
- New solution for each patient, as it loses potency after 24 hours

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**Cumulative Implant Maintenance Protocol at least every 3 months**

- BOP persists at recall (3 months):
  - ADD: Minocycline (Arestin*) microspheres
  - BOP persists at next maintenance visit:
    - Remove restoration (if possible) and detoxify implant
    - Perform surgery if progressive bone loss

*NaOCl is sodium hypochlorite = common household bleach

*Adapted from Dr. Paul Fletcher protocol
Instruments for clinician plaque/calculus/cement removal

- Hand scalers and curettes
  - Plastic
  - Titanium
- Power scaler Ultrasonic
  - Metal tips covered with plastic
  - Plastic tips
- Air polisher
- Slow-speed handpiece
- Polishing angle and polishing paste

Clinician plaque removal devices

- Dental floss or tape
- Interproximal brush
- Super Floss™
- Bridge threaders
- Gauze bandage (2x2 gauze squares unfolded)

Supplies and instruments for clinician plaque removal

Hand instruments for clinician’s plaque, calculus, and cement removal

Plastic scalers/curettes
Titanium scalers/curettes

Ultrasonic devices

Magnetostriuctive plastic sleeve
Piezoelectric titanium tip

Piezoelectric power scaler with adequate masticatory mucosa
Titanium ultrasonic tips
Devices for clinician plaque removal

- Super Floss™
- Bridge threaders
- Polishing cups and paste

Air polishing plaque removal

EMS Air-Flow Handy

Glycine and Erythritol Powder Air Polishing Delivery

5-10 sec per tooth surface (20-40 sec per tooth)

Use of the Air-Flow Perio

William 2005

- 42-year-old male
- Had implants placed three years ago by an oral and maxillofacial surgeon
- Recently was experiencing soreness when cleaning his implants
- He had no other medical problems than with the implants
Concerns
• Recession to expose the metal of the implant
• Opening a black triangle causing a speech problem
• William's profession, an attorney, demanded that he face the public
• Would William be self-conscious, and would it affect his performance in his occupation?

Solution
• Explain the situation to William and my concerns
• Explain the choices:
  – Leave as is infected and sore
  – Remove the implants
  – Treat with non-surgical therapy and assess the results
• Encourage William to choose the best therapy for him, which was do something to eliminate the infection

Therapy
• Scaling with titanium curettes, ultrasonic and the use of minocycline

Ten years following non-surgical therapy

Conclusions
• Always consider the prosthetic phase when placing an implant to allow the patient to maintain excellent biofilm control
• Advise the patient that implants might look like natural teeth and will not decay, however, they are susceptible to infection around them and must be maintained clean daily
• Advise the patient that because of the differences in size between a natural tooth and an implant, likely in the posterior there will be spaces in between the teeth where food will collect, and they can use interproximal brushes to dislodge it.
• Advise the patient that professional hygiene therapy is required every 3-4 months.

Thank you!