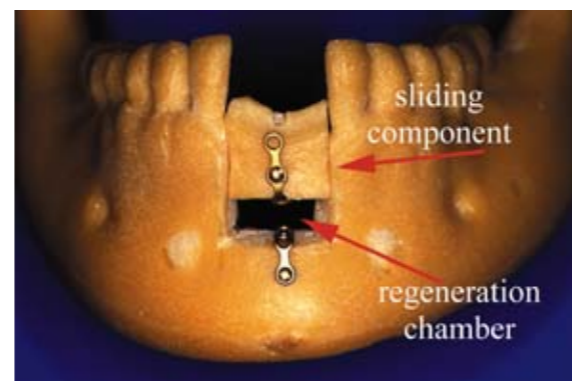
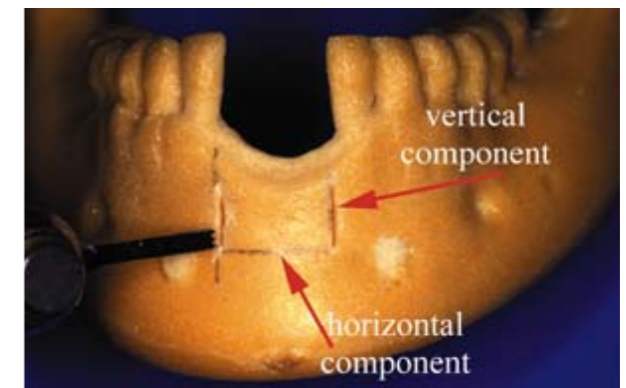
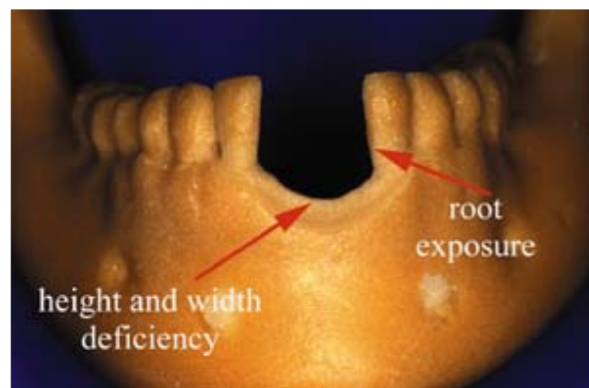
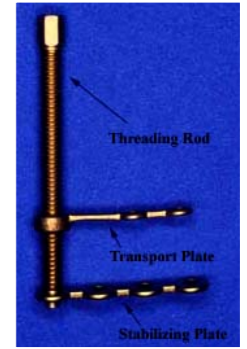
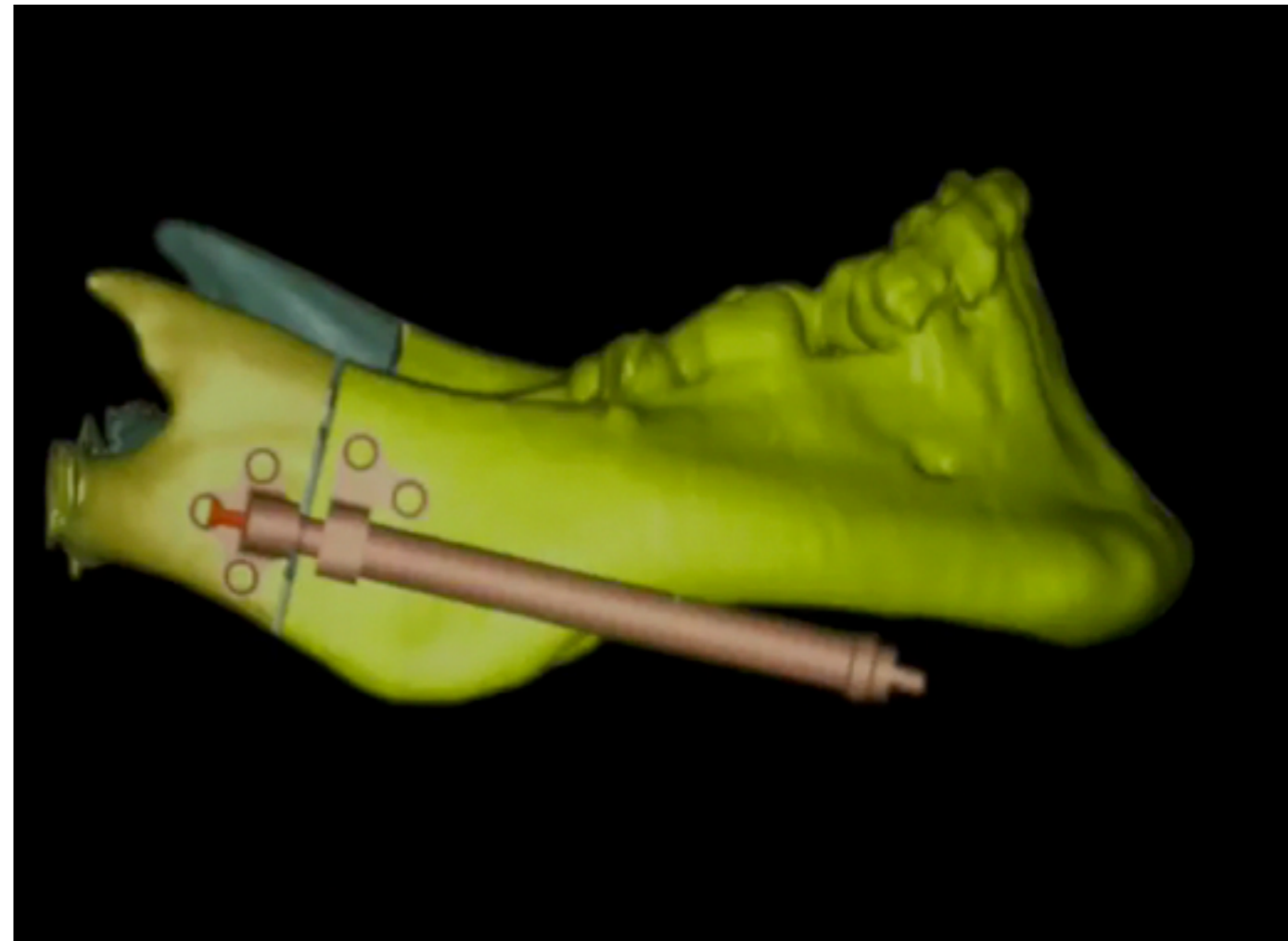


Vertical Alveolar Distraction in atrophic mandible

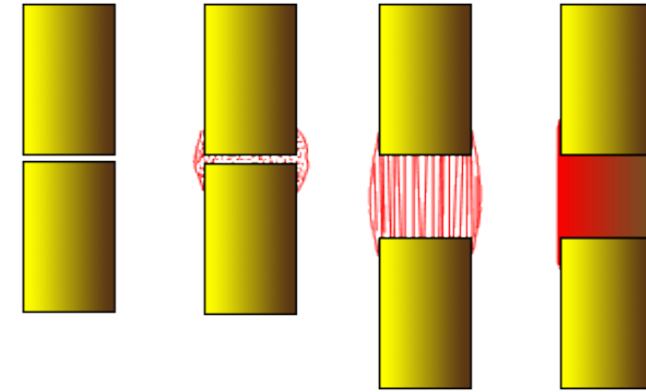


Objectives

- What is DO?
- Principles & Protocol
- Types
- Indications
- Planning
- Clinical Applications
- Pitfalls, Merits & Demerits



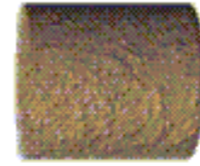
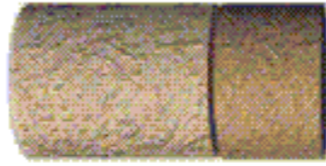
Distraction Osteogenesis



- Distraction Osteogenesis is the biologic process of new bone formation between adjoining bone segments gradually separated by **controlled** incremental traction.
- lengthening of bone
- controlled tension
- a device
- lengthening of soft tissue envelope



History



- Gavriel A Ilizarov (1951), Russia
- *Father of Modern DO.*
- Codivilla (1905)-Italy: Femoral lengthening
- Alexander Limberg (Russia, 1928) lengthening of mandible
- Snyder et al (1973) maxillofacial.
- Constantino (1995) Transport distraction
- Chin & Toth (1996) Alveolar distractn



Phases

- Latency Phase (5-7 days)
 - Age
 - Site
 - Radiation/chemotherapy
- Distraction Phase (as needed)
- Consolidation phase (2-3 months)

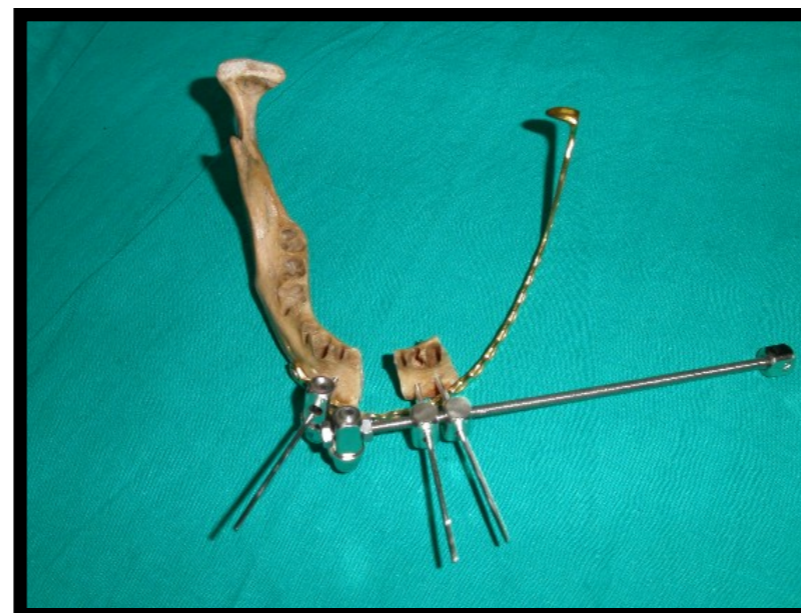


Biomechanical Considerations

- **Distraction Vector**
 - Distractors should be placed parallel to axis of distraction
 - Perpendicular to osteotomy
- **Rate of distraction:** not > 0.8 mm at a time (osteon limit)
- **Rhythm of distraction:** multiple tractions per day, bone formation at a much faster rate
 - Automated Distraction

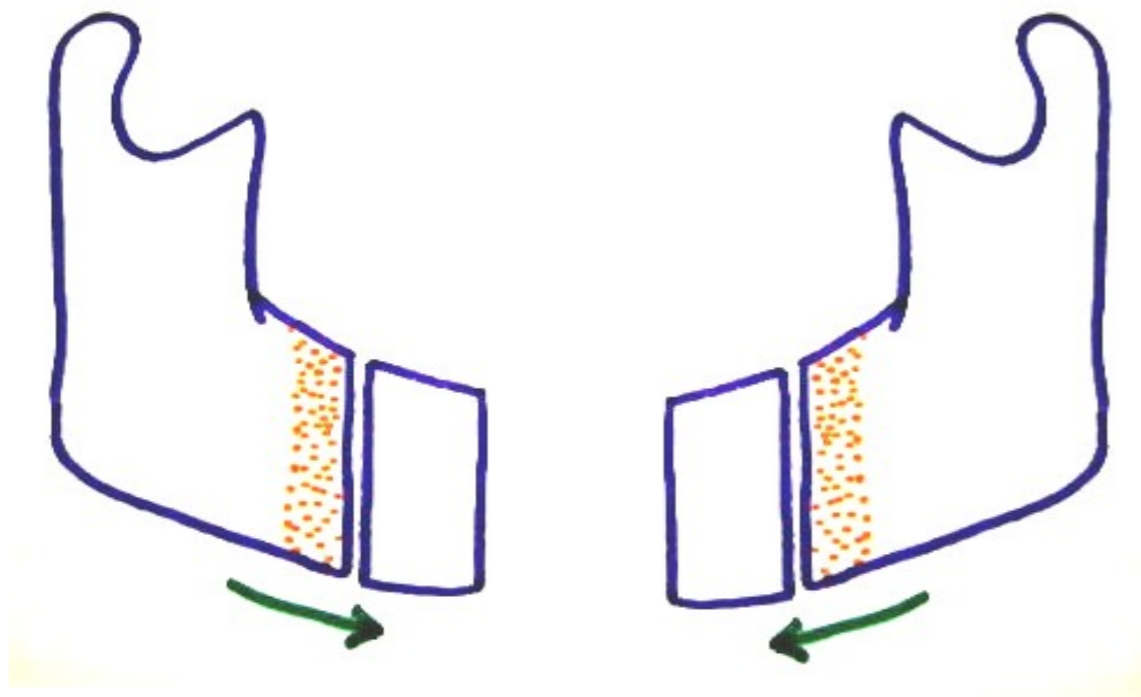
TYPES OF DISTRACTION

- ⦿ Monofocal
- ⦿ Bifocal
- ⦿ Trifocal

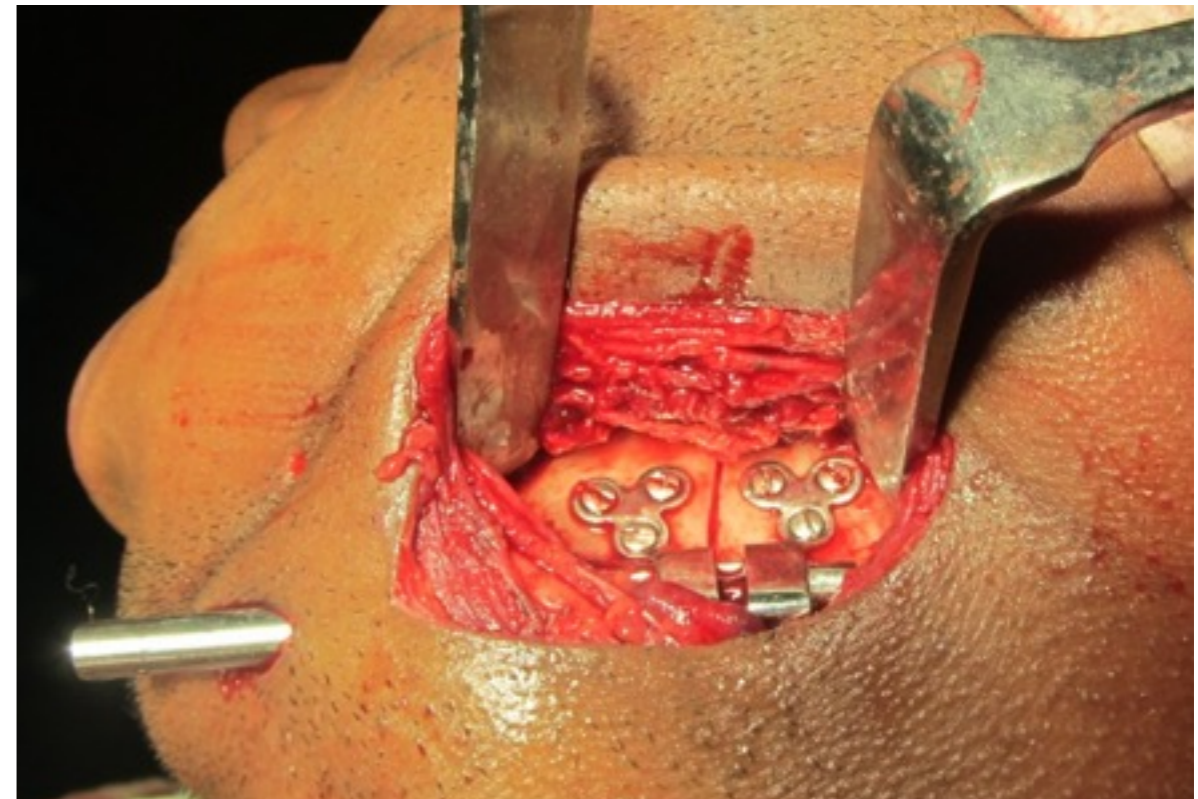


Trifocal distraction

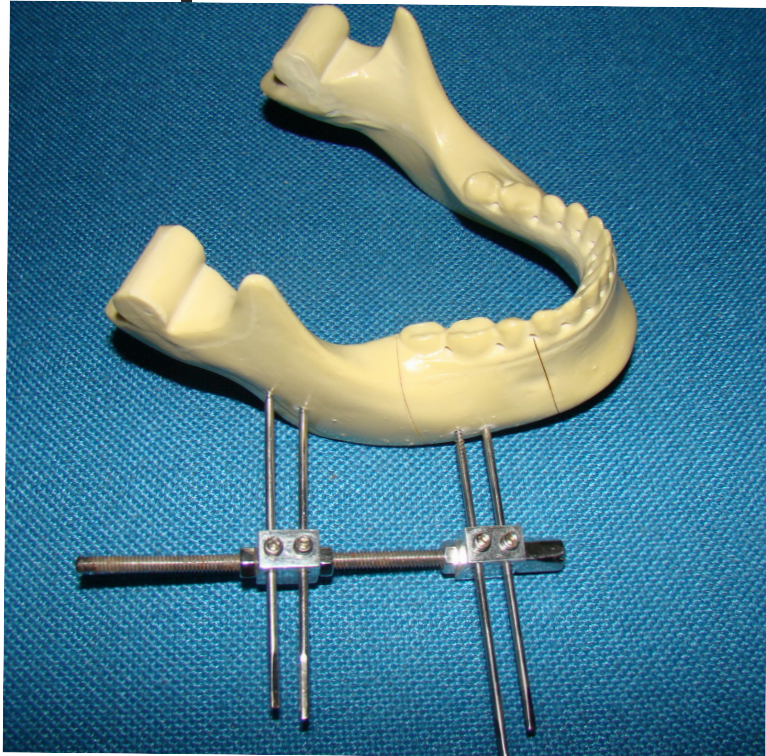
- 2 transport discs
- 4.5-5.5cm of bone gain – meeting in midline
- Annino et al 1994



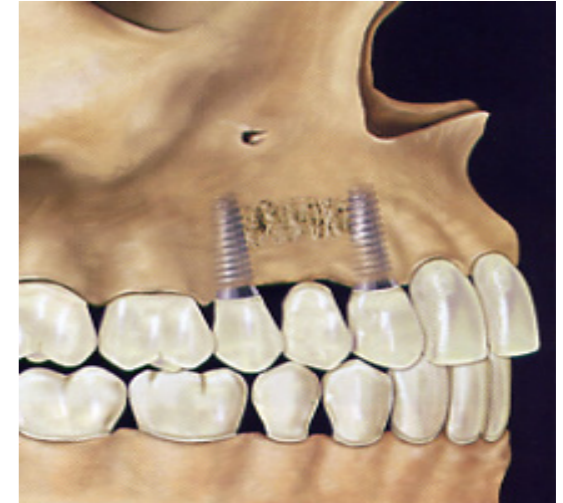
Intraoral Mandibular Distractors



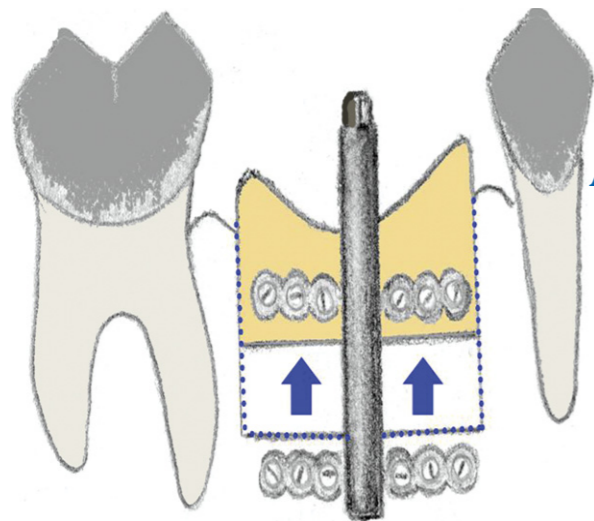
Extraoral Mandibular Distractors



Vertical Alveolar Distraction in atrophic maxilla

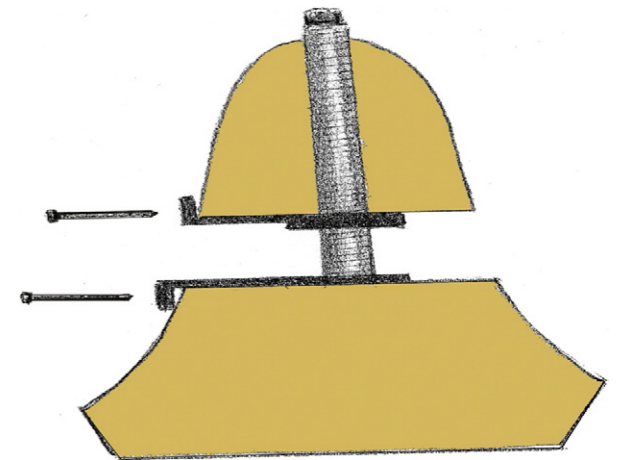


Alveolar Distractors



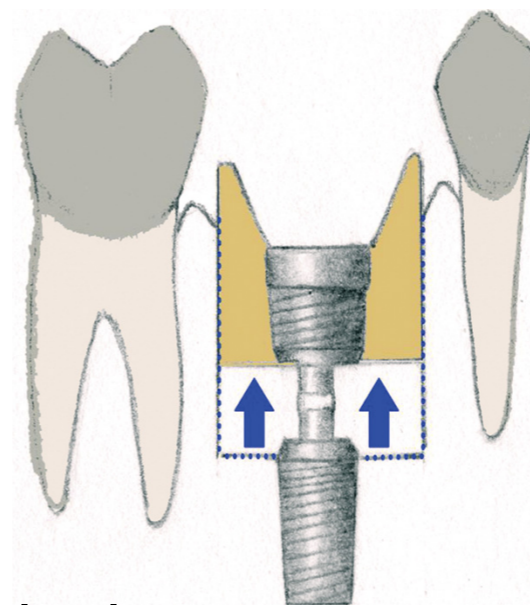
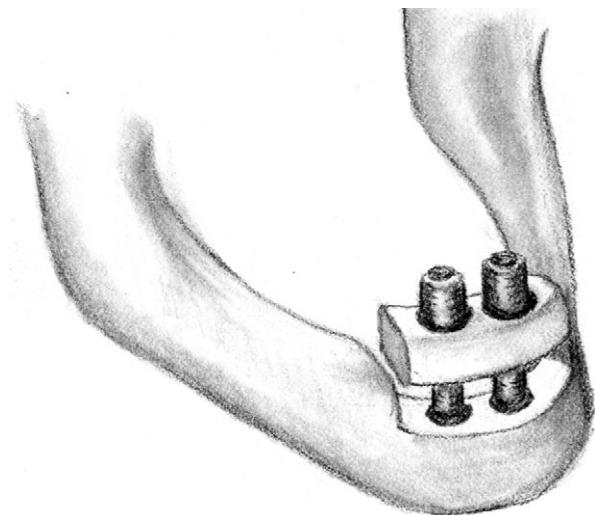
Alveolar ridge augmentation for implant fixation: status review

(Oral Surg Oral Med Oral Pathol Oral Radiol 2012.



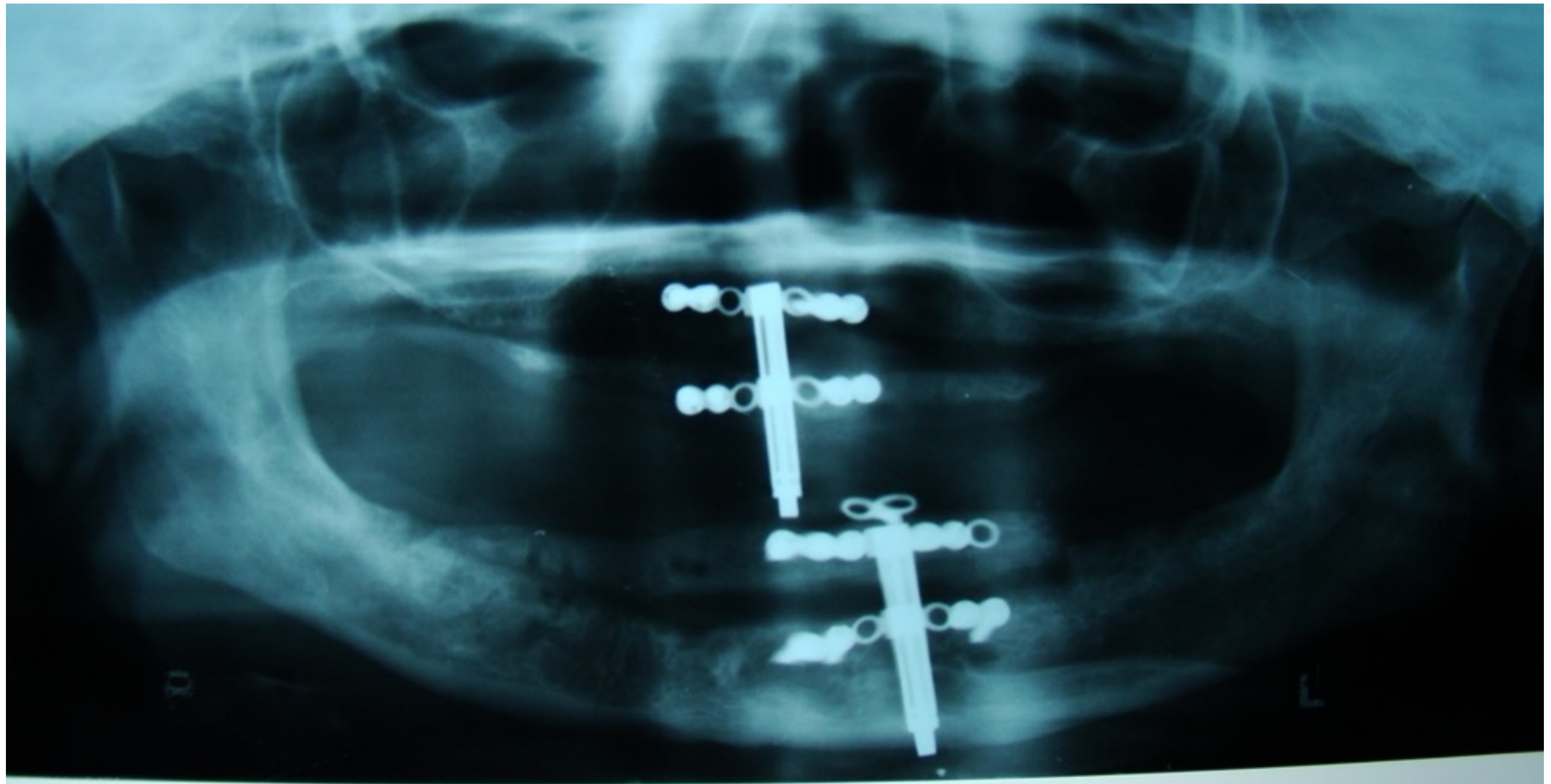
Extraosseous Alv Distractor: Martin

Intraosseous Alv Distractor:
Lead (Lebinger)

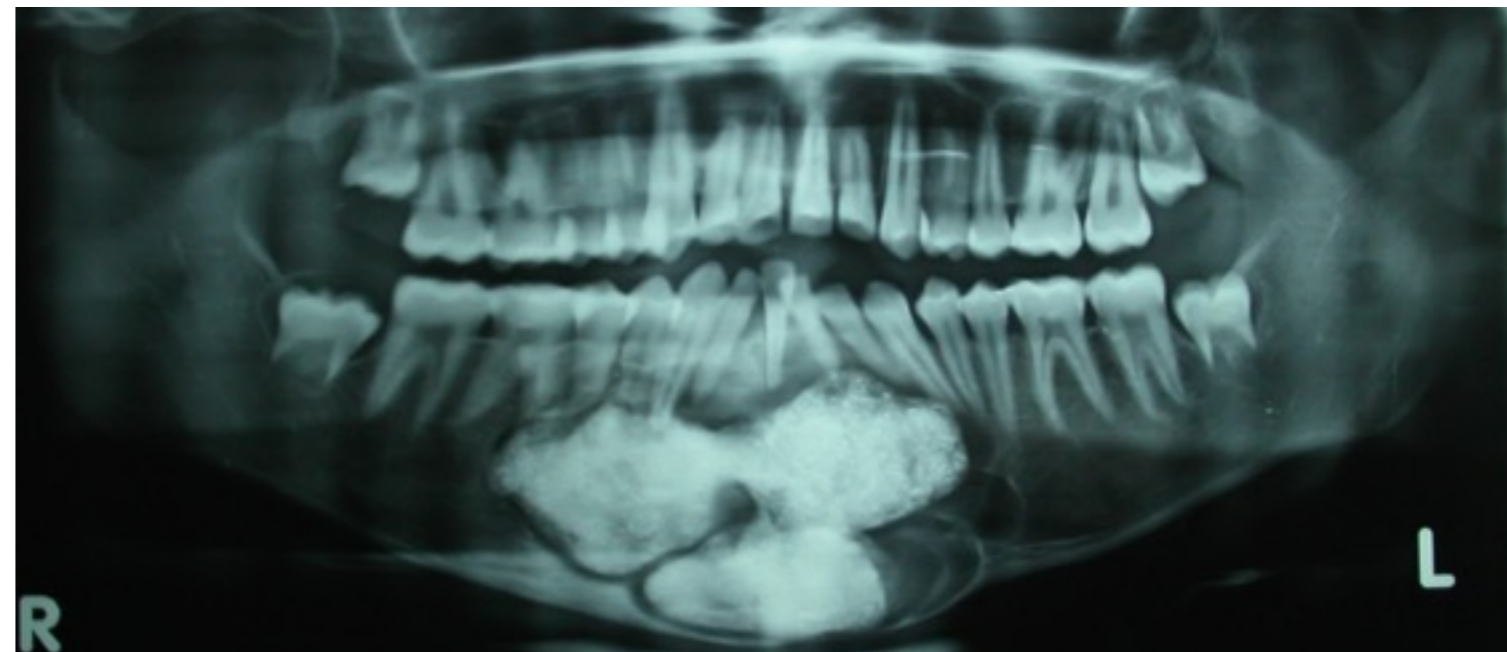
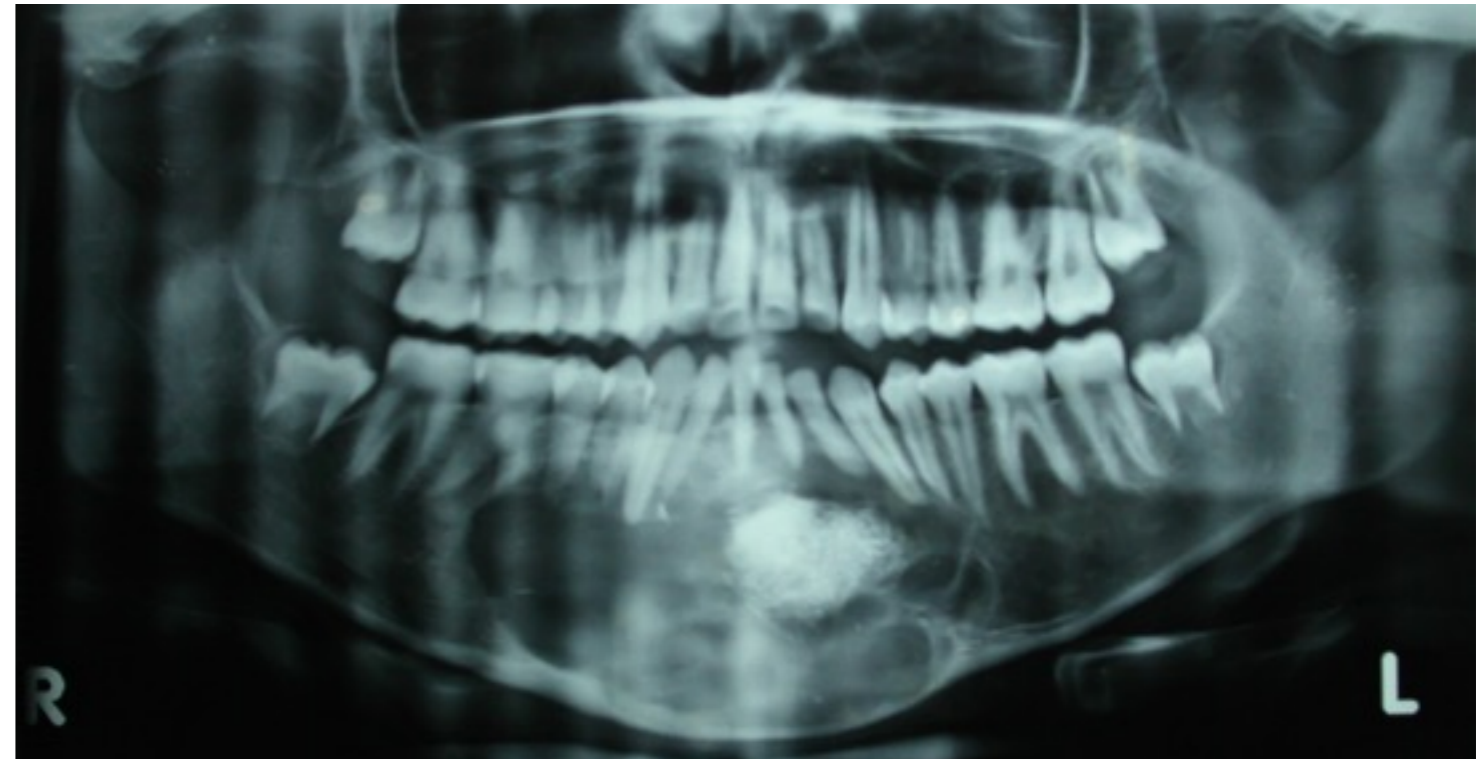


Distraction Implant

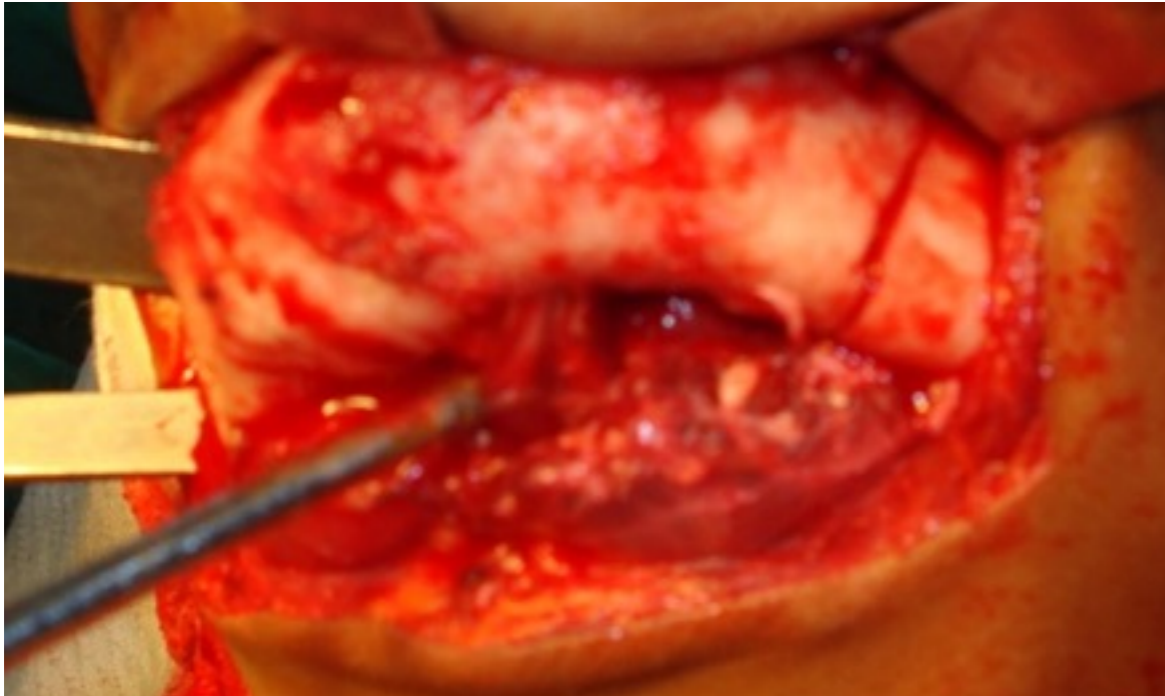
Alveolar Distraction



Amoeloblastoma

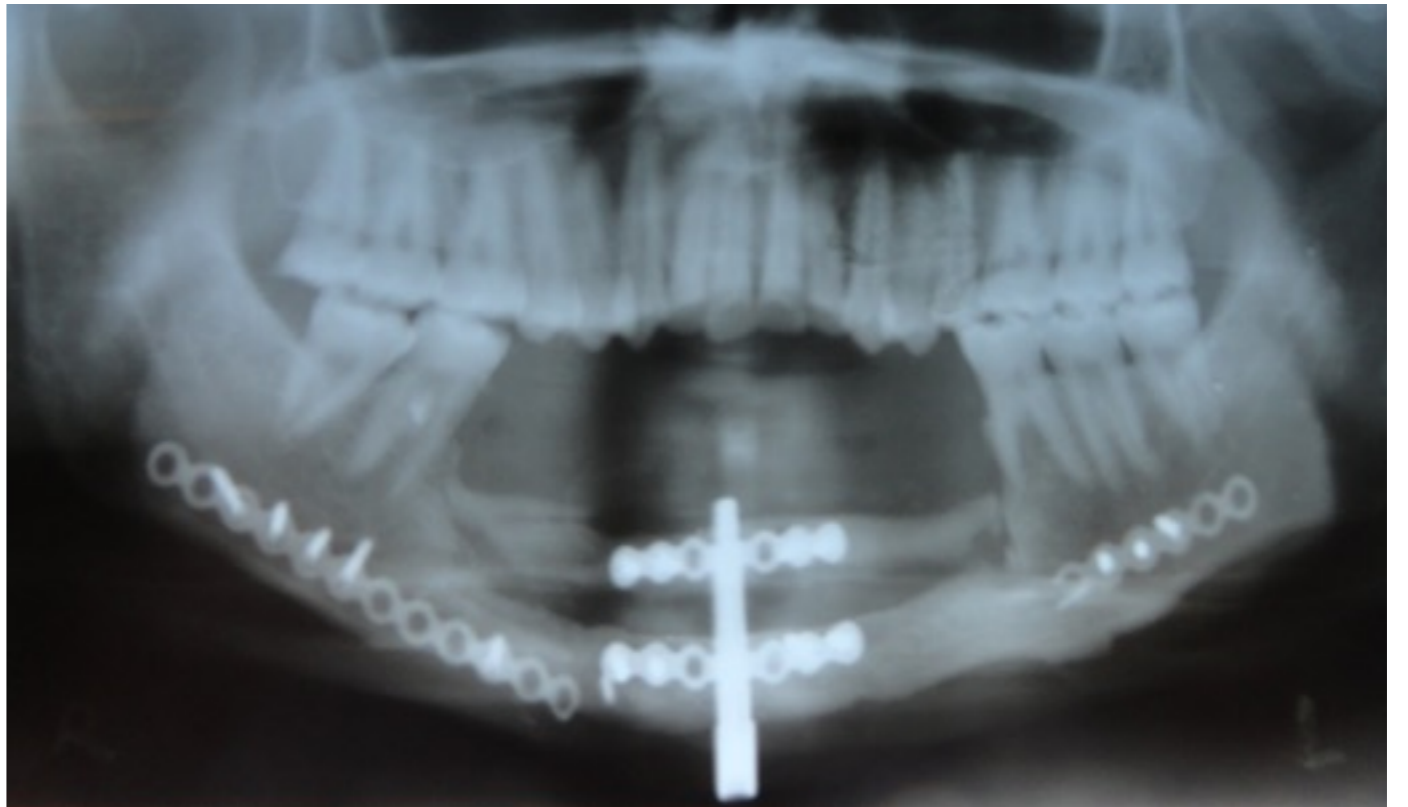
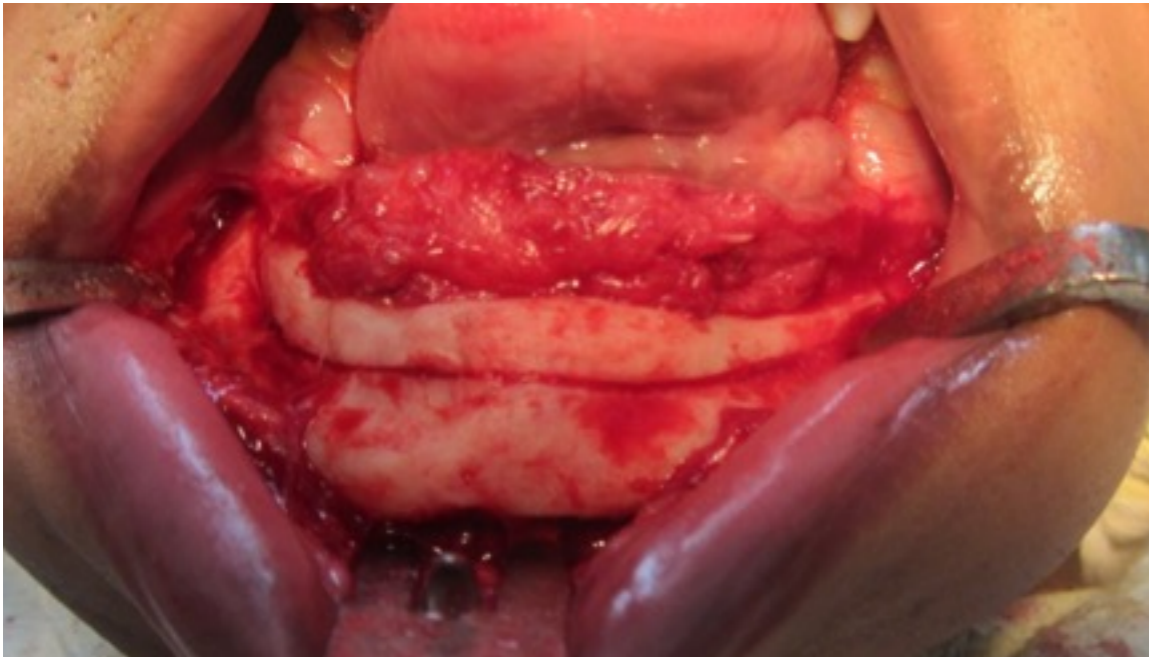
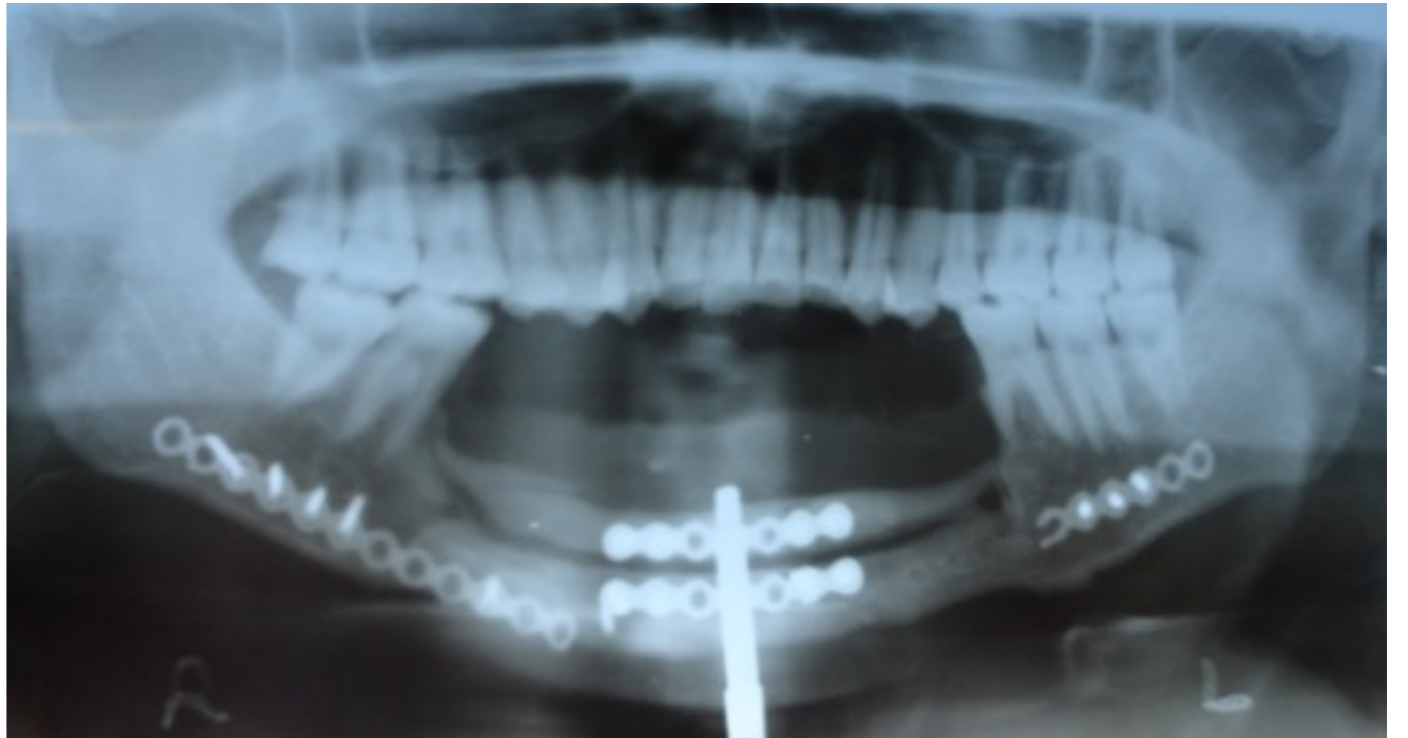
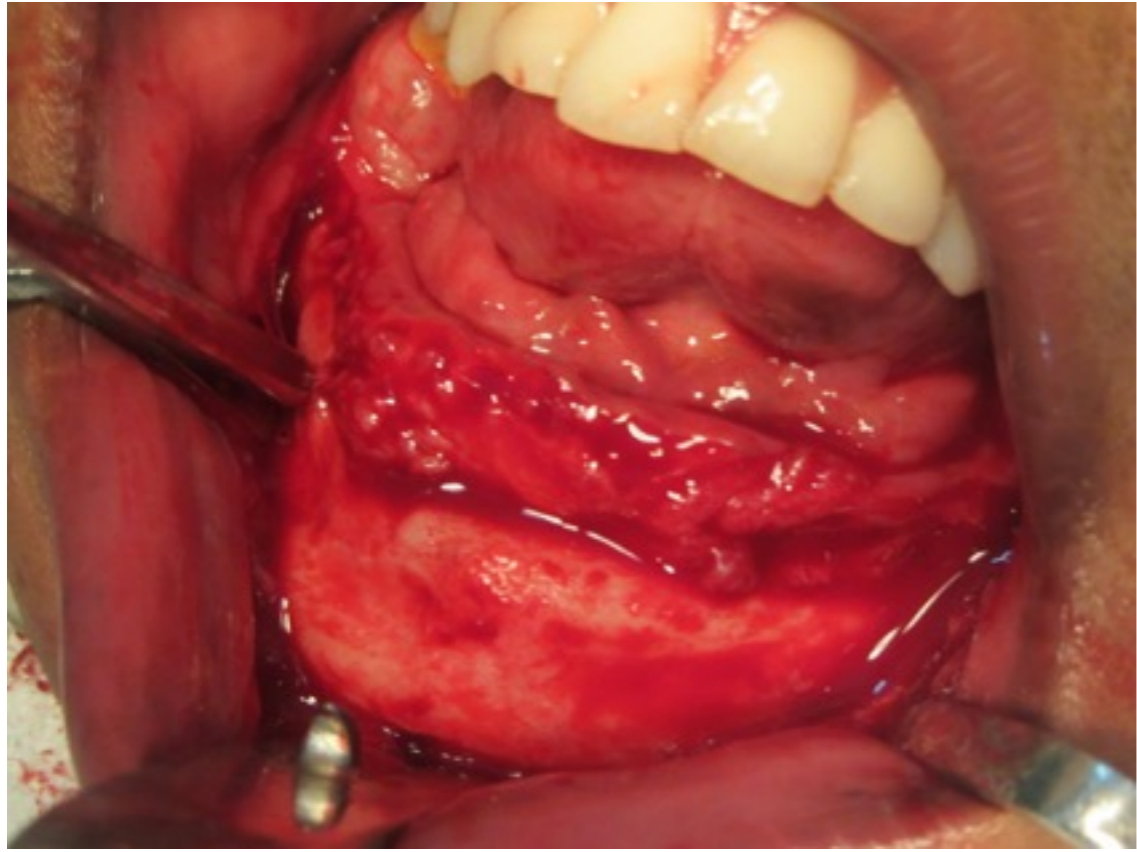


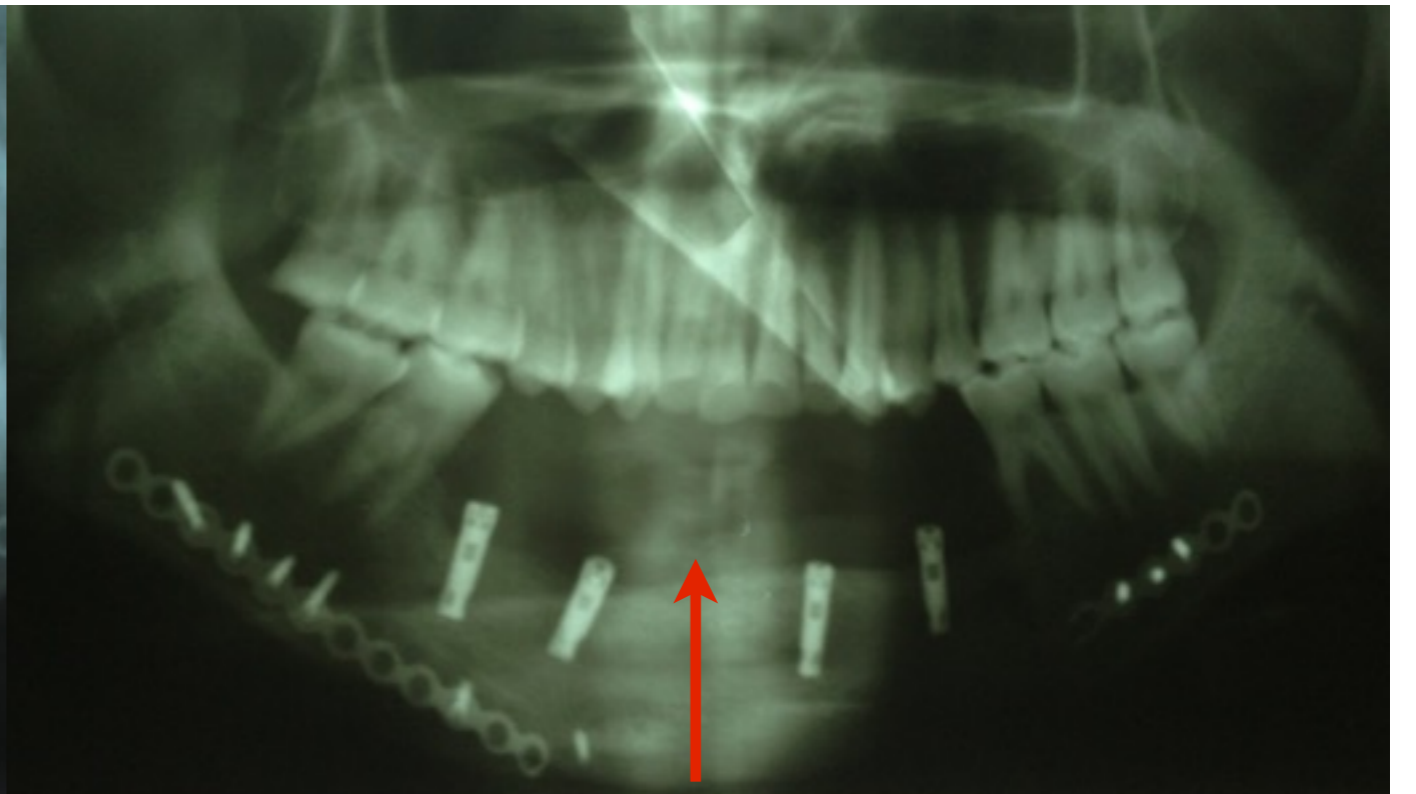
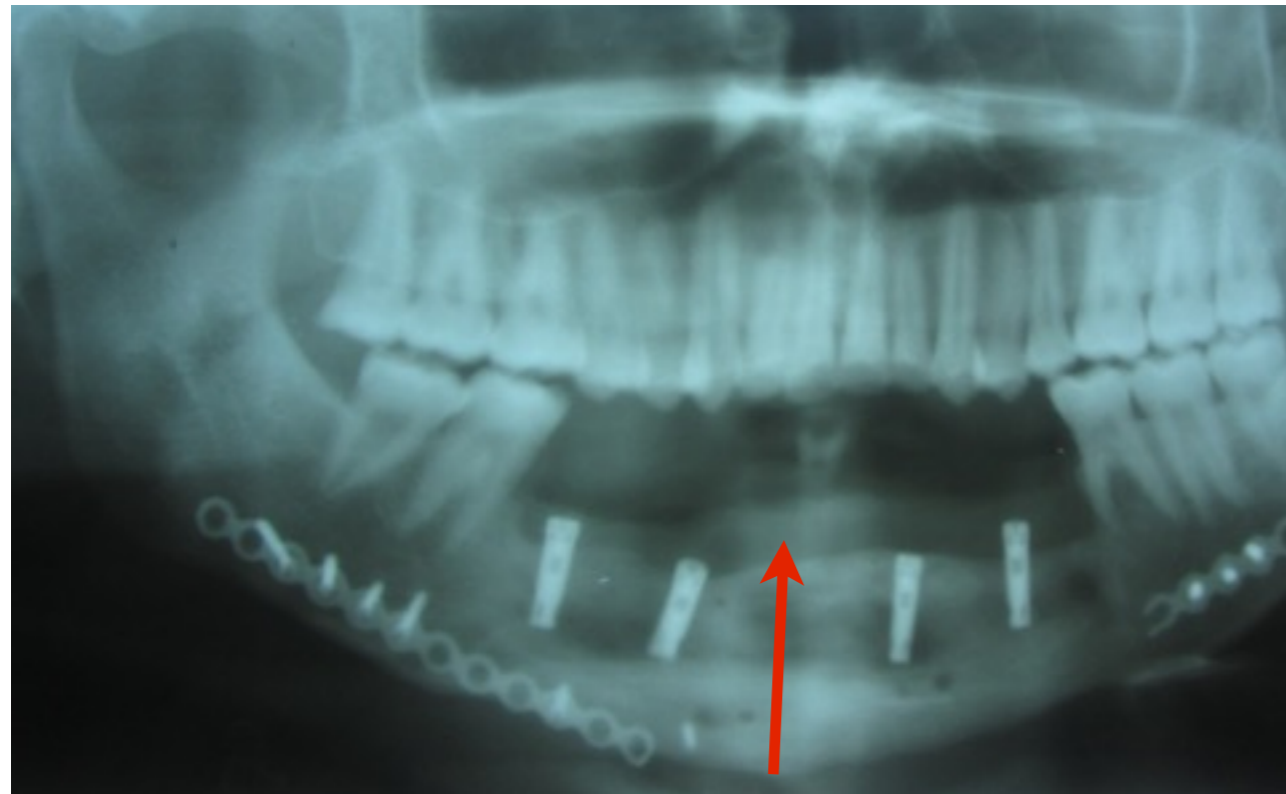
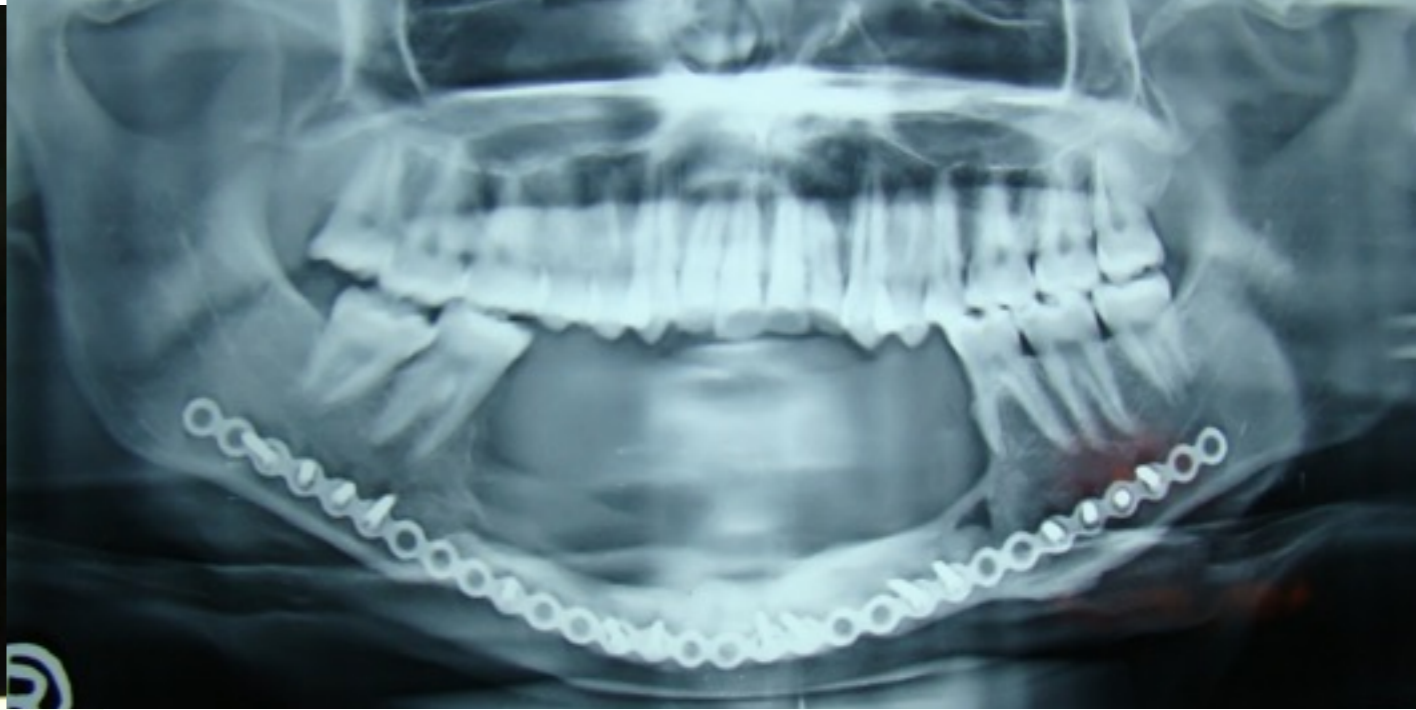
Resection & reconstruction





Alveolar distraction in reconstructed mandible







Merits

- lengthening of muscles, nerves and skin
- expanded bone, even $>20\text{mm}$, of high quality
- good long term stability
- less distortion and loading of TMJ
- less relapse

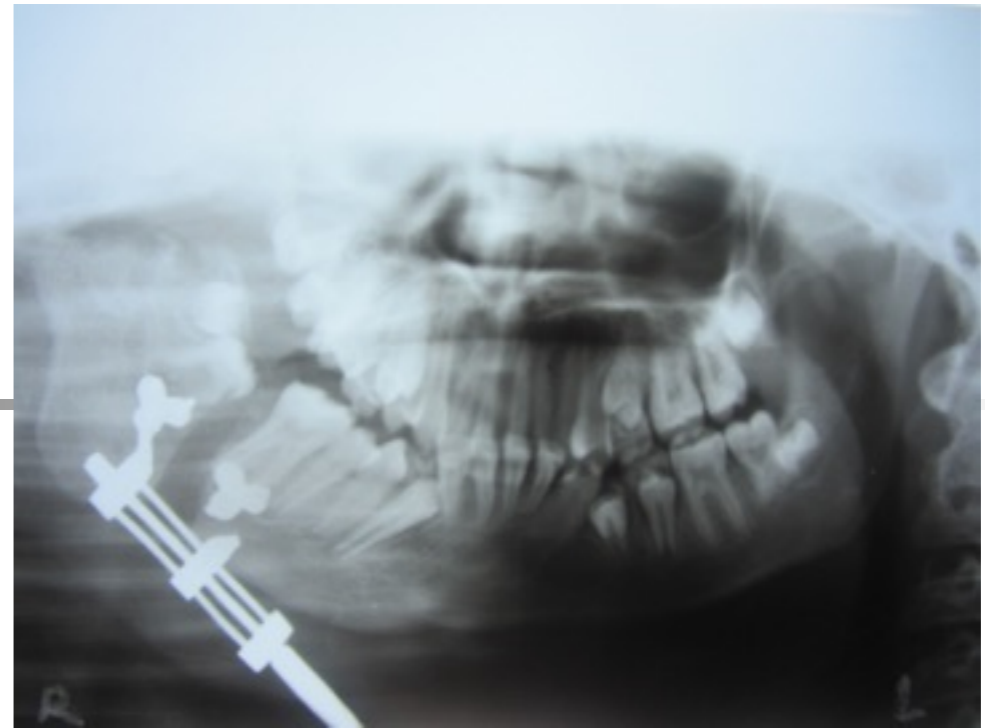


Demerits

- two surgeries required, one to place and other to remove distractors
- inconvenience to patient, as placed for long time.
- scars with extraoral and intraoral distractors

Pitfalls

- Damage to tooth roots
- Fracture /Failure of Hardware
- Loosening of screws
- Paresthesia Inf Alv N
- Malocclusion
- Premature consolidation
- Delayed consolidation/Non Union
- Relapse
- Scar
- Incorrect vector
- Incomplete deformity correction

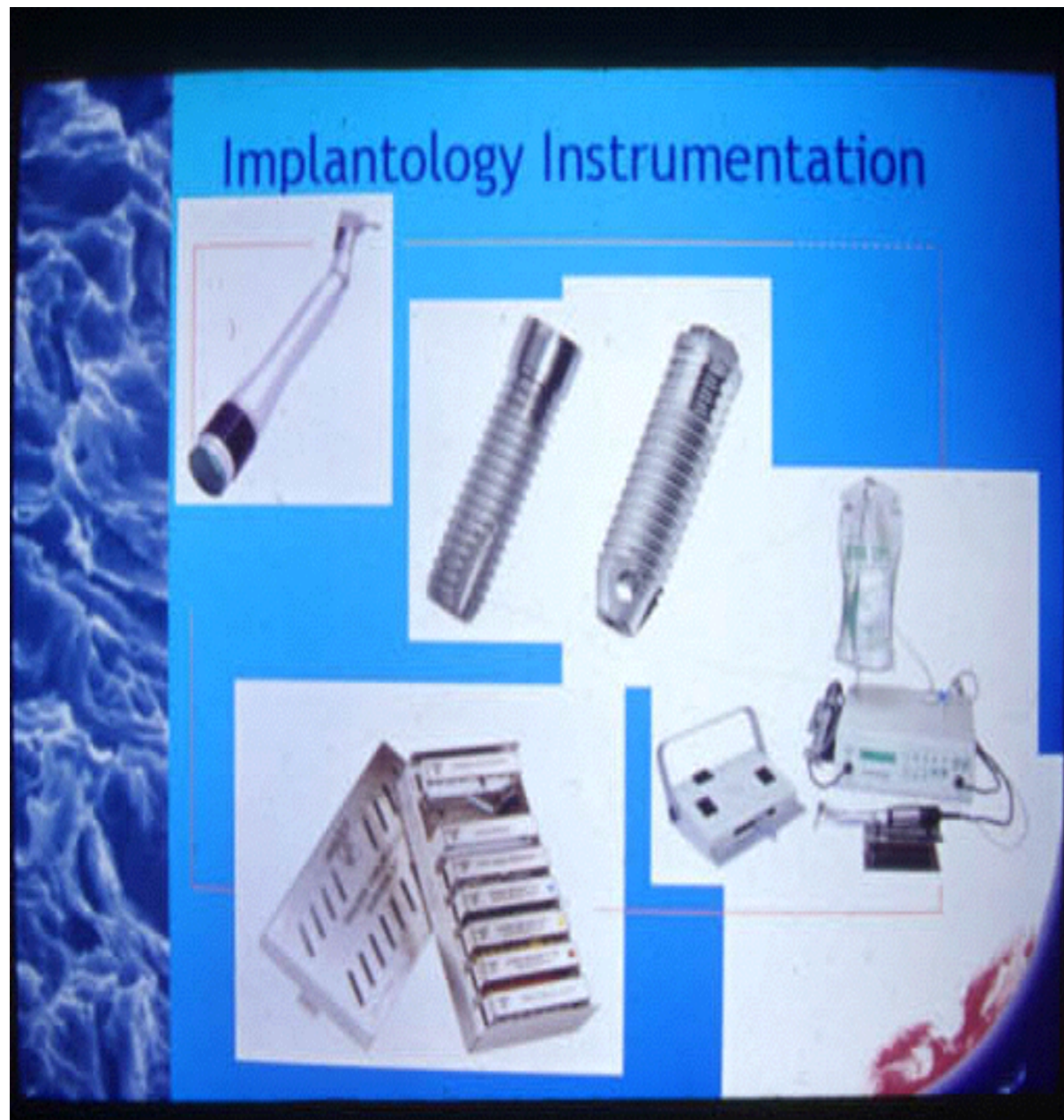
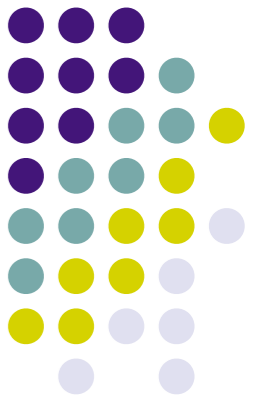




Summary

- Distraction Osteogenesis is a versatile procedure, large distractions possible
- holds great potential for osseous defects of craniofacial skeleton.
- does not carry limitations.
- even in infants & very young patients
- selection of correct device, vector essential

DENTAL IMPLANTS



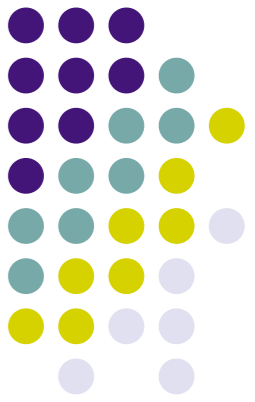
ENDOSTEAL

MUCOSAL

SUBPERIOSTEAL

TRANSOSSEOUS

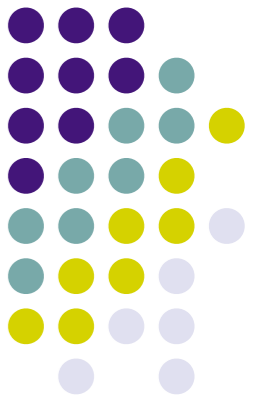
DENTAL IMPLANTS



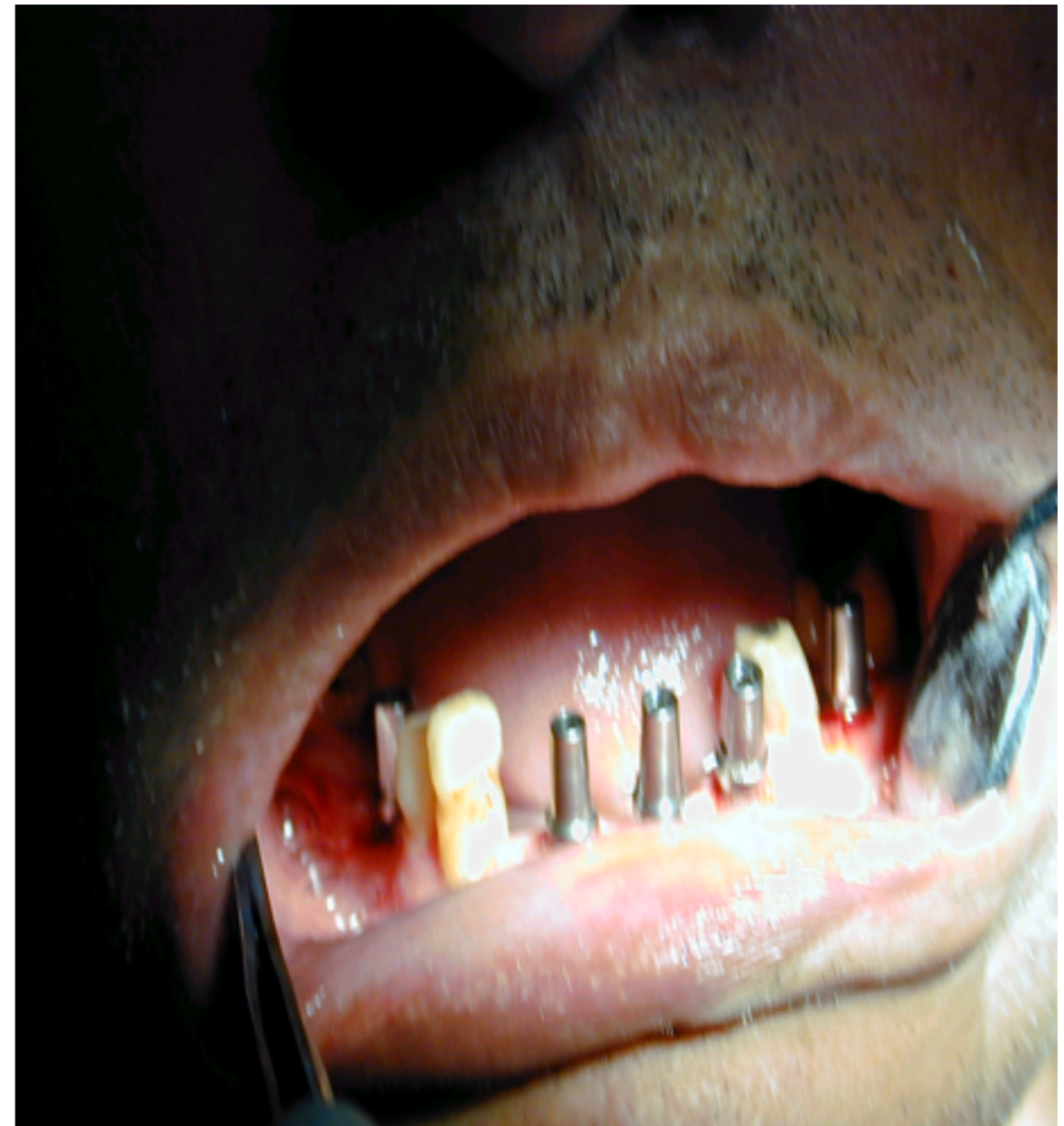
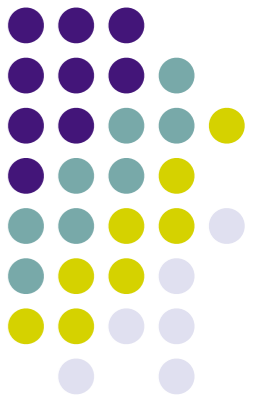
- also k/a endosseous implant or fixture
- surgical component that interfaces with the bone of the jaw or skull
 - to support a dental prosthesis: crown, bridge, denture, facial prosthesis
- or
 - to act as an orthodontic anchor.

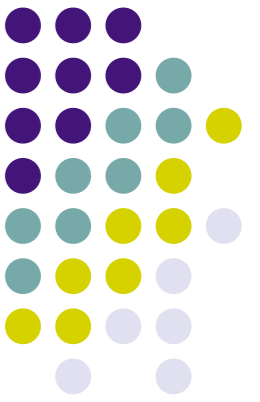
Osseo-integration

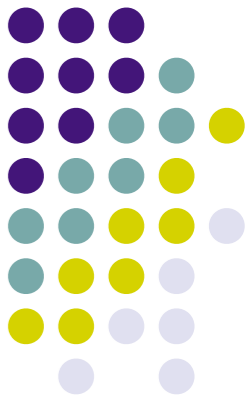
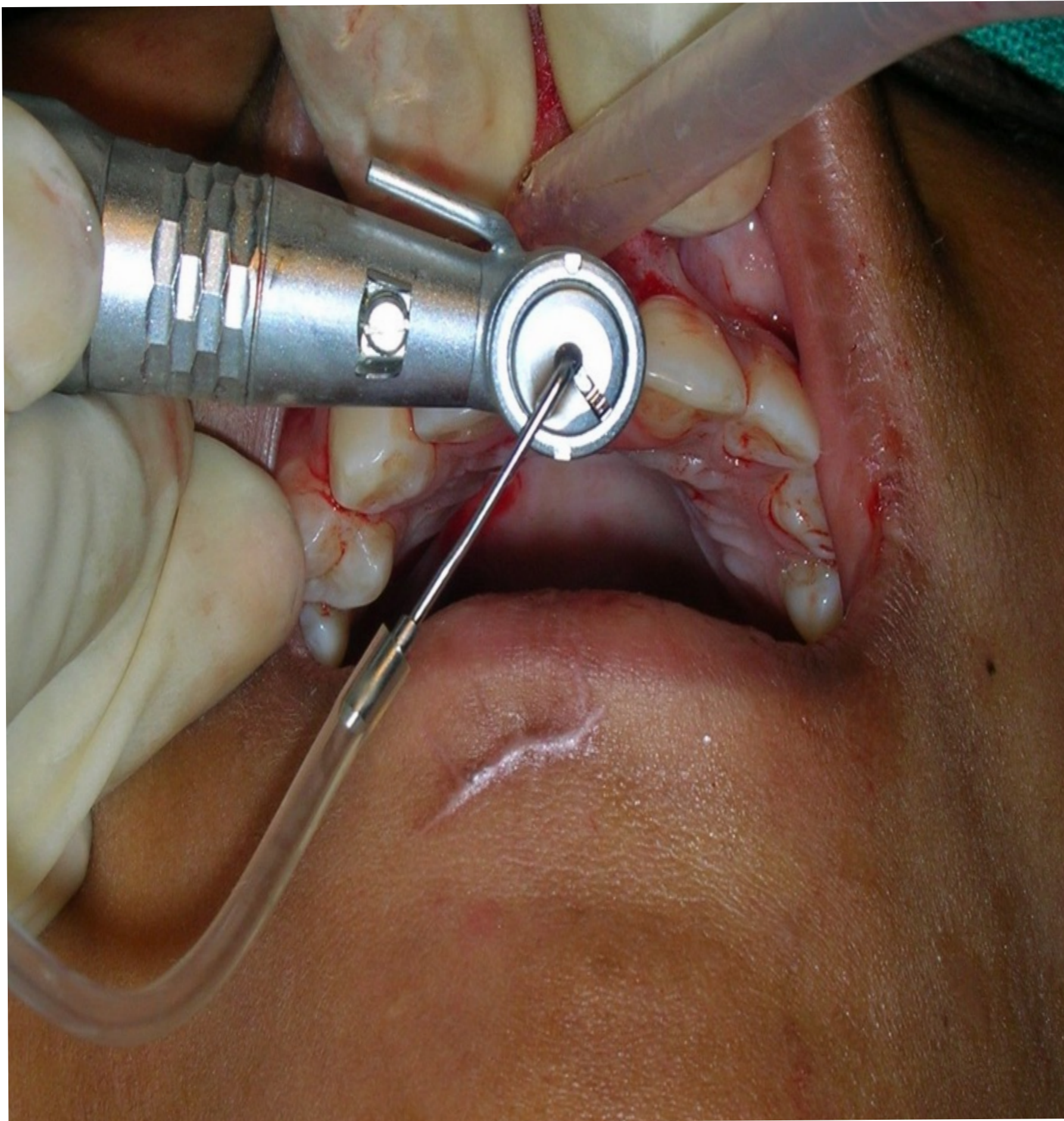
- form an intimate bond to bone
- materials, such as titanium.

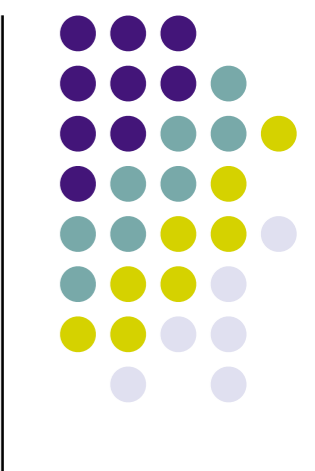


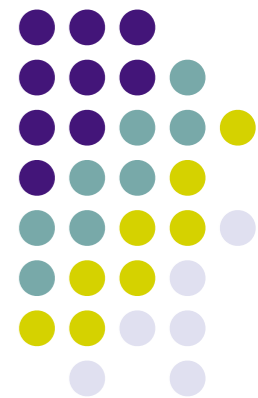
DENTAL IMPLANTS

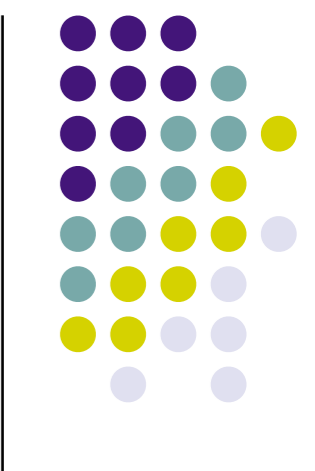




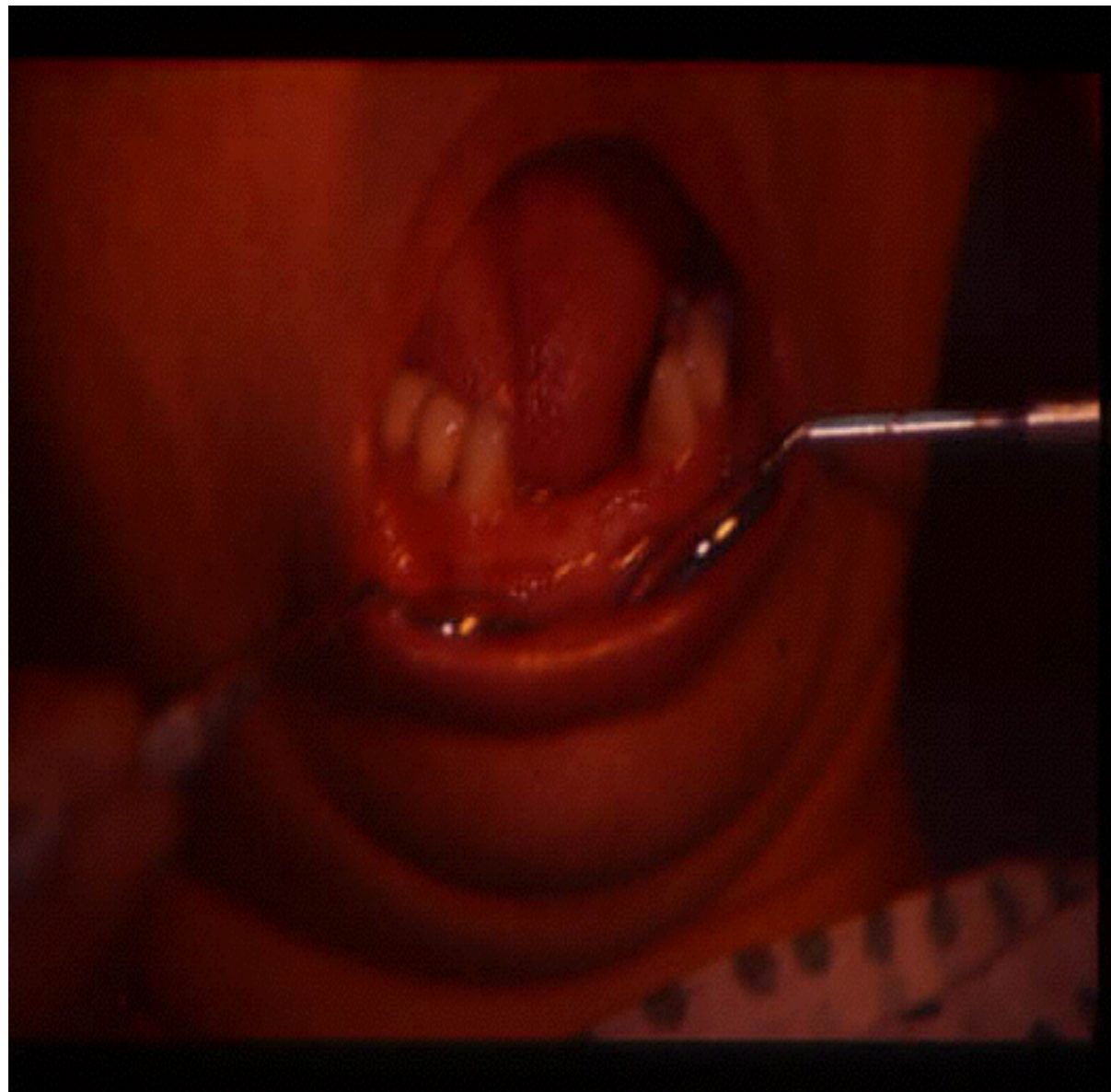
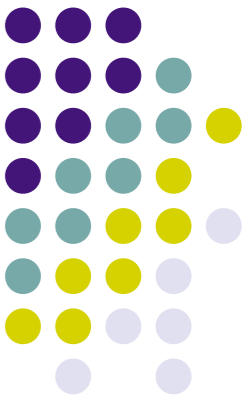


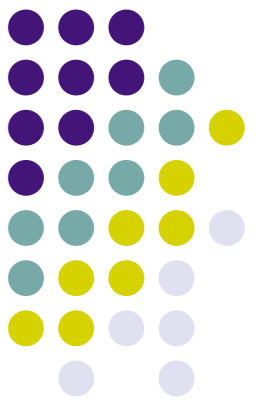




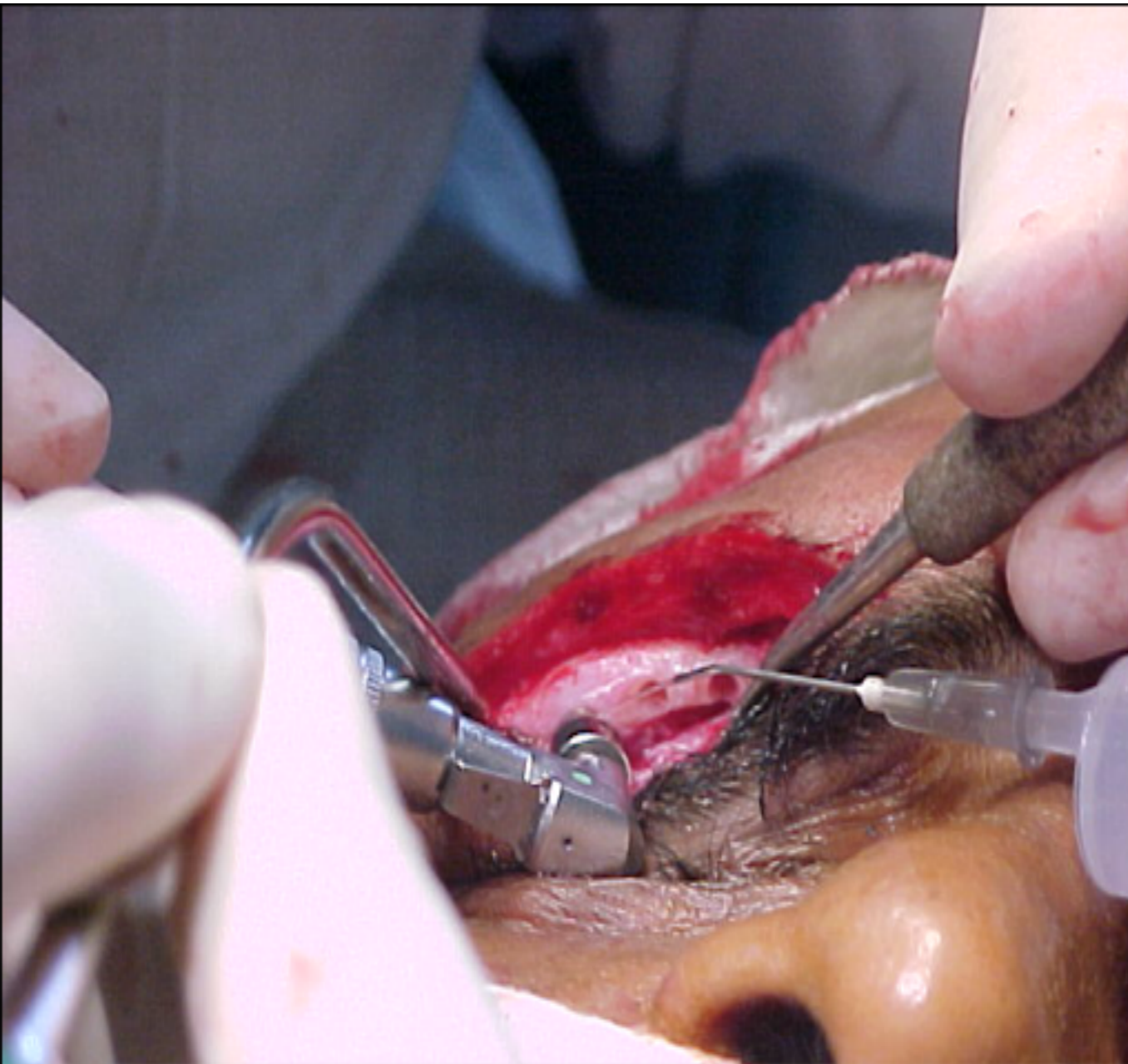
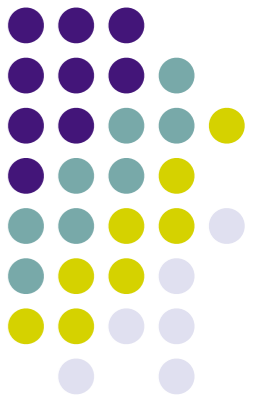


DENTAL IMPLANTS





Craniofacial Implants-Eye



MVC-769F.JPG



MVC-774F.JPG



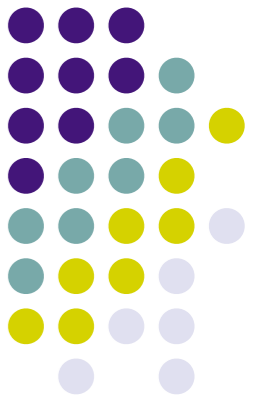
MVC-777F.JPG



MVC-864F.JPG



Craniofacial Implants- EAR

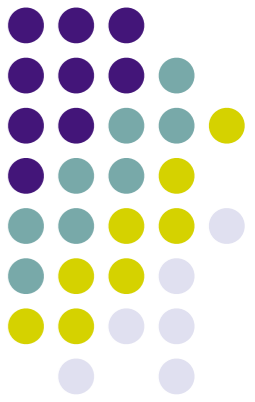


MVC-070F.JPG



MVC-848F.JPG

SOFT TISSUE PROCEDURES



REMOVAL OF REDUNDANT CRESTAL SOFT TISSUE:

long term poor fitting prosthesis/ excessive alveolar bone resorption/ normal dentition against complete denture

Anterior mandible and maxilla

Bony augmentation/ Implants preferred

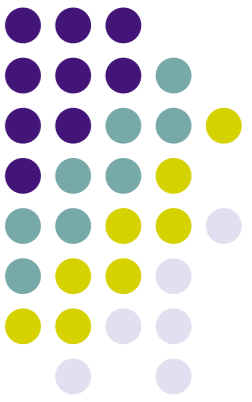
Preserve valuable attached mucosa

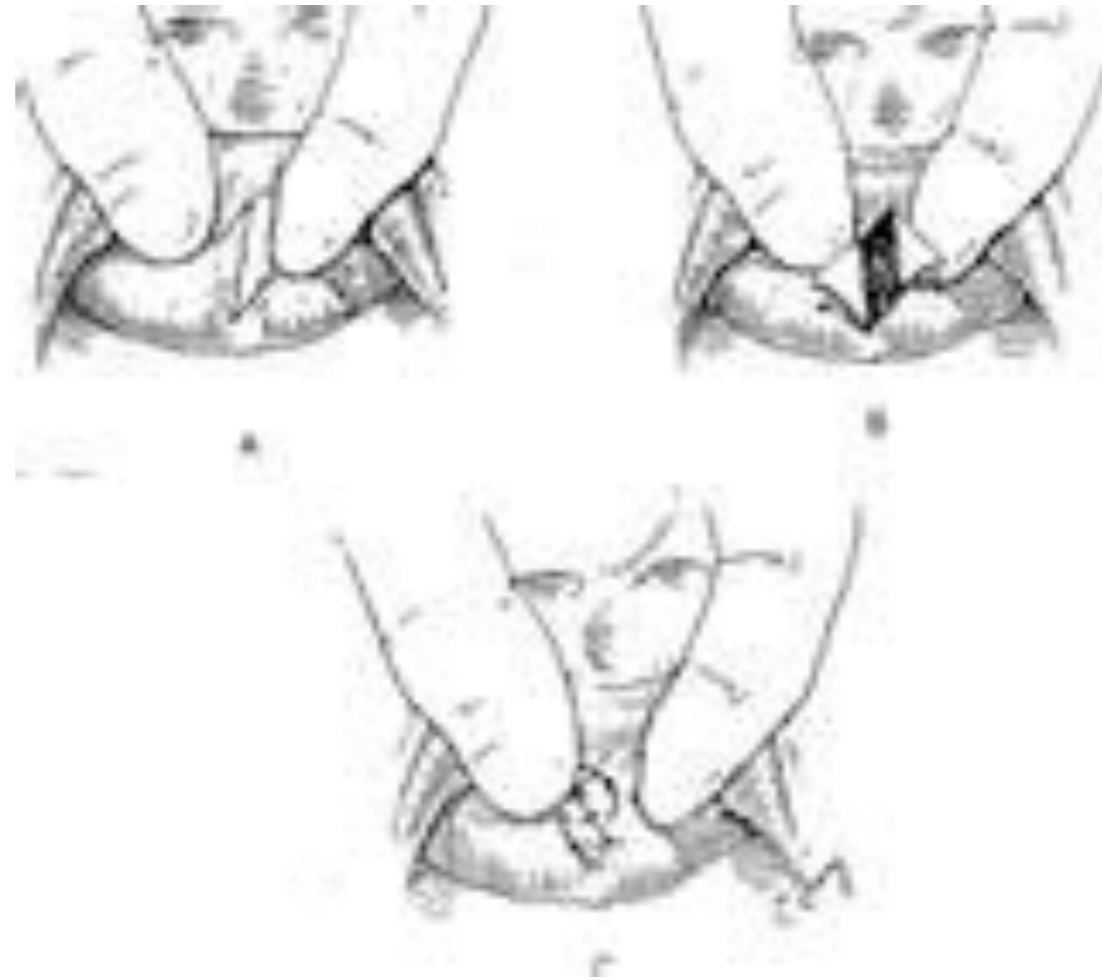
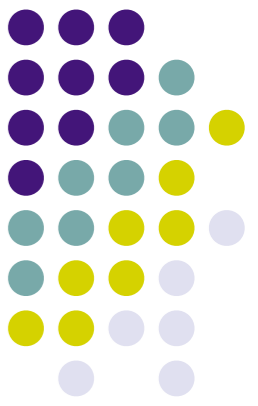
Care: min trauma to remaining tissues

Avoid excessive tissue excision that may obliterate vestibule

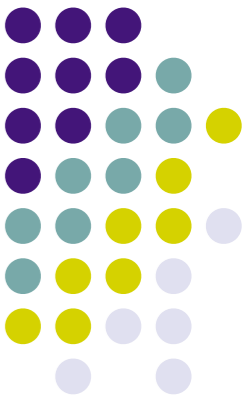
FRENECTOMY

- Max midline frenum, ling frenum, mx. Md. Buccal frenum
- DIAMOND incision: soft tissue sufficient
- Z PLASTY: short, broad frenum





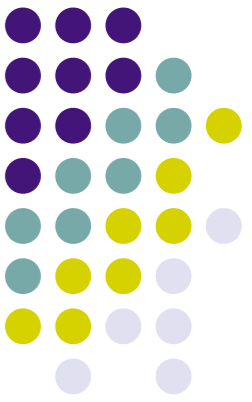
EPULIS FISSURATA



Benign pedunculated lesion, presents as excessive vestibular tissue

- Sharp excision
- Electrocautery
- Cryosurgery
- Laser excission

PALATAL PAPILLARY HYPERPLASIA



Secondary to chronic denture irritation under poor fit denture, some degree of candidal infection

Tt: denture relief, tissue conditioner

Antifungal

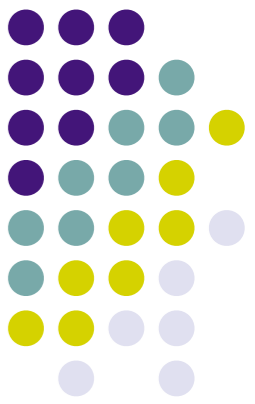
Electrocautery loop

Curettage

Cryo

Laser

VESTIBULOPLASTY

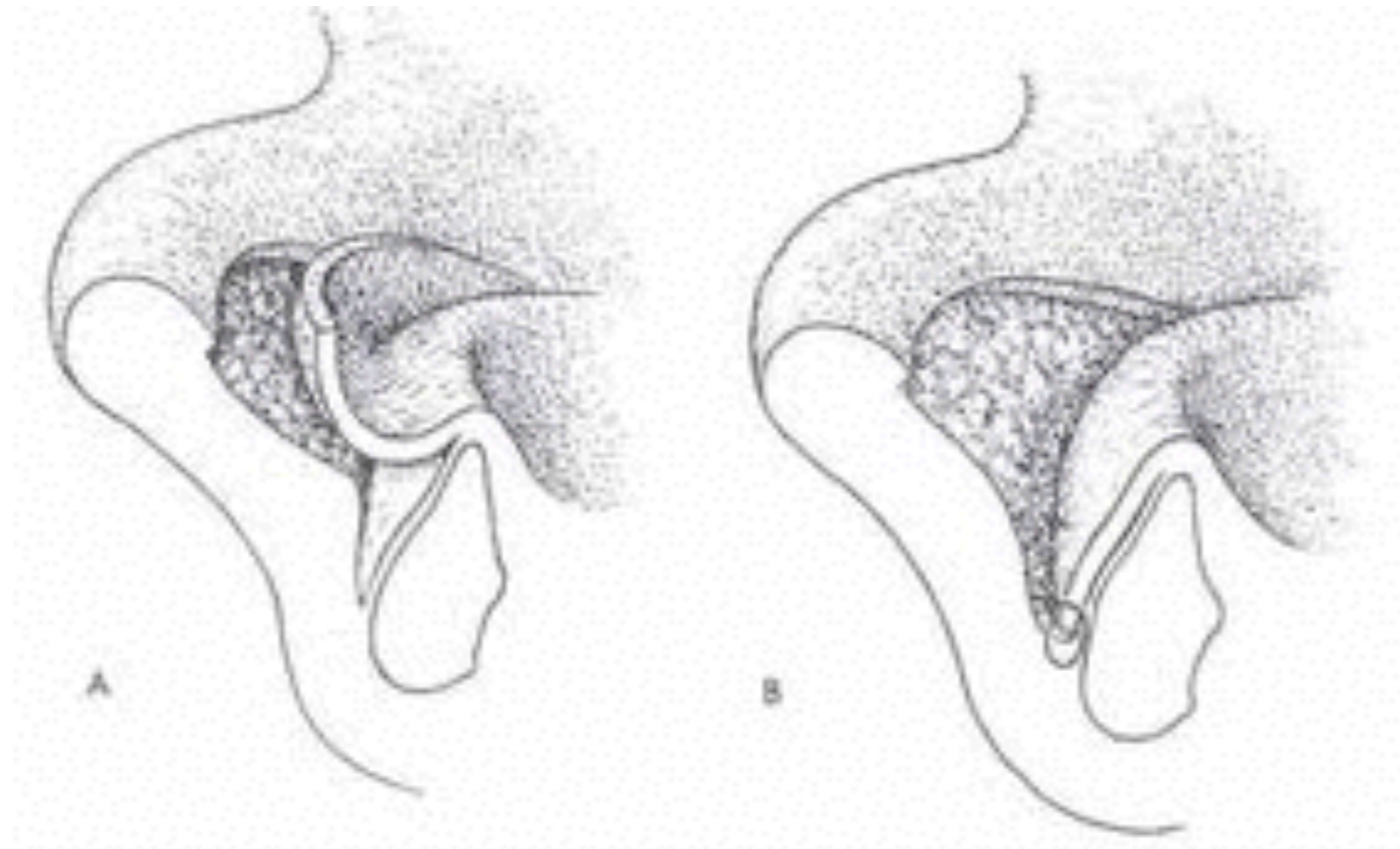
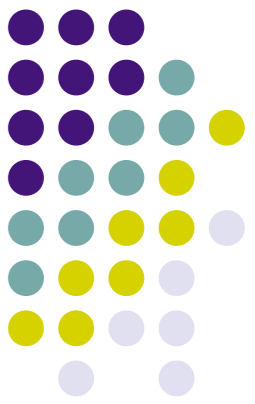


Types

- Mucosal Advancement (submucosal) Vestibuloplasty
- Secondary Epithelialization Vestibuloplasty – Kazanjian and Clark Techniques
- Grafting Vestibuloplasty – Mucosal vs. Skin Graft vs. Alloderm

- MANDIBULAR
- MAXILLARY

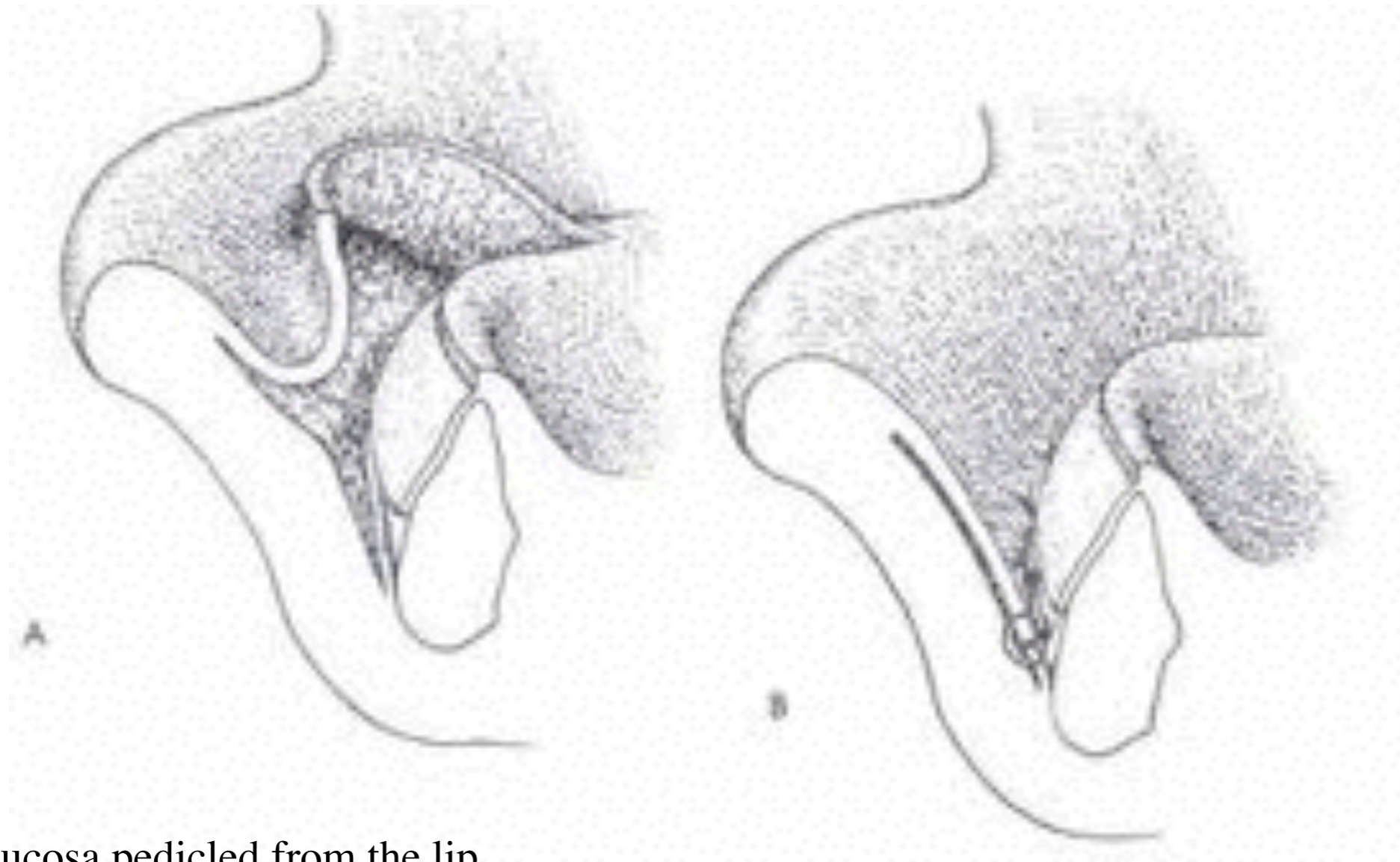
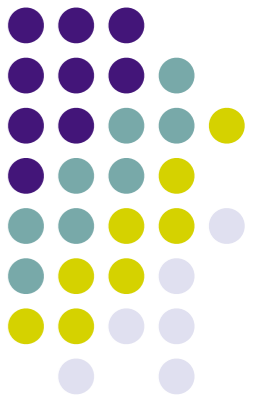
Kazanzian's vestibuloplasty (lip switch)



Mucosal flap pedicled from alveolar ridge elevated from underlying tissue and sutured to depth of vestibule.

Inner portion of lip is allowed to heal by secondary epithelialization.

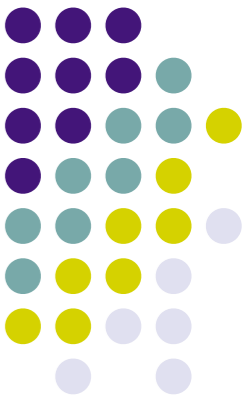
Clark's Vestibuloplasty



mucosa pedicled from the lip

denuded periosteum heals by secondary epithelialization.

Objective 1

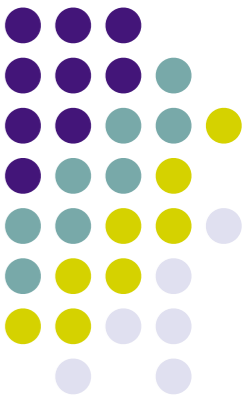


Secondary to chronic denture irritation under poor fit denture, some degree of infection seen

It should be

- a denture relief,
- b Antibacterial local application
- c mouth wash
- d denture adjustment with anti fungal

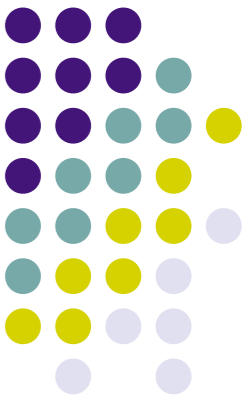
Objective 2



In order to gain good bony ridge support, the preferred choice of treatment is

- a denture relief
- b vestibuloplasty
- c alveolar distraction
- d superior ridge augmentation

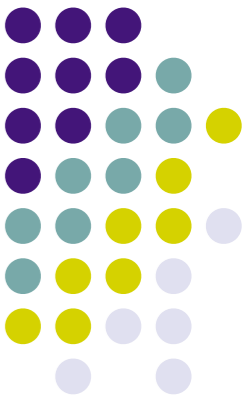
Objective 3



Distraction osteogenesis allows

- a bone lengthening
- b muscle lengthening
- c nerve distraction
- d all of the above

Objective 4



Vestibuloplasty is done to achieve

- a bone lengthening
- b bone shortening
- c vestibule lengthening
- d vestibule shortening