Operation technique of tooth removal II. Surgical removal of teeth and roots

Indications of surgical tooth removal:

In those cases when the root removal is impossible without surgical approach

- Obligatory treatment
  - Geometric reasons (bending, divergent roots)
  - Risk of root fracture (e.g.. ankylotic root)
  - Risk of injury of sourrounding anatomical structures
  - Relict root
  - Unerupted teeth
- Alternative treatment option
  - Destroyed crown
  - Root fracture (medium or apical level)

Indications of surgical tooth removal:

- We can plan it, or
- We aren't able to extract the tooth and so it is obligatory
  - Modifying the original plan
    - State of tooth (periodontal, extension of caries lesion)
    - The dentist's experience, available instruments
  - Timing
    - Immediately
    - Delayed – recall the patient
    - Sending them to a specialist
- Certain cases, which look more difficult, can be surprisingly solved with some smart ideas
- And vica versa …. :-/

Contraindications of surgical tooth removal:

Contraindications are the same as the contarindication of tooth extraction:

„Absolute" contraindications

General contraindications of operations:

Acute (cardiac, pulmonal, cerebral) vascular catastrophe e.g.. myocardial infarct, coronal thrombosis, stroke, shock

- **Haemopoetic diseases (acute leukaemia, agranulocytosis)**
- **Irradiation of jaws**

Relative contraindications:

- **General bad state (cahexia, anaemia, ...)**
- **Increased susceptibility to infections (any hypo immunity, immunosuppressive therapy, corticosteroid therapy)**
- **Acute contagious diseases**
- **Acute infections of the oral cavity**
- **Coagulopathy, anticoagulant therapy (without consultation or pre-treatment)**
- **Bisphosponate administration, high dosage**

Relative II. contraindications:

Preserving the space

- **Orthodontic &**
- **Prosthetic respects**

Relative III. contraindications:

- **Prosthetic**
- **Esthetical**
- **Economical respects**

Always
the least serious
intervention is to be
carried out, that is still likely to
provide the best results.

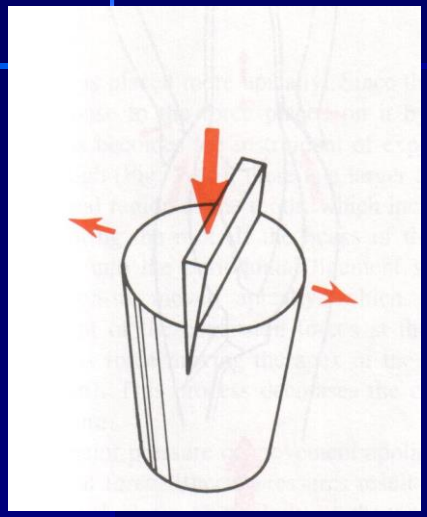
Alternatives to surgical tooth removal:

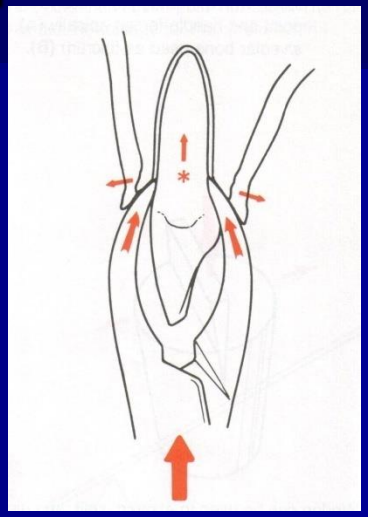
- Root forceps
- Elevators
- Splitting of roots
- Other solutions

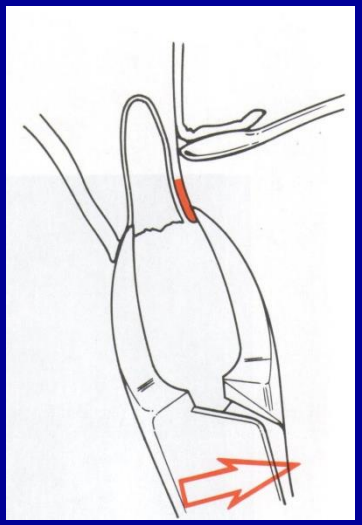
Alternatives to surgical tooth removal:

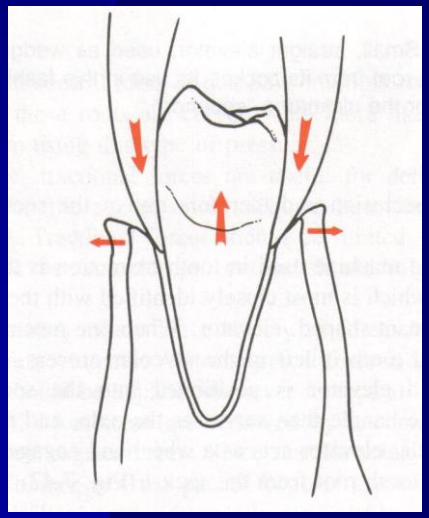
- Root forceps, if 2 surfaces…,
- Elevators, if 1+1
- Splitting of roots
- Other solutions

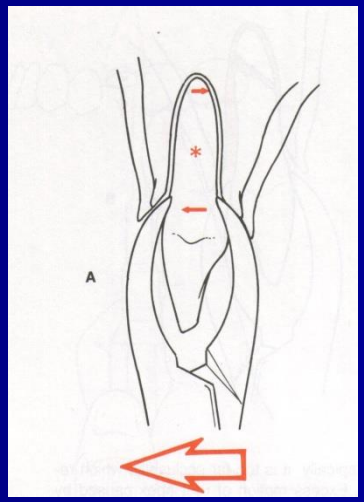
Biomechanical principles of tooth extraction by forceps. if 2 surfaces…,



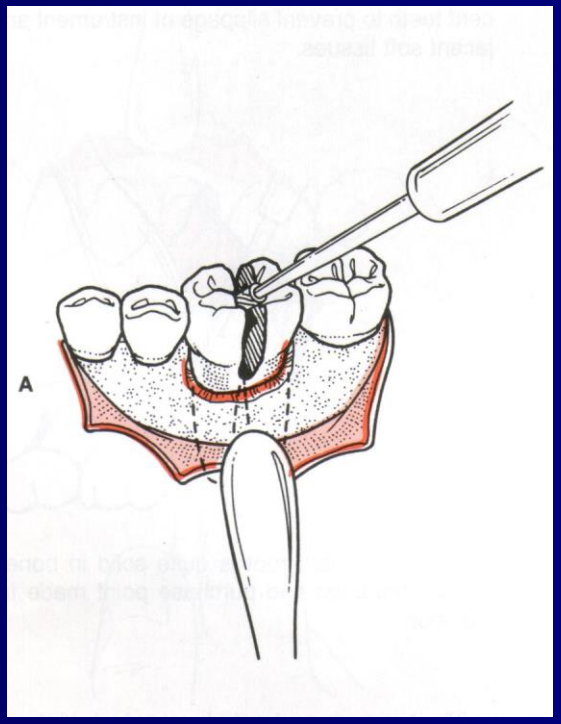


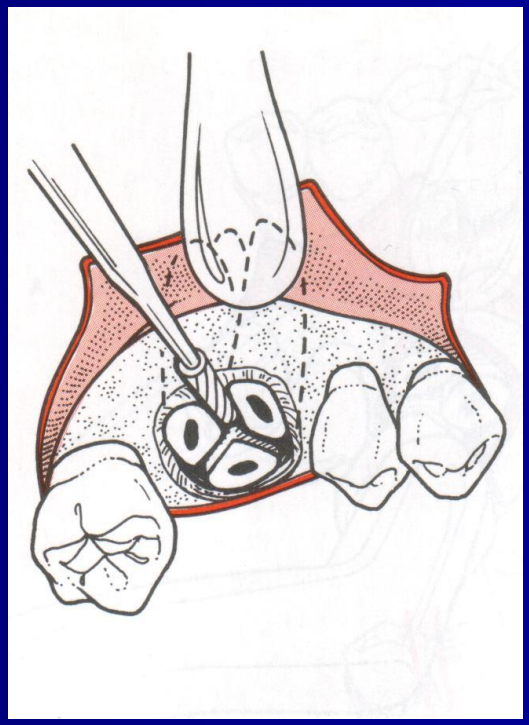




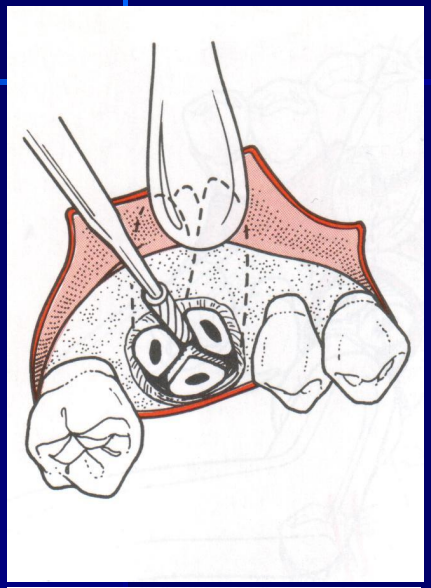


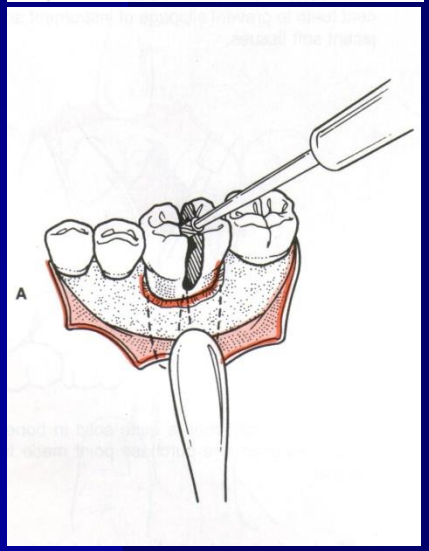
Splitting of roots



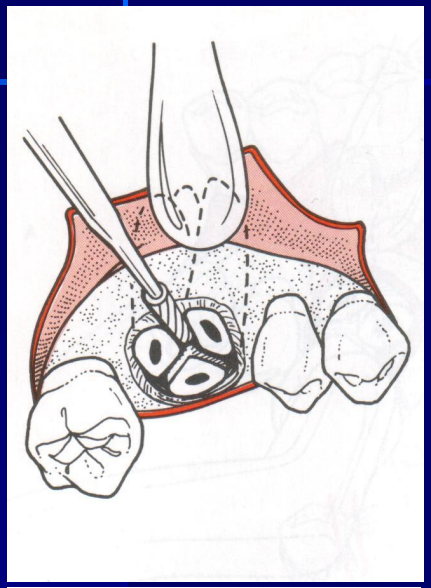


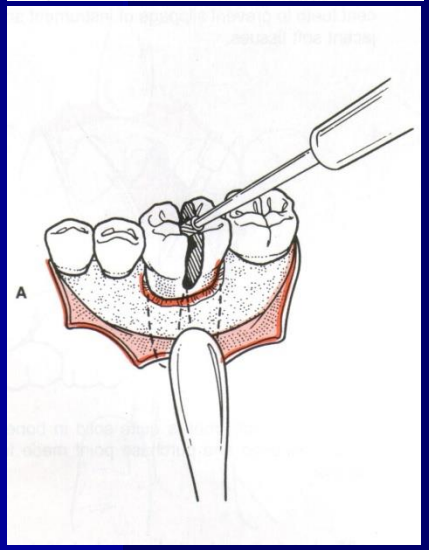
Splitting of roots



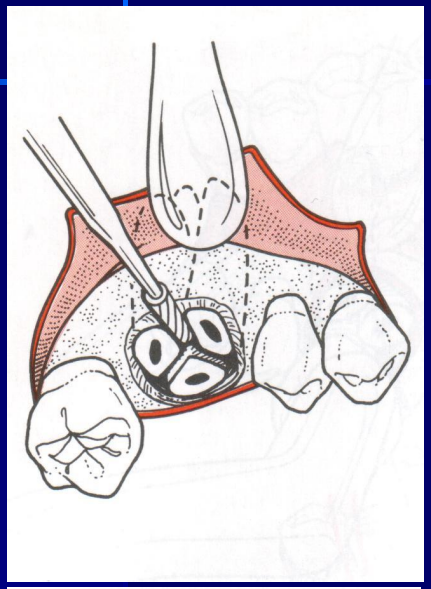


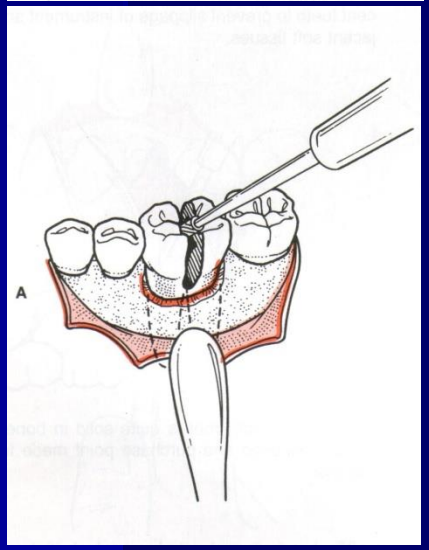
Splitting of roots

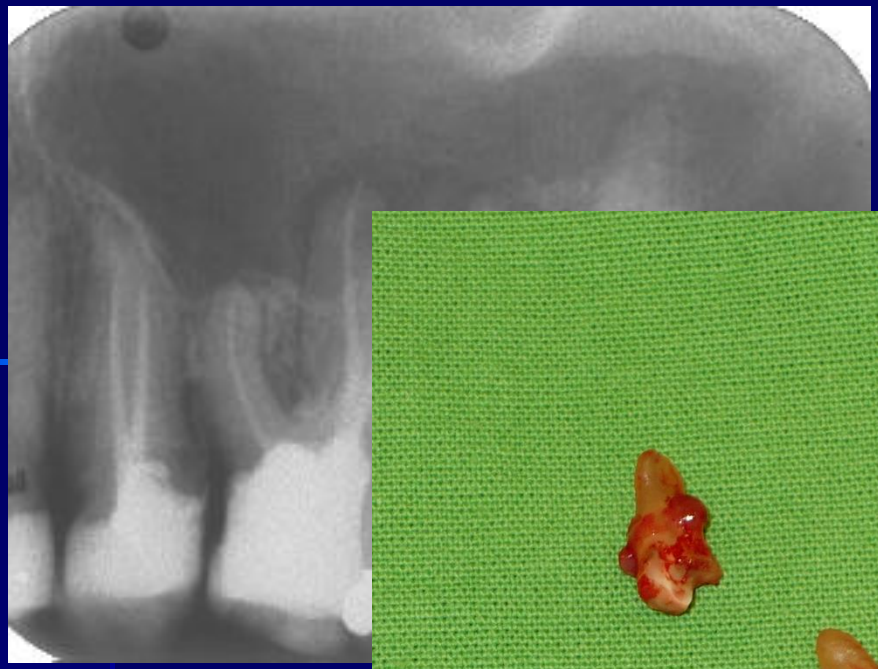




Splitting of roots

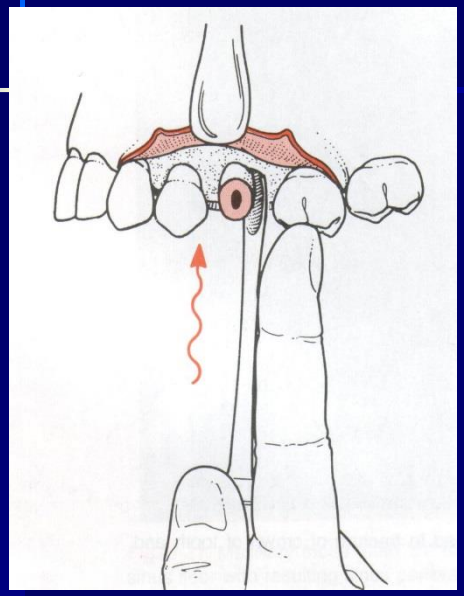


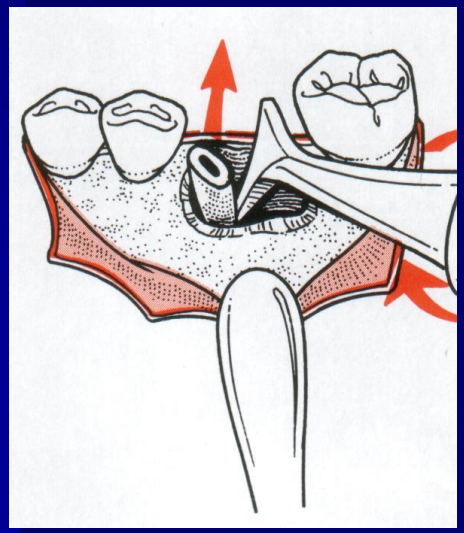


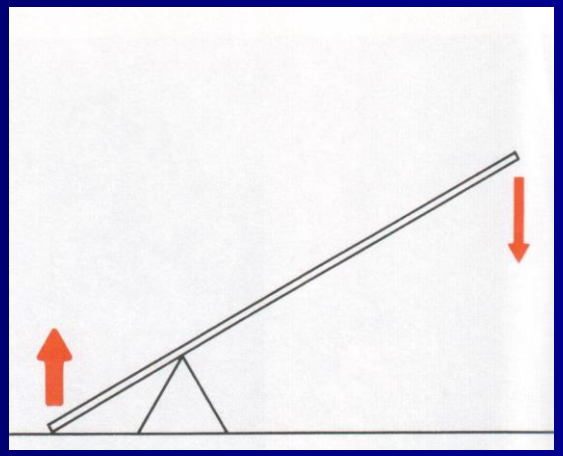


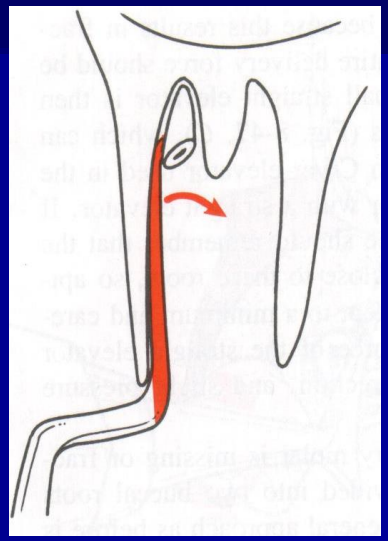
Elevators

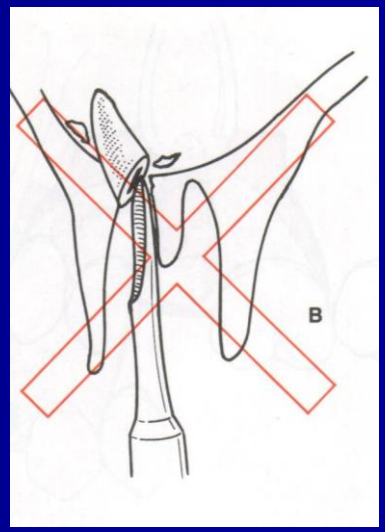
Elevators, if 1+1 surface





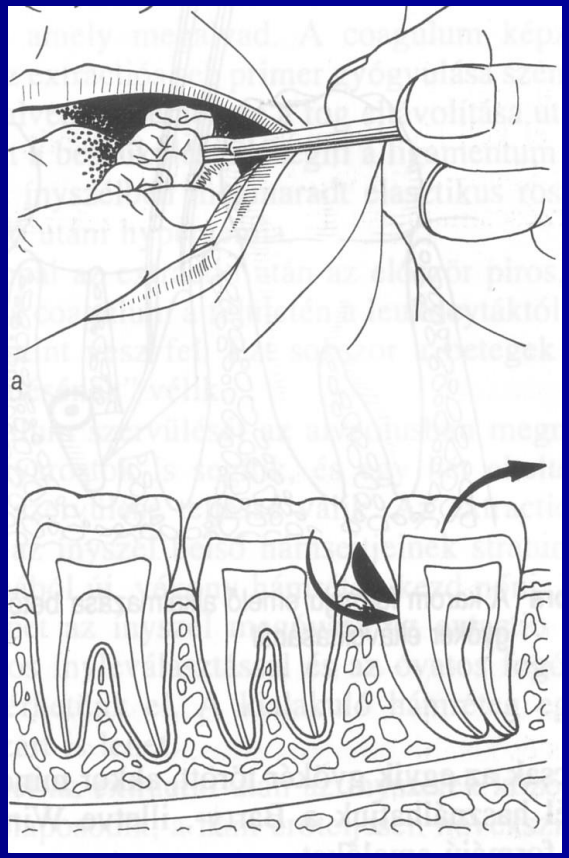






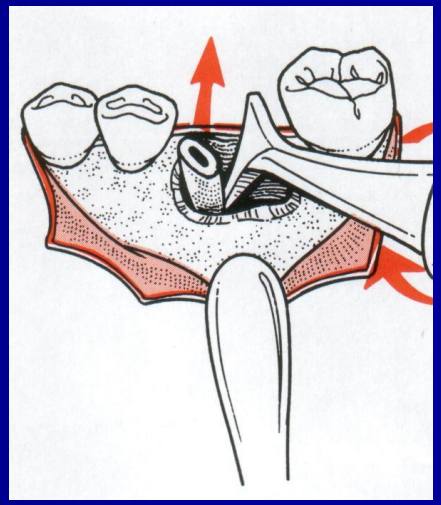
Tooth removal with elevator

- Normally recommended in the lower jaw in the case of complete dental arch
- If the dental arch is not complete, there have to be at least 2 teeth in front of the one to be removed.
- Recommended for the removal of molars.
- In the upper jaw used mostly for wisdom teeth.



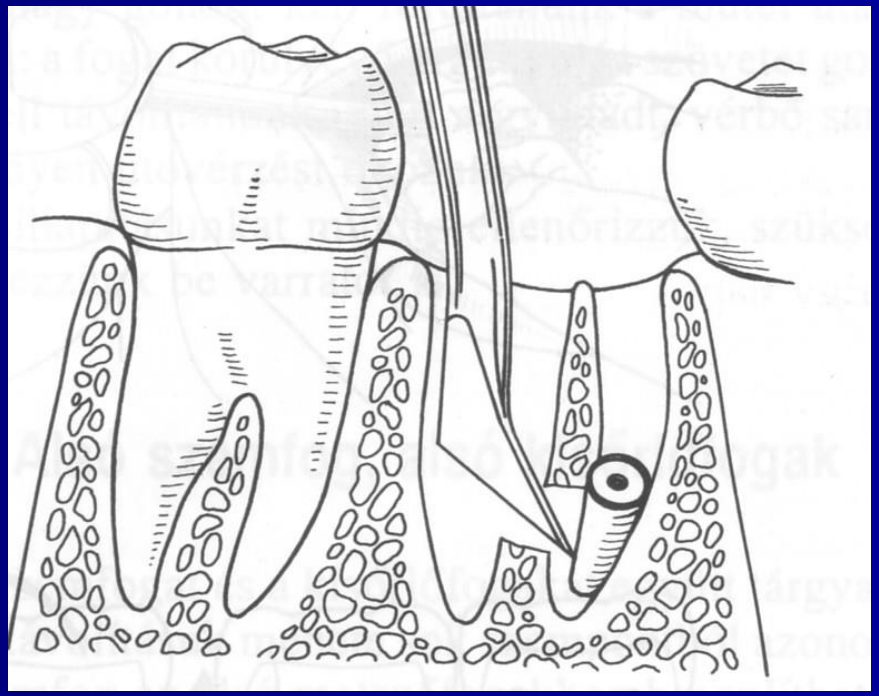
Elevators

- General rules!
- Tooth elevators
  - Winter-Lecluse
  - Bein
- Root elevators
  - Barry, Winter-Barry
  - Bein
  - Heidbrink
  - Luxator
  - Chisal



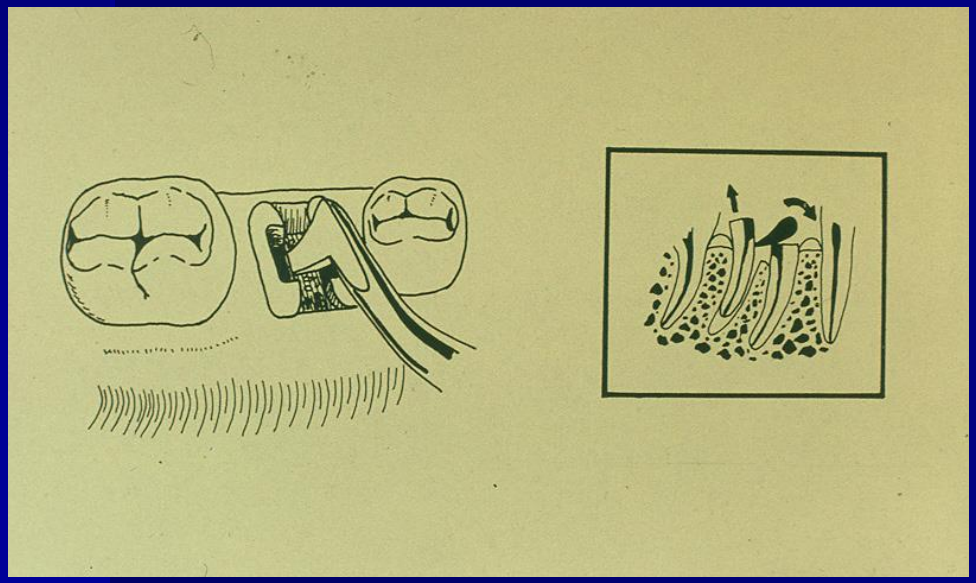
Root removal with elevator

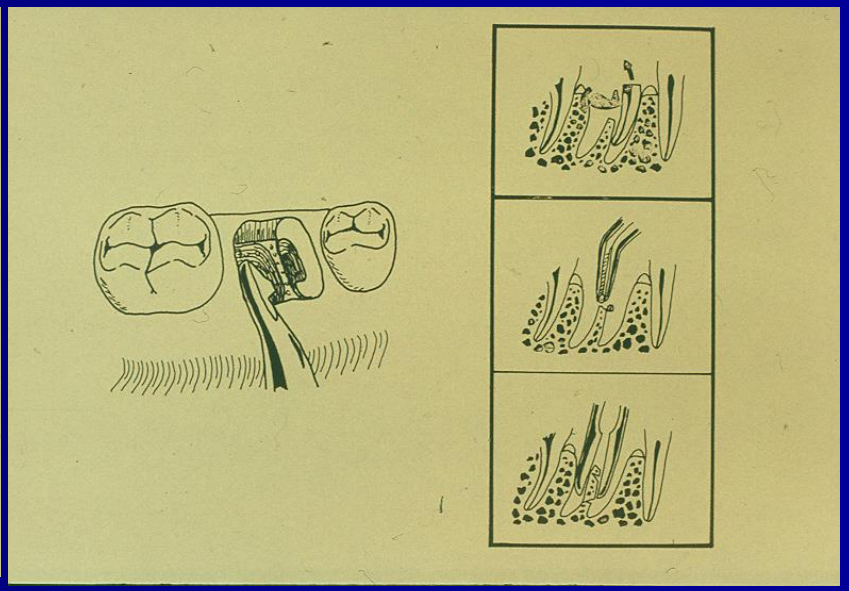
- If the root is fractured under bone level an elevator is used
- The elevator functions on the basis of a wedge effect
- Elevators should only be used with appropriate practice and care
- Mainly used for removing lower molar roots
- The Barry or Winter elevators are recommended



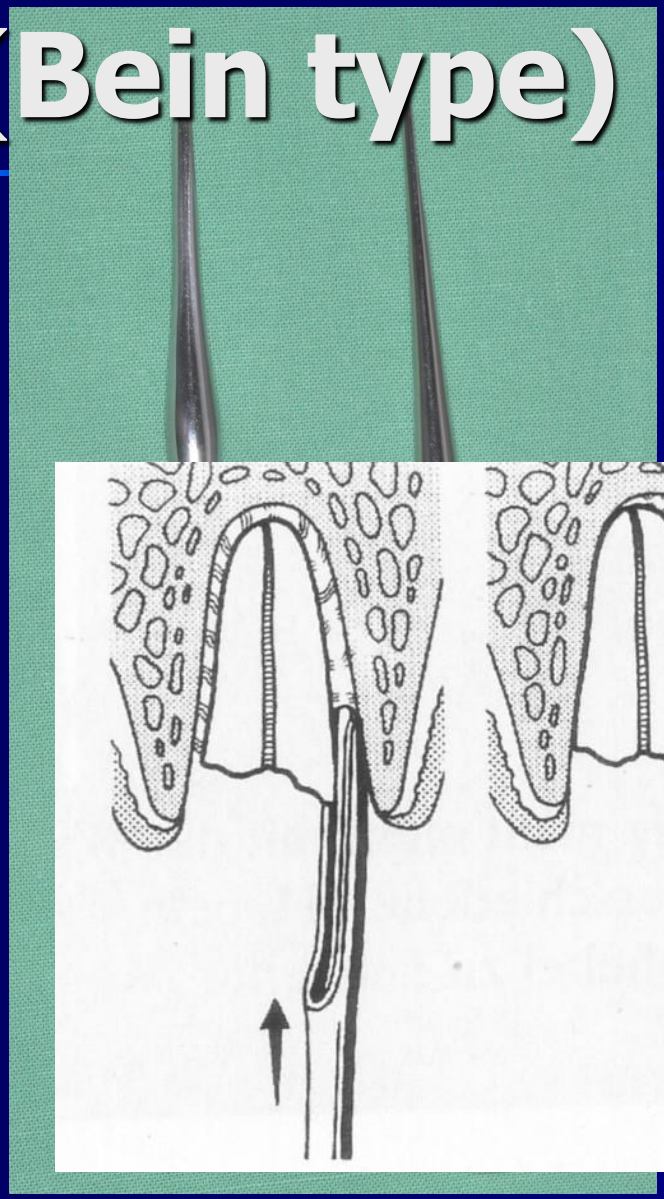
Barry, Winter-Barry

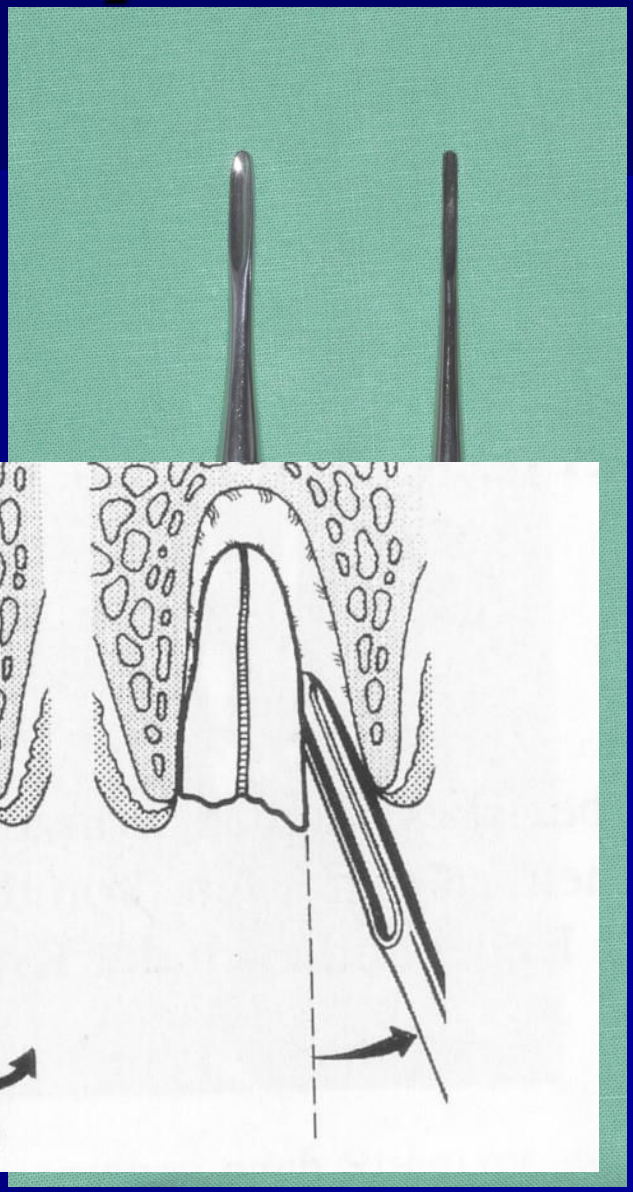
-



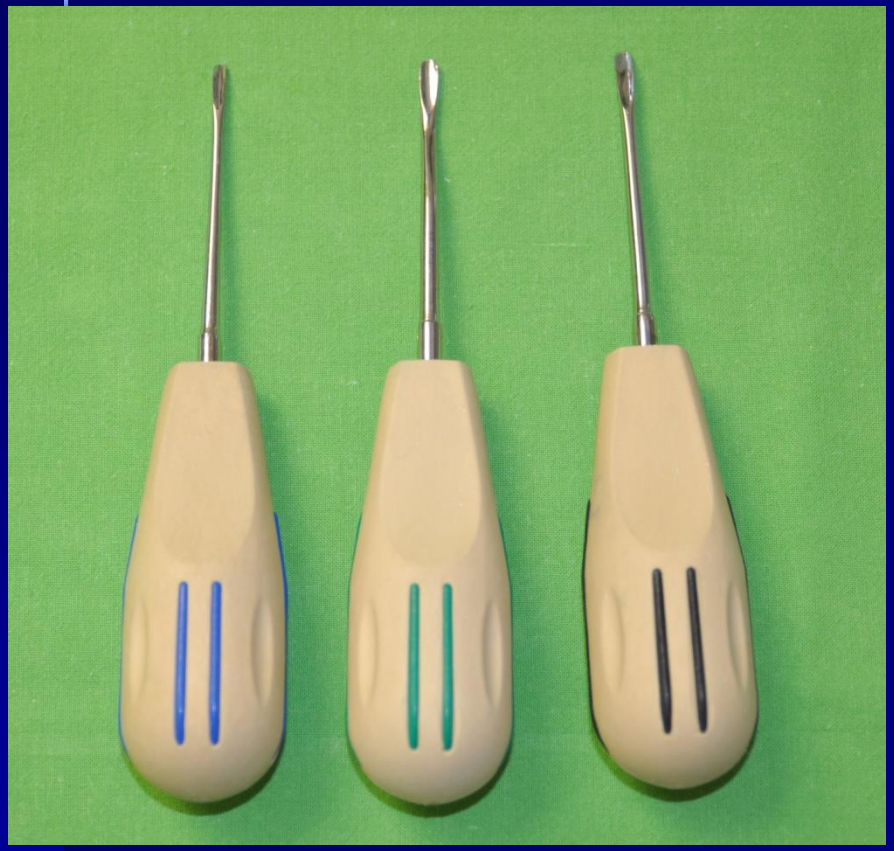


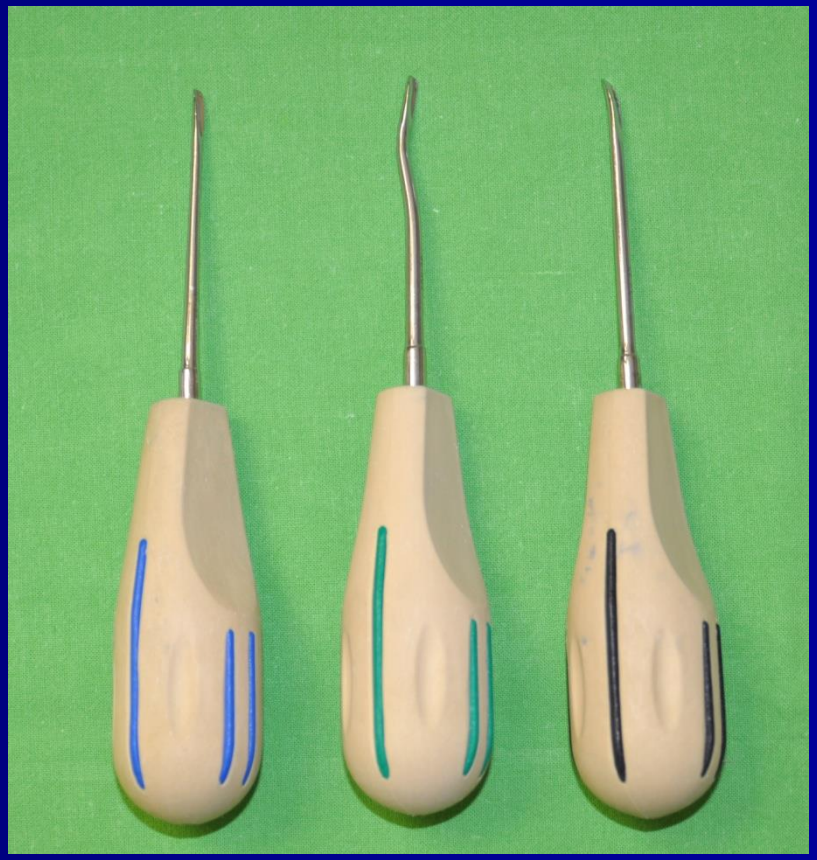
Root removal by elevator (Bein type)



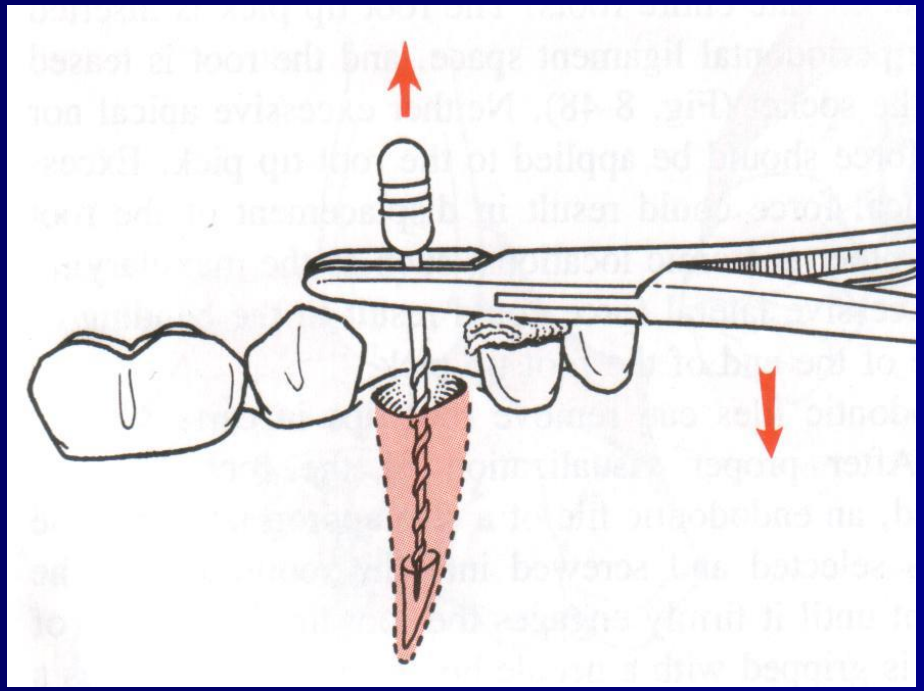


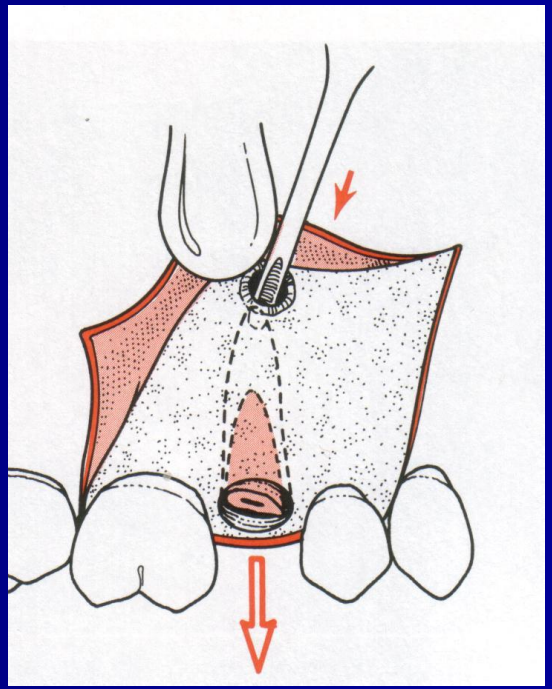
Luxators





Removal of apical root fragments

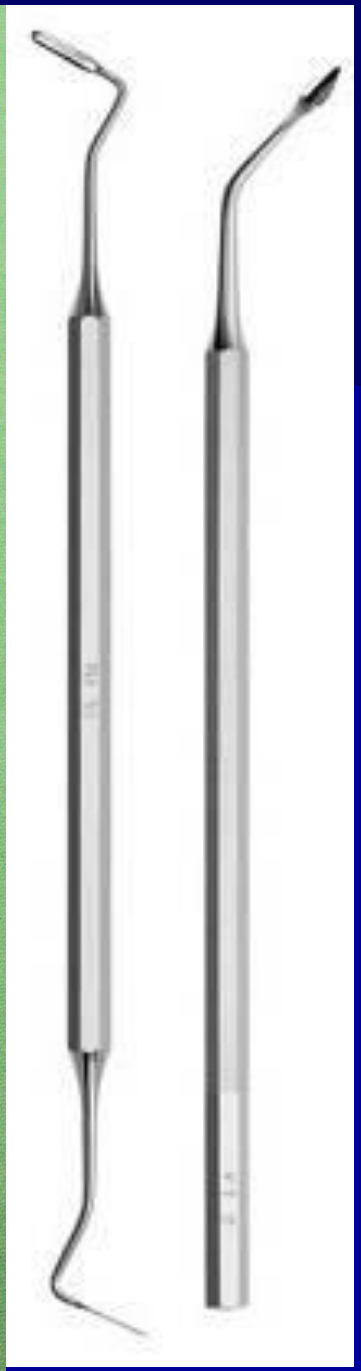




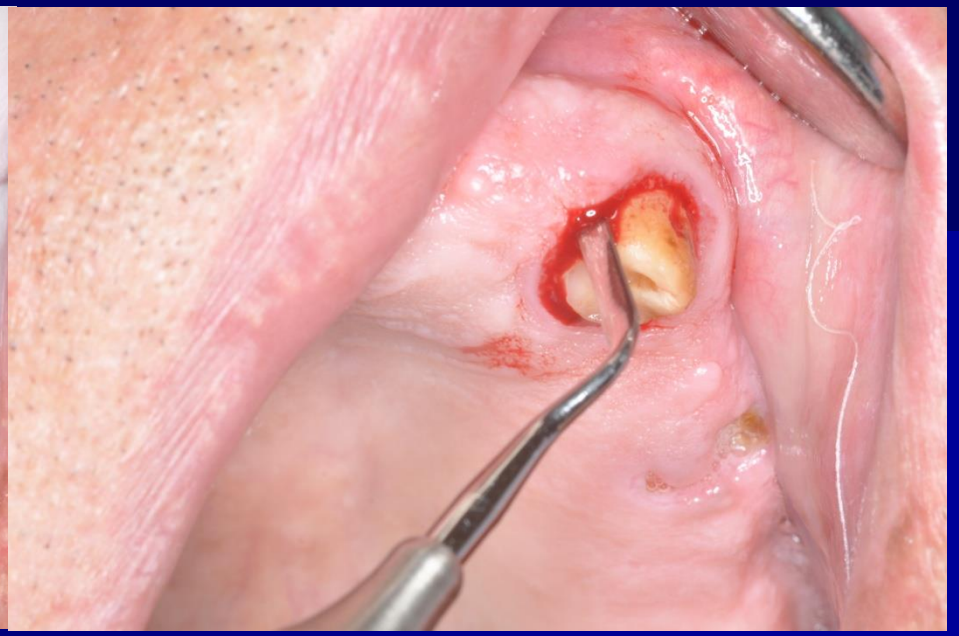
Other instruments

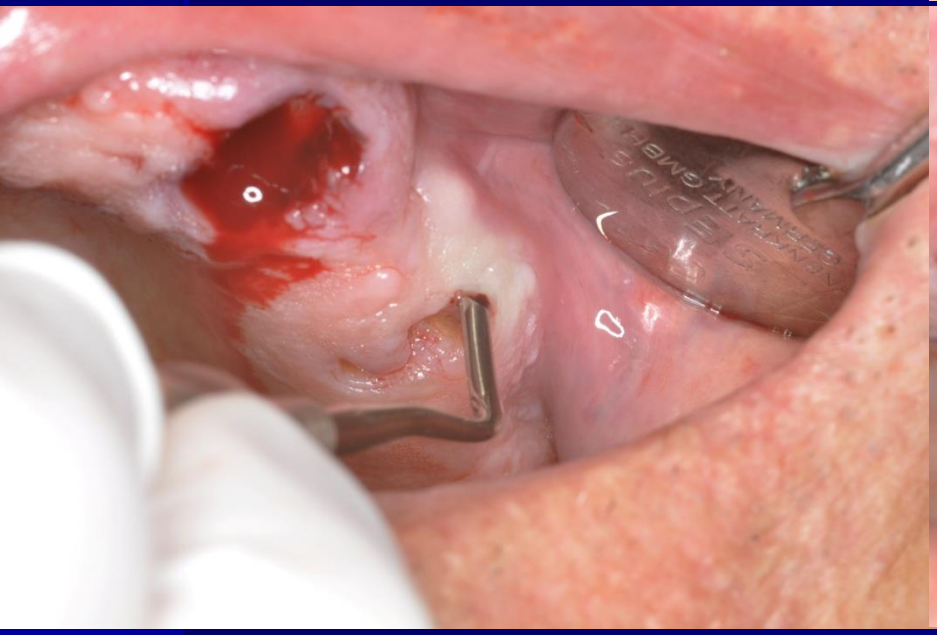
- Desmotom (deep separation of periodontal ligaments)
- Special devices for tooth removal (eg. Benex system)

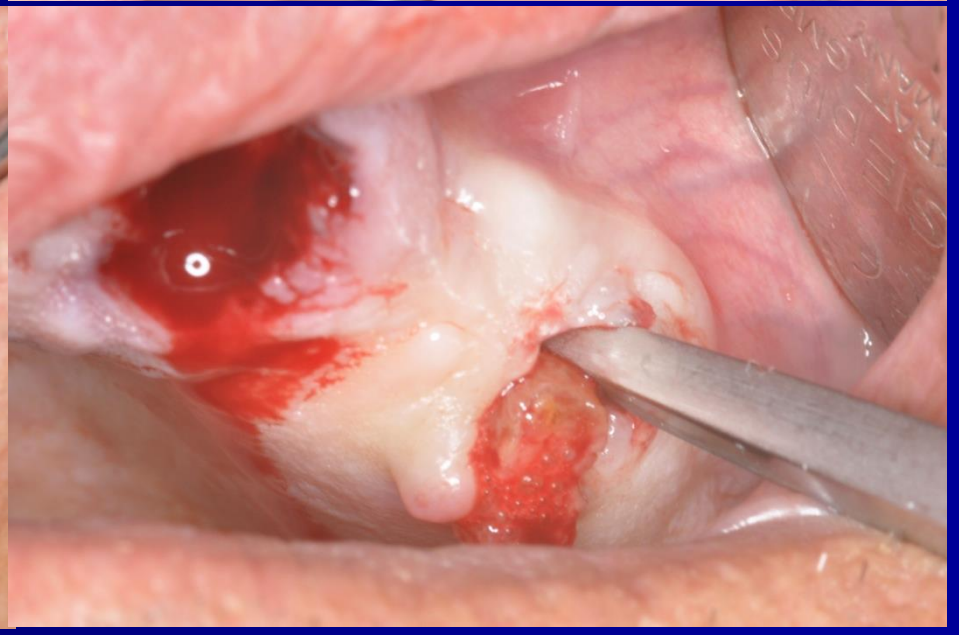
Desmotom



Desmotom



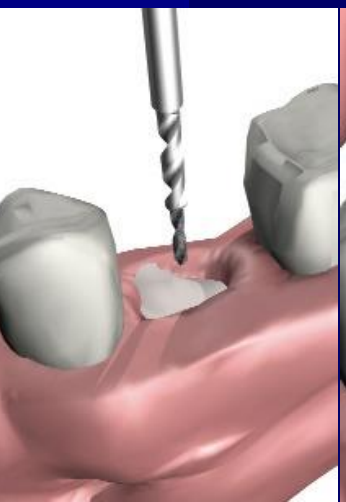


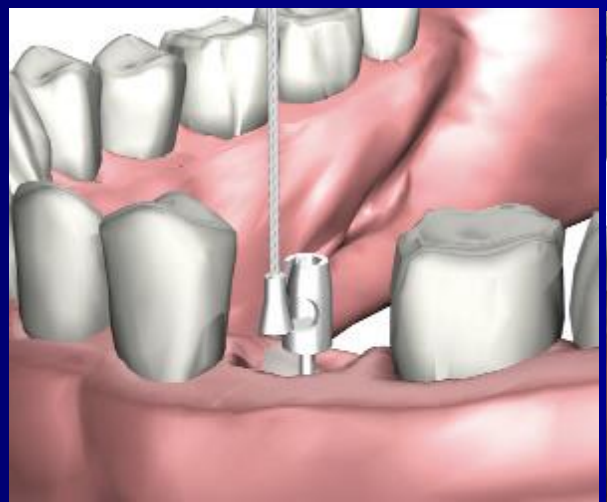
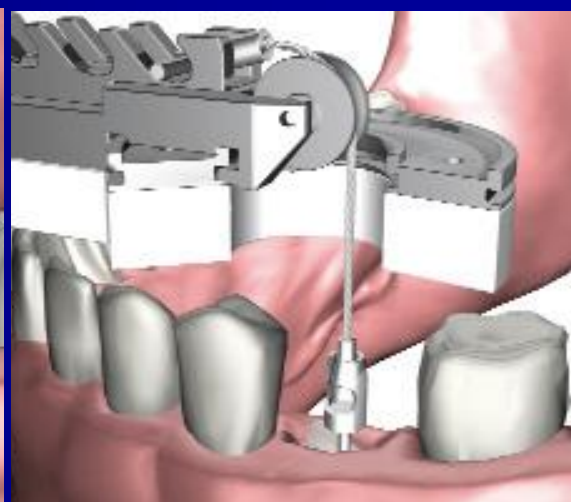


Benex instrument

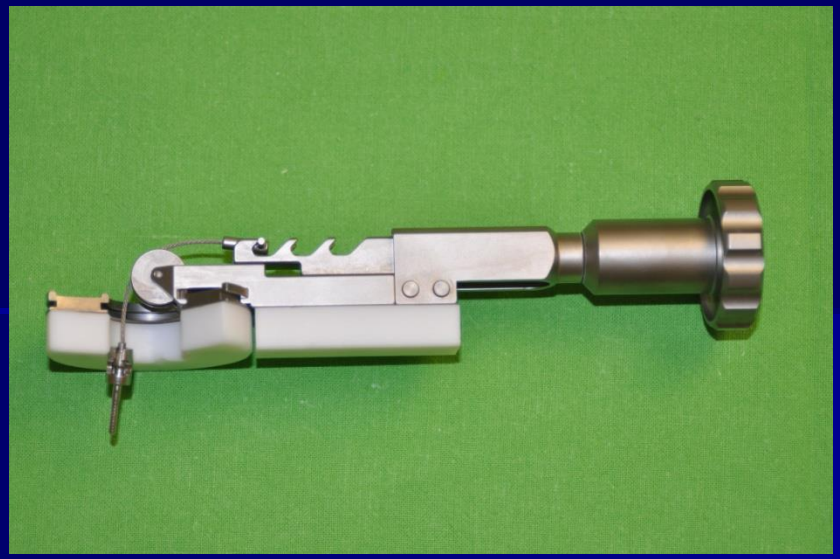
- Preserving the alveolar bone

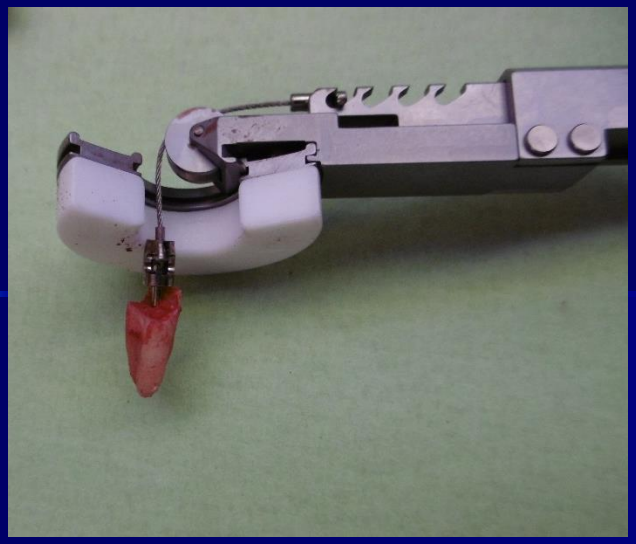
(for –immediate- implant placement)

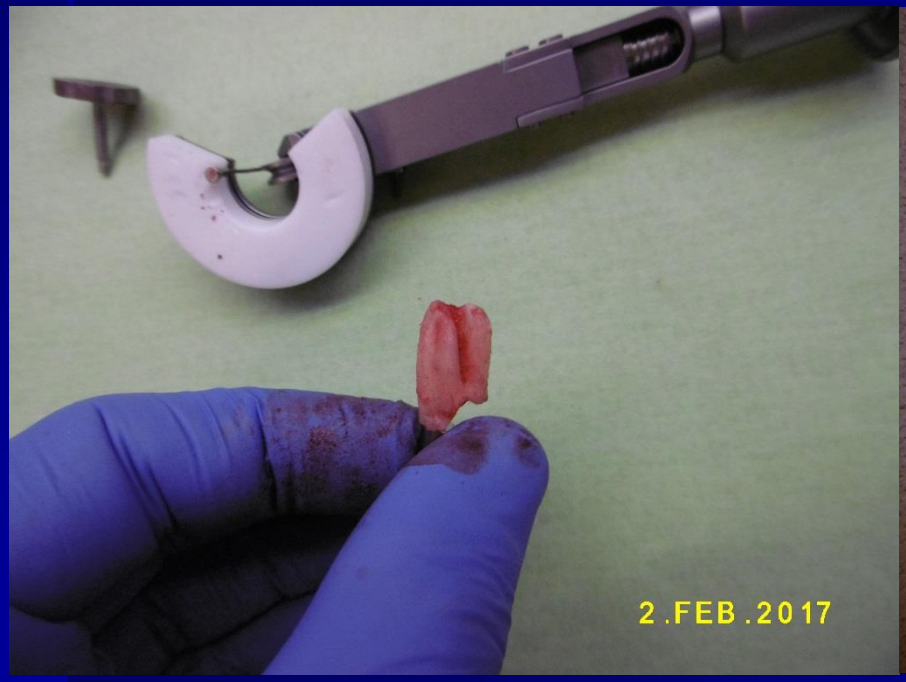



CE 0044
BE001
Benex –
Extraktionssystem
MEISINGER
Bone-Management
12.300.
30
12.300.
30
Meisinger






2 .FEB .2017


2 .FEB .2017

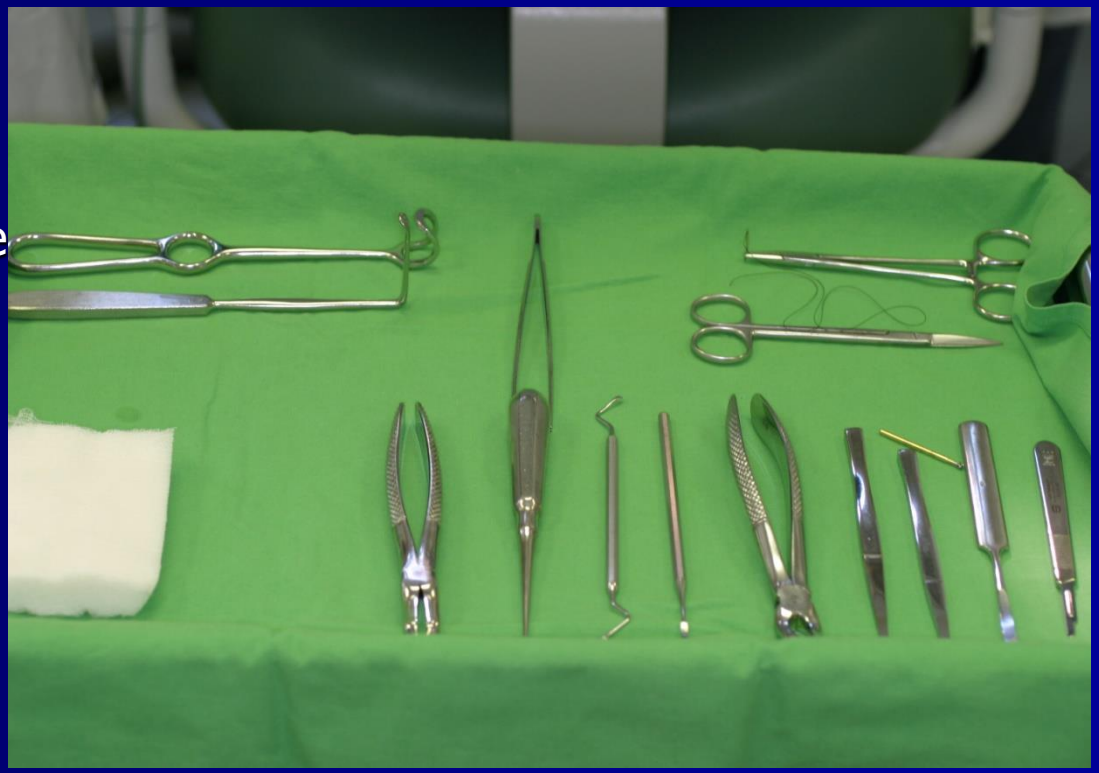
Surgical tooth removal

SPECIFIC PROPERTIES of DENTOALVEOLAR SURGERY

- Often
- Bad reputation
- Ambulant
- Flap-maker surgery
- Bone-surgery
- Unfavourable environment

Required instruments, materials

- Anaesthetic injection
- Insulating material
- Scalpel handle, cutting blade
- Tweezers (dental, surgical)
- Scissors
- Periosteal elevator
- Buccal&periosteal retractor
- Surgical bur
- Surgical aspirator, gauze
- Chisel (mallet)
- Forceps, elevators
- Scalers
- Sharp spoon (curette)
- Needle holder, suture material




S:1
1:1
implantMED

Surgical technique

- Preparation of flap
- Removal of bone covering the root
- Removal of root
- Curettage, correction of sharp bone edges, wound care, (control radiograph)
- Wound closure, stitches
- Postoperative care

Indication –

Unsuccesful extraction – fracture of root in the coronal third

-14 root canal filled (with overfilling)
-no periapical infection
-no periodontal infection
-intact dental arch
-15 MO filling
-maxillary sinus not too close

Anaesthesia

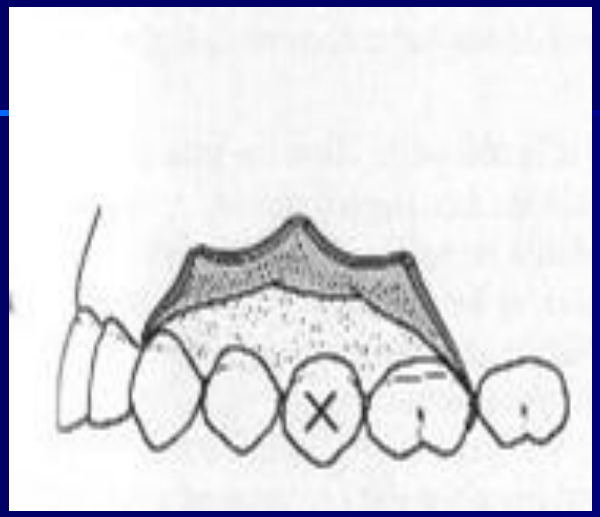
Submucosal infiltration or block,
but during the operation, block only

MUCOPERIOSTEAL FLAPS - REQUIREMENTS

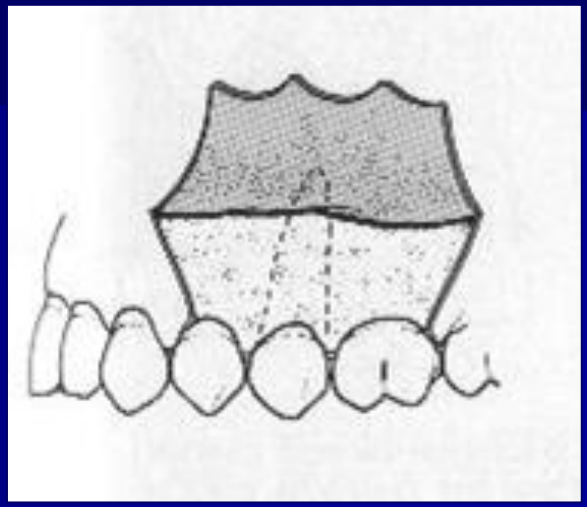
1. Good blood supply
2. Sufficient approach
3. Consists of mucosa+periosteum
4. Enlargebility
5. Tensionless closure
6. Sutures on intact bone surface
7. Avoid main –nerves, -vessels, -ducts
   gingival attachment /if possible/

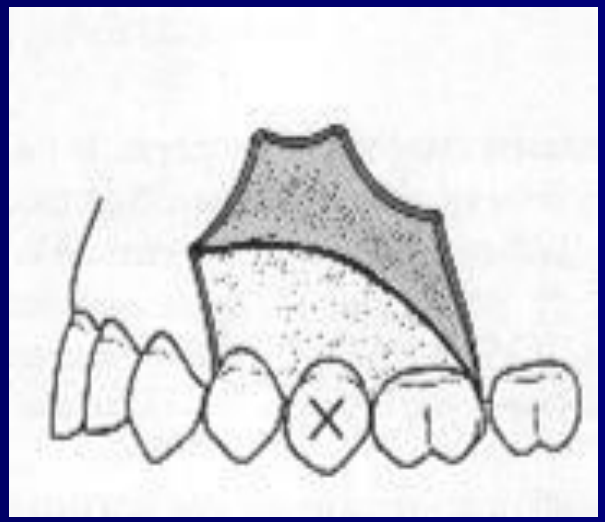
Types of flaps

Gingival, envelope

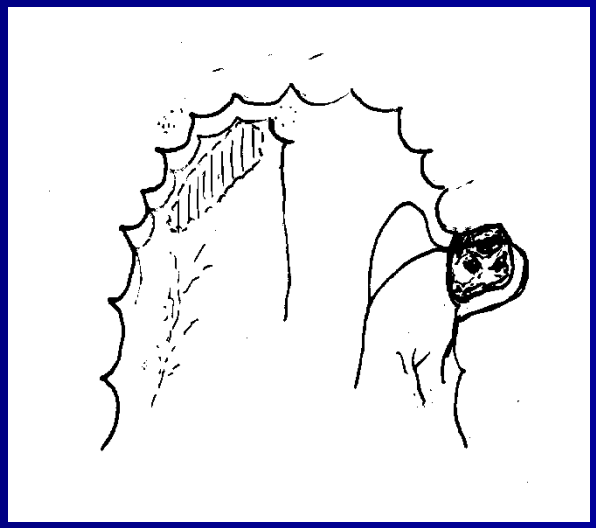


Wassmund





Reinmöller

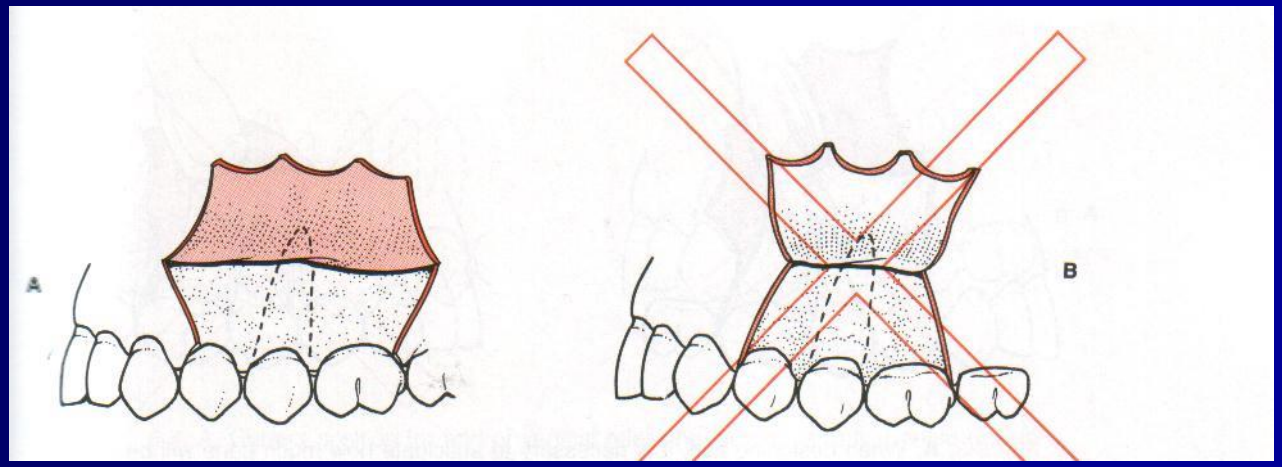


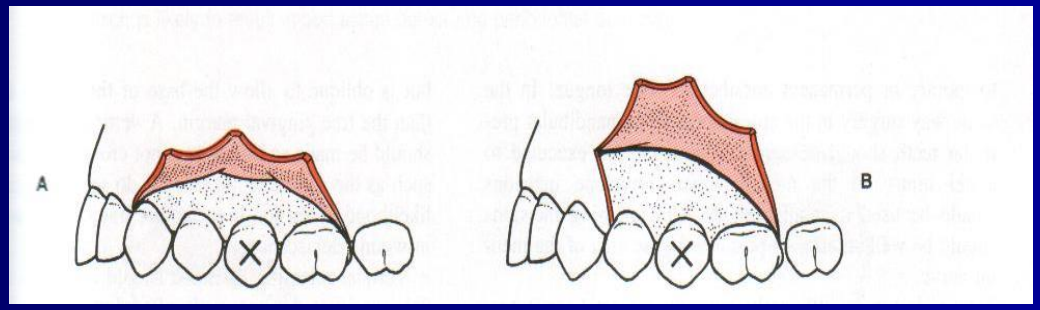
Pichler

-Good blood supply

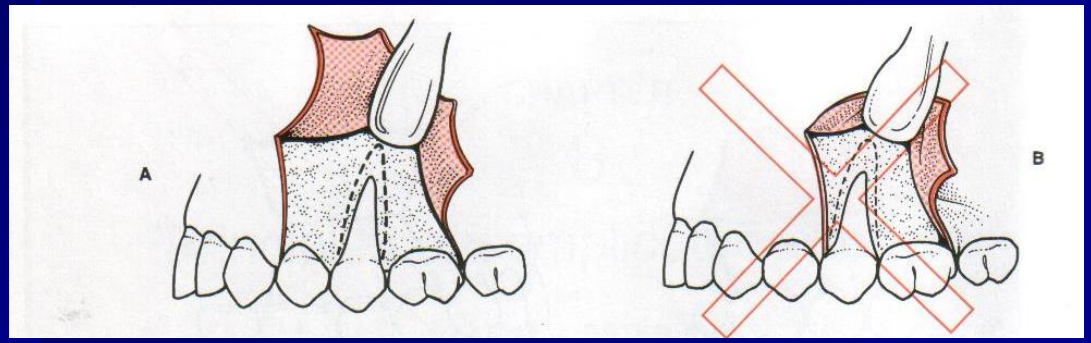
-Sufficient approaching

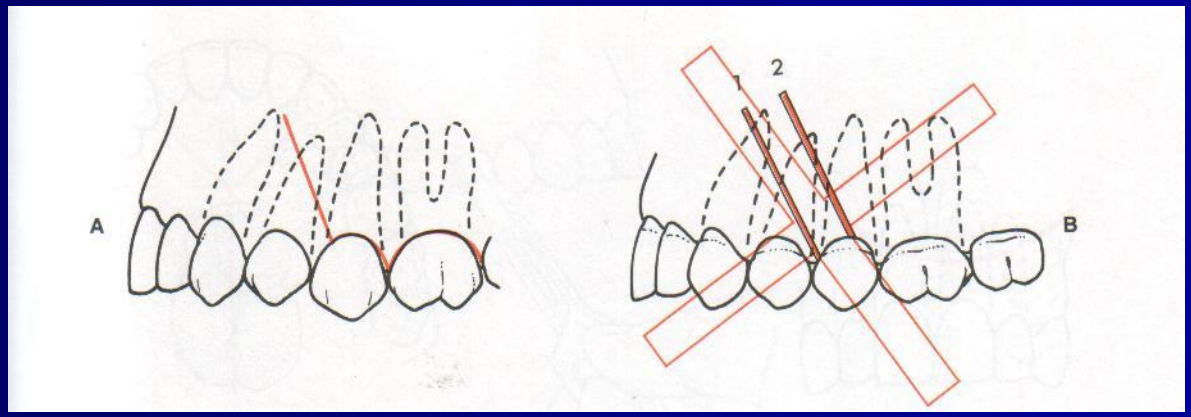
-Enlargiability





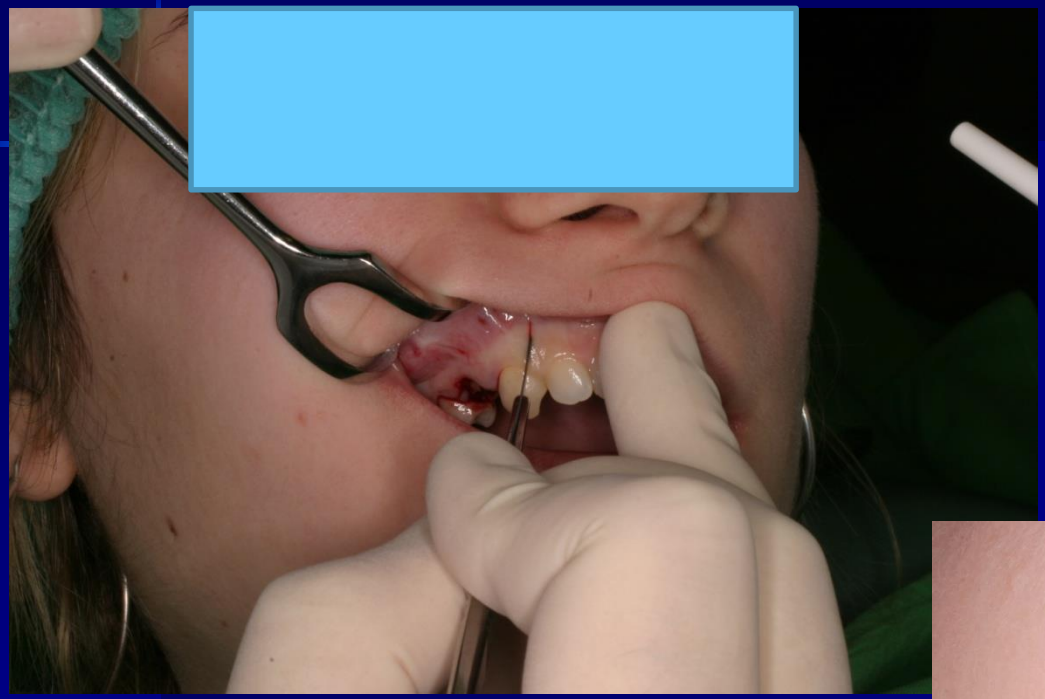
-Sutures on intact bone surface
-Avoid main nerves, vessels, ducts, gingival attachment





Preparing of flap

- Planning the extension (according to requirements)
- Regarding the periosteum (elevation, periosteal retractor…)
- Injuries after previous extraction



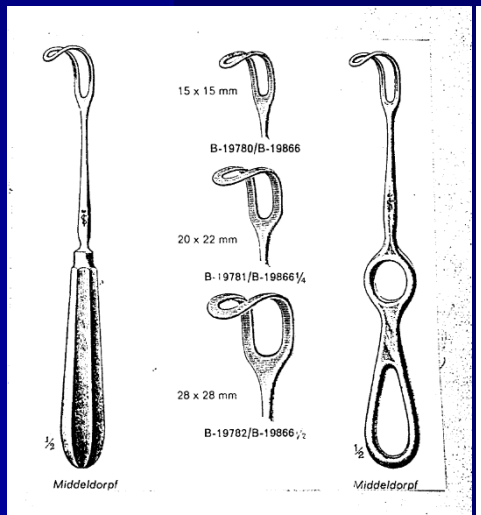
Preparing of flap

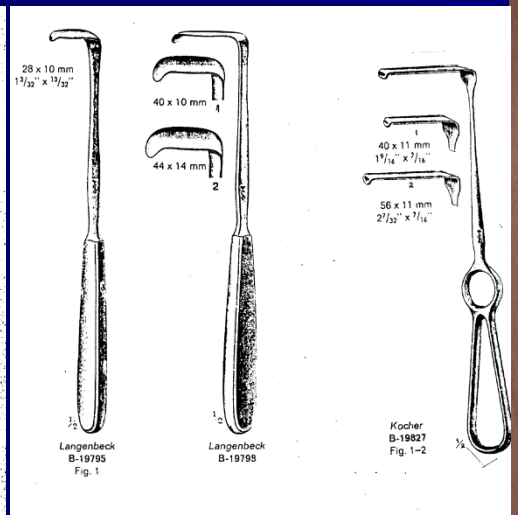
- Planning the extension (according to requirements)
- Regarding the periosteum (elevation, periosteal retractor…)
- Injuries after previous extraction

Preparing of flap

- Planning the extension (according requirements)
- Regarding the periost (elevation, periosteal retractor…)
- Injuries after previous extraction

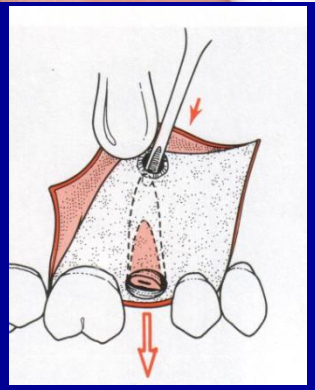
Periosteal retractors





Removal of bone

- Drilling - less traumatic for the patient
  (efficient cooling – irrigation by physiological saline)
- Sculpting – less instruments

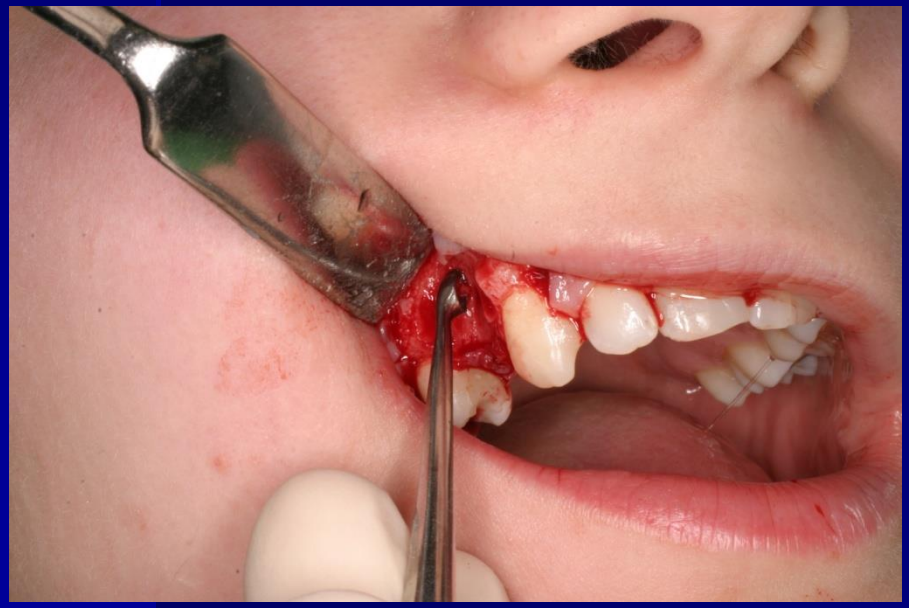


Removal of root

By forceps, elevator, chisel, scaler


2618

Wound care



Removal of broken fragments, debris
Curettage of periapical area
Test of maxillary sinus
X ray control, if necessary
Revision

Wound closure:

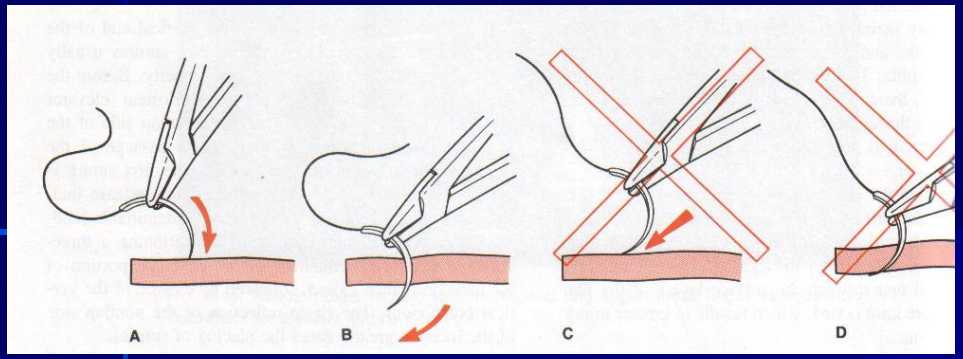
simple knotted, mattress

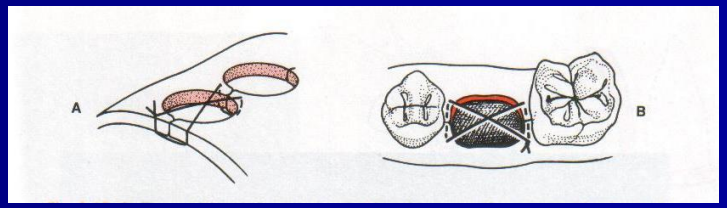
Postoperative care:

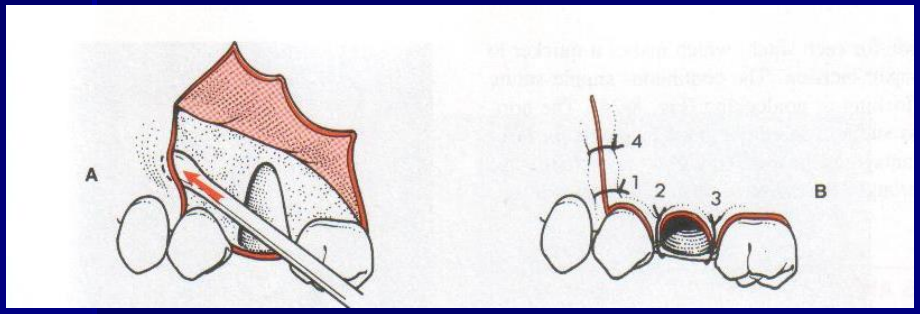
patient instructions:

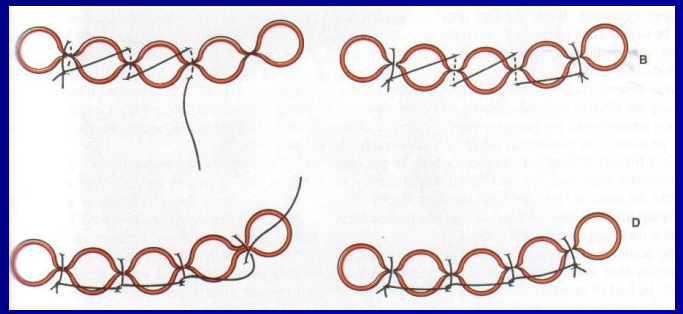
ice pack,

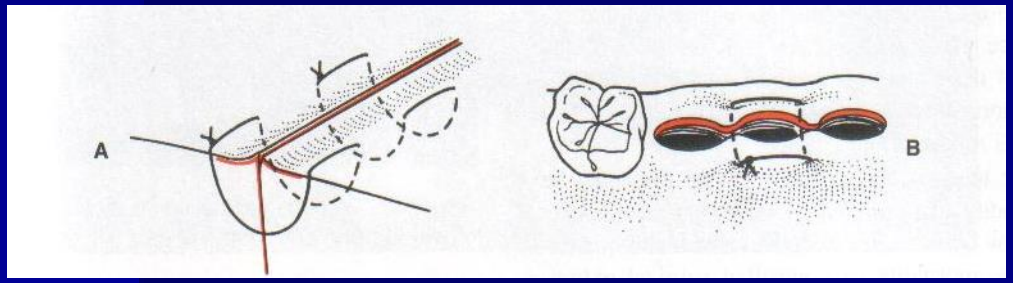
drug administration - painkiller, antibiotics, oral hygiene, available 24 h. service, recall)


A
B
C
D


A
B


A
4
1
2
3
B


B
D


A
B

Wound closure:

simple knotted, mattress

Postoperative care:

patient instructions:

ice pack,

drug administration - painkiller, antibiotics, oral hygiene, available 24 h. service, recall)