Preprosthetic Surgery
Bony Procedures

- Alveoloplasty/ alveolotomy/ alveolectomy/ alv repositioning, intraseptal alveolotomy
  - refashioning of alveolus-knife edge ridge
  - removal of undercuts, irregularities
  - reduction of tuberosities
- removal of pathology-hyperplasia, roots, teeth, tori, papillary hyperplasia, exostoses
- lowering of mental N
- correction of jaw disproportion
Soft tissue procedures

- Frenectomy/ plasty
- Grafting: mucosal flaps- cheek, palate skin-
  - A: thickness, periosteal coverage, size, transport, application
  - D: hair, contractn, adhesion, taste/ smell/ scarring,
- Vestibuloplasty:
  - Obwegeser (needs adequate ridge, repositions muscles, for maxilla, mandible)
  - Kazanjian, Edlan, Hopkins (for mand)
  - Schuchardt, Tideman (for max)
Preservation is important than

Replacement of lost

Prevention of tooth loss.

Prevention of RRR

Prevention of deficiency
(hormones, vitamins and minerals)
ALVEOLOPLASTY

- Primary : at time of extraction
  INTRASEPTAL
- Secondary: later
PRIMARY ALVEOLOPLASTY

- Conservation of alveolar bone
- Digital compression of socket after extraction
- If bony undercuts, conservative surgical reduction
- Muco-periosteal flap, buccal reduction, primary closure
- Care-
  - Not distort soft tissues
  - Not decrease depth of buccal vestibule
INTRASEPTAL ALVEOLOLPLASTY

- No flap raised
- Intraseptal bone removed
- Buccal plate in-fractured by digital pressure
- Advantage:
  - Maintenance of periosteal attachment to labial plate of bone
  - Less post-op bone resorption
  - Can decrease buccal undercut by reducing bone height of alveolar ridge
SECONDARY ALVEOLOPLASTY

- Bony augmentation to be considered before removal
- If bone removal necessary, maximal preservation of alveolar bone
- Minimal flap reflection to reduce post operative bone resorption & remodelling
EXCESS TISSUE IF FIBROUS

- Crestal elliptical incision
- Mucosa undermined
- Fibrous tissue removed
- Redundant mucosal tissue excised
- Primary closure
EXCESS TISSUE IF BONY

- Muco-periosteal flap reflected
- Adequate bone removed
- Excess mucosal tissue removed
- Bone filed, irrigated copiously
- Primary closure
BUCCAL EXOSTOSES

- Common in maxilla
- Creates undercuts
- Rongeurs/ rotary bur
- Primary closure
PALATAL TORUS

- F:M 2:1
- Etiology?
- Composed of cortical bone
- Some have cancellous also
- Does not require removal unless prosthesis required
PALATAL TORUS

- Crevicular incision/ single midline palatal/ double ended Y/ elliptical
- Full thickness muco-periosteal flap
- Retraction sutures for good exposure
- Bone sectioned-bur, chisel
- Excess tissue excised
- Primary closure
PALATAL TORUS

CARE:
- Avoid perforation into nasal cavity
- Oro antral fistula
- Palatal tissue necrosis
- Hematoma formation
  (Stent, splint, denture)
MANDIBULAR TORUS

- M:F 1:1
- Single/ multiple/ lobulated
- Surgery: envelope flap
- Care: not to perforate flap
A 9–14 year follow-up of onlay bone grafting in the atrophic maxilla


Abstract. Treatment of the atrophic edentulous maxilla is challenging especially when bone graft procedures are necessary. In this study an onlay bone graft, a saddle or veneer, with or without maxillary sinus floor inlay graft, harvested from the anterior iliac crest, in combination with implants was used in the reconstruction of patients with extreme atrophy in their maxillae. The aim was to investigate treatment outcome, and the impact of gender and smoking, in 44 patients in a prospective, long-term, follow-up study concerning implant survival rate and marginal bone loss adjacent to the surfaces of the implant.

Mean follow-up time was 11 years. Of 334 inserted Branemark implants, with machined surface, 27 failed. Estimated implant survival rate was 90%. Marginal bone loss was 1.8 mm 1 year after implant surgery; 2.3 mm after 5 years; and 2.4 mm after 10 years. There was a significant difference between genders in implant survival. Marginal bone loss differed significantly between smokers and non-smokers up to the 5-year examination and between genders after the 4-year examination. The onlay bone graft, with or without a maxillary inlay graft, results in high implant survival rate, good oral function and stabilised marginal bone. All patients are still wearing their original fixed bridges.

Keywords: bone grafting; autogenous bone; iliac crest; maxilla; implants; marginal bone level.
RRR: Classification

Bone QUANTITY

- Class A: most of the alveolar bone present.
- Class B: moderate residual ridge resorption.
- Class C: advanced residual ridge resorption.
- Class D: moderate resorption of the basal bone.
- Class E: extreme resorption of basal bone.

Branemark, 1985, classified alveolar ridge on basis of bone quantity and bone quality seen on radiograph
RRR: Classification

Bone QUALITY

• Class 1: almost entire jaw composed of homogenous compact bone.

• Class 2: a thick layer of compact bone surrounds a core of dense trabecular bone.

• Class 3: a thin layer of cortical bone surrounds a core of dense trabecular bone.

• Class 4: a thin layer of cortical bone surrounds a core of low density trabecular bone.
Atwood's Classification

- Order I: pre-extraction.
- Order II: post extraction.
- Order III: high, well rounded.
- Order IV: knife edge.
- Order V: low, well rounded.
- Order VI: depressed.
American college of Prosthodontists

- **Type I:** residual bone ht >20mm at least vertical ht of mandible.
- **Type II:** residual bone ht 16-20mm.
- **Type III:** residual alveolar bone ht 11-15mm
- **Type IV:** residual alveolar bone ht <10mm.
MYELOHYOID RIDGE REDUCTION

(DUE TO VERTICAL BONE RESORPTION IN POST MAND.)

- Incision: crest of alv ridge
  Care: not too far lingually as lingual nerve
- Mucoperiosteal flap
- Dissect myelohyoid muscle
- Decrease ridge prominence
- Irrigation
- Primary closure
- Immediate stent/denture to position muscle inferiorly
BONY AUGMENTATION PROCEDURES

- mandible:
  - bone graft/ HA/ Combi
- maxilla:
  - bone graft/ HA+ bone graft
  - sinus lift/ interpositional bone graft
  - proplast/ silicones/ ceramic

- osteotomies
- mand: sandwich/ visor/ combined/ +_BG? HA/ Proplast
- maxilla: sinus lift+_implants
BONY AUGMENTATION PROCEDURES

- **VISOR OSTEOTOMY**
  - Mandible split bucco-lingually
  - Lingual cortical plate positioned superiorly

- Complications:
  - Paraesthesia Inferior Alveolar Nerve
  - Knife edge ridge
  - Secondary vestibuloplasty +-needed

- **HOPKINS PROCEDURE**
  - Exteriorization of inferior alveolar nerve
BONY AUGMENTATION PROCEDURES

- Autologous bone grafts
- Osseointegrated implants
- Guided tissue regeneration
- Bone induction agents
- Alloplastic materials
- Allogenic bone
Ridge Augmentation

- VERTICAL/HORIZONTAL
- Bone grafts
- Biomaterials
- GBR (Guided Bone Regeneration)
- Alveolar distraction osteogenesis
ONLAY GRAFT

Split thickness rib graft
Iliac crest graft
  (Disappears within 40 months)
Hydroxyapatite
  solid/ porous blocks
Titanium mesh
INTERPOSITIONAL BONE GRAFTS
LESS RESORPTION THAN ONLAY

INFERIOR BONE GRAFT
Resorption rate

- Block graft with Bio-oss: 16.34%, 17.58% (Proussaefs, 2002)
- Block bone: Mn 41.5%, Mx 43.5% (Cordaro, 2002)
- Onlay bone graft in 3 years: 14-100% (Wang, 1976)
- Iliac crest block bone: 33% (Bell, 2002)
Question 4

- Alveoloplasty is
  - Digital compression of extraction socket
  - Alveolar recontouring with rongeur/ bur/ file
  - Removal of sharp superior portion of the knife edged ridge
  - All of the above
Question 5

- Reflection of mucoperiosteal flap allows
  - Adequate visualisation
  - Access to bony structures that require recontouring
  - Protect adjacent soft tissues
  - All of the above
Question 6

- CT scan does NOT help to evaluate
  - Ridge height and width
  - Hypermobile fibrous tissue
  - Sinus anatomy
  - Inferior alveolar nerve