Principles of Preprosthetic Surgery
Preprosthetic Surgery

- Define Preprosthetic Surgery
- Review the work-up
- Armamanterium
- Importance of thinking SURGICALLY……
  to enhance the PROSTHETICS
- Review commonly occurring preprosthetic scenarios
What is preprosthetic surgery?

“Any surgical procedure performed on a patient aiming to optimize the existing anatomic conditions of the maxillary or mandibular alveolar ridges for successful prosthetic rehabilitation”
What is preprosthetic surgery?

“Procedures intended to improve the denture bearing surfaces of the mandible and maxilla”
Preprosthetic Surgery

- Types of Pre-Prosthetic Surgery
  - Resective
  - Recontouring
  - Augmentation

- Involved areas
  - Osseous tissues
  - Soft tissues

- Category of Patient
  - Completely edentulous patient
  - Partially edentulous patient
Preprosthetic Surgery

• **Alteration of alveolar bone**
  – Removing of undesirable features/contours
    • Osseous plasty/shaping/recontouring
  – Bone reductions
  – Bone repositioning
  – Bone grafting

• **Soft tissue modifications**
  – Soft tissue plasty/recontouring
  – Soft tissue reductions
  – Soft tissue excisions
  – Soft tissue repositioning
  – Soft tissue grafting
Preprosthetic Surgery Goals

• Goals

  - To provide improvement to both form and function
    – Address functional impairments
    – Cosmetic
  - Improve the denture bearing surfaces
    – Alveolar (bone) ridges
    – Adjacent soft tissues
Prosthetic Surgery Work-up
Preprosthetic Surgery Work-Up

• Considerations in developing the treatment plan
  – Chief complaint and expectations
    • Ascertain what the patient really wants
  – Identify the expectations
    • Esthetic and functional goals must be assessed carefully and a determination made whether these expectations can be:
      – Obtainable/
      – Unrealistic/Unobtainable
      – Or obtainable only with additional procedures, time and money
      – There is no magic…
  – HPI
    • Previous history of prosthesis use
Preprosthetic Surgery Work-Up

• **Past Medical History/Past Surgical History**
  – Thorough assessment of overall health
    • Identification of co-existing systemic diseases
    • Identify levels of anxiety
  – Meds, Allergies, Social History, Recreational Drugs
    • Factors which might affect bone or soft tissue healing
    • Patients surgical risk potential
      – Especially when advanced procedures are required
  – Procedures which may impact the treatment plan
    • Prosthetics

• **4Ps**
Preprosthetic Surgery Work-Up

• **Considerations in developing the treatment plan**
  – Physical exam
    • What do you have to work with
    • Anatomic relationships
  – Risk of treating the patient
  – Radiographic Exam

• **Diagnosis (problem list)**

• **Treatment plan**
Preprosthetic Surgery Work-Up

• **Physical exam**
  • Detailed Clinical Exam
    – What do you have to work with
  • Mandible
    – Ridge form
    – Bony structures
    – Soft tissues
  • Maxilla
    – Ridge form
    – Bony structures
    – Soft tissues
Preprosthetic Surgery Treatment Planning

• **Physical exam**
  - Visual inspection and palpation
    - Use of models when needed
  - Intraoral
  - Extraoral
  - Existing occlusal relationships
  - Existing jaw relationships / interarch relationships
  - Amount of remaining bone (height/width)
  - Contours of remaining bone
  - Quality of existing soft tissue
  - Character of existing soft tissue
  - Vestibular depths
  - Muscle attachments
  - Anatomic relationships
  - Proper imaging
  - Presence of hard or soft tissue pathologic conditions
Preprosthetic Surgery Treatment Planning

• **Physical Exam**
  – Radiographic Exam
    • Plain films
    • Panoramic radiograph
    • Cephalometric radiograph
    • CBCT Scan
Preprosthetic Surgery Work-Up

• **Diagnosis (Assessment)**
  - Create a problem list
    - Medical concerns
      - Presence of co-existing systemic diseases
      - Factors which might affect bone or soft tissue healing
    - Dental concerns
    - Other concerns
  - Determine patients surgical risk potential
    - Especially when advanced procedures are required
  - Address the problem list
    - Medical consultations
    - Surgical clearances
    - Other specialty consultations
Preprosthetic Surgery Work-Up

• **Considerations in developing the treatment plan**
  – What patient wants
    • Patient expectations
  – Patient overall level of health / and habits
    • Factors which might affect bone or soft tissue healing
  – Patients surgical risk potential (risk assessment)
  – What patient has to work with anatomically
    • Bone and soft tissue factors
  – What patient has to work with financially
  – What do you have to work with
  – What level of treatment you can provide
    • Take patient to whatever the desired clinical outcome ??
Preprosthetic Surgery Work-Up

• No treatment should be started without a clear understanding of the desired design of the final prosthesis
  – Preprosthetic surgery will support the prosthetic plan
Preprosthetic Surgery Work-Up

Diagnostic Models
Preprosthetic Surgery Work-Up

Diagnostic Models
Preprosthetic Surgery Work-Up
Preprosthetic Surgery Work-Up
Preprosthetic Surgery Work-Up

**Surgical Stents**

- Help to minimize redo or additional surgery
- Provide best opportunity to coordinate cast surgery with actual surgery, and improvement of patient comfort
  - Provides for verification of ridge reduction before insertion of the immediate complete denture
  - Enables the surgeon to visually check for pressure points before inserting the immediate denture.
- Can be used to maintain/support repositioned tissues
- Can be used to contain grafting/augmentation materials
Armamentarium
Instrument sets
Surgical Handpiece and Burrs

- Surgical handpiece Unit
  - Self irrigating
  - Rear air discharge
    - Electric
    - Gas
    - Air
  - Straight attachment
  - Contra-angle
  - 45° Surgical handpiece

- Acrylic burs
Preprosthetic Surgery

• Importance of thinking SURGICALLY……
to enhance the PROSTHETICS
  – Need for raising flaps to better expose the bone
  – Need for making appropriate modifications to the alveolar ridges at the time the extractions are being done
  – Providing better relationships between the ridges and the prosthesis—improves fit
Preprosthetic Surgery

• Importance of thinking SURGICALLY……
to enhance the PROSTHETICS

• Improving fit……
  – Decrease redo surgeries
  – Decrease chair time for adjusting prosthesis
  – Increased patient comfort

• Increased patient satisfaction
Preprosthetic Procedures
You Will Do
Common Preprosthetic Procedures Involving the Hard Tissues

• Digital Compression
• Simple Alveoloplasty
• Intraseptal Alveoloplasty
• Maxillary Tuberosity Reduction
• Buccal Exostosis and Excessive Undercut Removal
• Maxillary Tuberosity Reduction (osseous)
• Genial Tubercle Reduction
• Maxillary Tori Reduction
• Mandibular Tori Reduction
Common Preprosthetic Procedures Involving the Soft Tissues

- Maxillary Tuberosity Reduction (soft tissue)
- Inflammatory Fibrous Hyperplasia
- Ephilus fissuratum
- Labial Frenectomy
- Lingual Frenectomy
Digital Compression
Digital Compression
Digital Compression
Intraseptal Alveolooplasty
Intraseptal Alveoplasty
Removal of Intraseptal Bone
Intraseptal Alveoloplasty
Intraseptal Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Single Tooth Alveoloplasty with Excision of Wedges
Single Tooth Alveoloplasty with Excision of Wedges
Single Tooth Alveoloplasty with Excision of Wedges
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Simple Alveoloplasty
Buccal/Facial Exostosis
Buccal /Facial Exostosis
Excessive Undercuts
Buccal /Facial Exostosis
Excessive Undercuts
Buccal /Facial Exostosis
Excessive Undercuts
Buccal /Facial Exostosis
Excessive Undercuts
Buccal /Facial Exostosis
Excessive Undercuts
Buccal /Facial Exostosis
Excessive Undercuts
Maxillary Tuberosity Reduction

Bony
Lateral Maxillary Exostosis
Palatal Exostosis
Mylohyoid Ridge Reduction
Mylohyoid Ridge Reduction
Mylohyoid Ridge Reduction
Genial Tubercle Reduction

- Resorption of the mandibular alveolus
- Continued loading of the tubercle by the genioglossus muscle
  Genial tubercle becomes increasingly prominent
- Interferes with denture fabrication / seating
- Remove tubercle vs. augmentation
Genial Tubercle Reduction
Genial Tubercle Reduction
Maxillary Palatal Tori Reduction
Maxillary Tori Reduction
Maxillary Tori Reduction
Maxillary Tori Reduction
Maxillary Tori Reduction
Maxillary Tori Reduction
Mandibular Tori Reduction
Mandibular Tori Reduction
Maxillary Tori Reduction
Soft Tissue Preprosthetic Procedures
Common Preprosthetic Procedures Involving the Soft Tissues

- Maxillary Tuberosity Reduction (soft tissue)
- Inflammatory Fibrous Hyperplasia (Hypermobile Tissue)
- Ephilus fissuratum
- Labial Frenectomy
- Lingual Frenectomy
Maxillary Tuberosity Reduction
Soft Tissue
Maxillary Tuberosity Reduction
Soft Tissue
Maxillary Tuberosity Reduction
Soft Tissue
Maxillary Tuberosity Reduction
Soft Tissue
Maxillary Tuberosity Reduction
Soft Tissue
Reduction of Hypermobile Maxillary Tissue
Reduction of Hypermobile Maxillary Tissue
Wedge Excision
Palatal Papillary Hyperplasia
Palatal Papillary Hyperplasia
Palatal Papillary Hyperplasia
Epulis Fissuratum
Epulis Fissuratum
Epulis Fissuratum
Epulis Fissuratum
Frenectomy
Labial Frenum
Labial Frenum
Labial Frenum
Labial Frenectomy
Labial Frenectomy
Labial Frenectomy
Lingual Frenectomy
Lingual Frenectomy
In Summary

• Proper Case Selection
  – Good Judgment
    • Identify risks
    • Treatment modifications
  – Good workups
    • Take the extra steps

• Be aggressive when needed
  – Flaps
  – Recontouring
In Summary

• Stay on your side of the line
The End