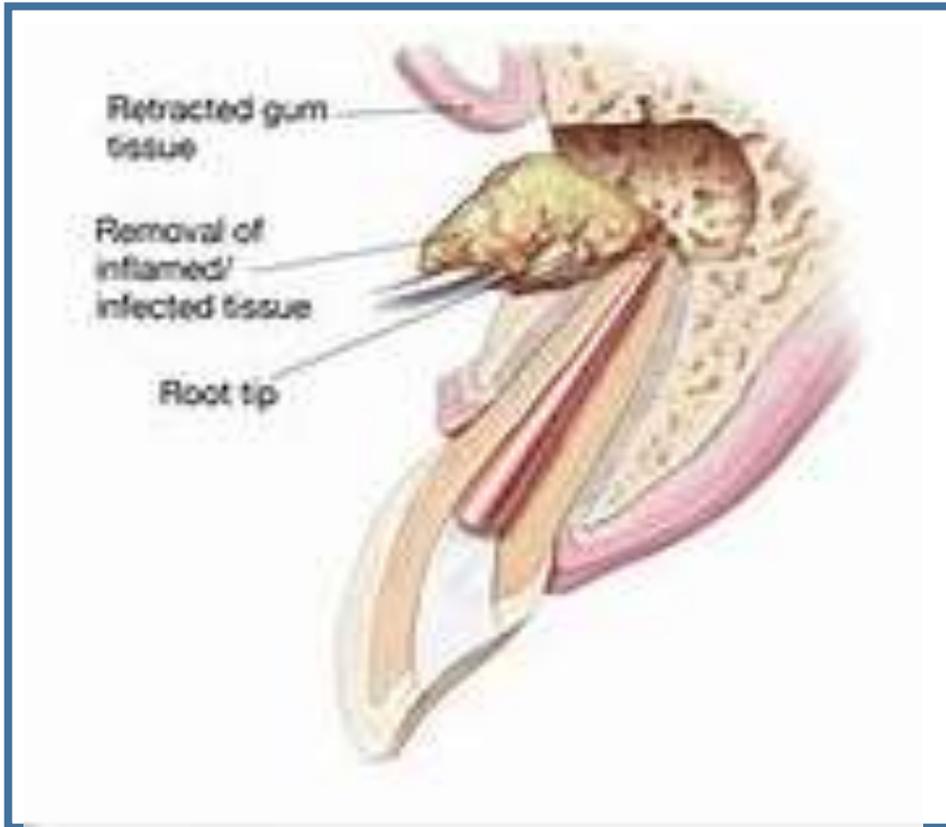


المرحلة الخامسة - جراحة الفم

الفصل الدراسي الأول / المحاضرة الأولى

Principles of Endodontic Surgery

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Principles of Endodontic Surgery



The Aim of Lecture

- 1. present the indications and contraindications for endodontic surgery.*
- 2. The diagnosis and treatment planning.*
- 3. the basics of endodontic surgical techniques.*



Principles of Endodontic Surgery



Do you think it's the first choice in the present of indications?:

1. Modalities, such as root canal treatment or retreatment, may be preferred.
2. However, when surgery is required, it must adhere to basic endodontic principles, that is, the assessing and obtaining of adequate debridement and obturation of the canal or canals.
3. Indeed, on occasion, a surgical approach is clearly indicated, but few situations exist in which surgery is required.

Who Authorized to perform the operation?:

1. Most of the procedures presented should be performed by specialists, or on occasion, by experienced generalists.
2. However, the general dentist must be skilled in diagnosis and treatment planning and able to recognize which procedures are indicated in particular situations.
3. When a patient is to be referred to a specialist for treatment, the general dentist must have knowledge sufficient to describe the surgical procedure.
5. In addition, the generalist should assist in the follow-up care and long term assessment of treatment outcomes.



Principles of Endodontic Surgery



DEFINITION:

Endodontic surgery is the management or prevention of periapical pathology by a surgical approach.

Categories of Endodontic surgery

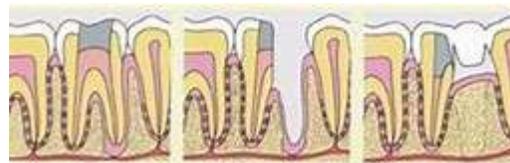
1. Abscess drainage

Draining the abscess relieves pain, increases circulation, and removes a potent irritant. The abscess may be confined to bone or may have eroded through bone and periosteum to invade soft tissue.

2. Periapical surgery

Periapical (i.e., periradicular, apicectomy, Apicoectomy) surgery includes resection of a portion of the root that contains undebrided or unobtured (or both) canal space.

3. Hemisection/root amputation



4. Intentional replantation

as an atraumatic extraction of a tooth and its reinsertion into its socket immediately after endodontic treatment and apical repair is done extra-orally.

5. Corrective surgery Maxillofacial Surgery

INDICATION

✓ Teeth with active periapical inflammation, despite the presence of a satisfactory endodontic therapy.

✓ Teeth with predictable Failure of RCT because of:

1) Completely calcified root canal.

2) Severely curved root canals.

3) Presence of posts or cores in root canal.



4) Breakage of small instrument in root canal or the presence of large filling material.



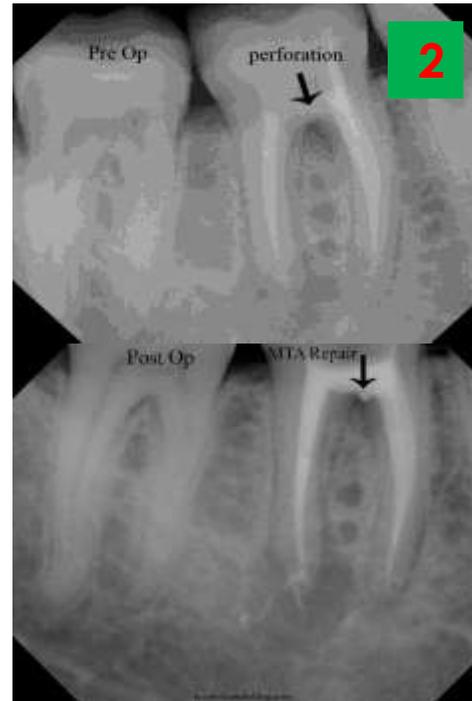
INDICATION

✓ Procedural errors of RCT due to:

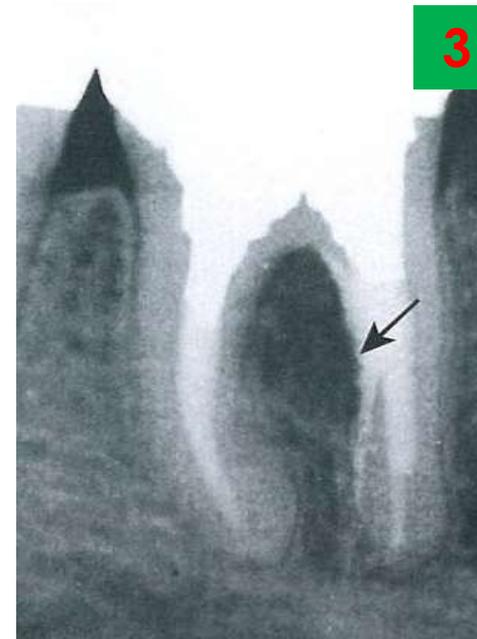
1) Foreign bodies driven in to periapical tissues.



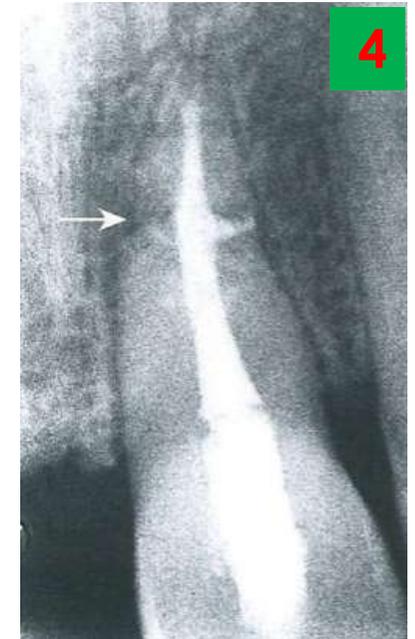
2) Perforation of inferior wall of pulp chamber.



3) Perforation of root.



4) Fracture at apical third of tooth.





CONTRAINDICATION

1. All conditions that could be considered contraindications for oral surgery concerning the age of the patient and general health problems ,such as **severe cardiovascular diseases, leukemia, tuberculosis, etc.**

2. Teeth with severe resorption of periodontal tissues (deep periodontal pockets, great bone destruction)



3. Teeth with short root length.



4. Teeth whose apices have a close relationship with anatomic structures (such as **maxillary sinus, mandibular canal, mental foramen, incisive and greater palatine foramen**) and if causing injury to these during the surgical procedure is considered probable





TRADITIONAL PERIAPICAL SURGERY



1-Apicoectomy with retrograde filling Root preparation

Amalgam preferably zinc free was the first retrograde filling material used.

IRM: intermediate restorative Material

composite resin

glass ionomer cement

MTA is not only biocompatible but has been shown to have the capability of inducing bone, dentin, and cementum

formation Consistent use of MTA resulted in regeneration of periapical tissue including periodontal ligament and

2-Apicoectomy with orthograde filling NO Root preparation

guttapercha as a orthograde filling material

3-Apicurettage NO Root sectioning

without filling



Surgical Procedure



- ✓ Flap Design
 - Semilunar flap
 - Three sided flap
 - Two sided flap
- ✓ Anaesthesia
- ✓ Incision and Reflection
- ✓ Periapical identification and Exposure
- ✓ Curettage
- ✓ Root End Resection
- ✓ Root End Preparation and Restoration
- ✓ Root End-Filling Materials
- ✓ Irrigation
- ✓ Flap Replacement and Suturing
- ✓ Postoperative Instructions



Flap Design

Semilunar flap

This incision avoids trauma to the papillae and gingival margin but provides limited access

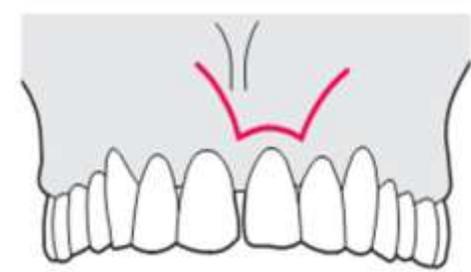


Three sided flap

provides excellent access for most surgical endodontic procedures.

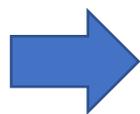
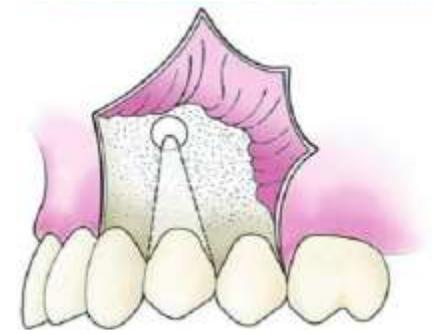


Submarginal Incision



Two sided flap

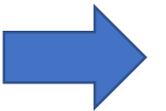
Good access and can be changed to three sided flap in need





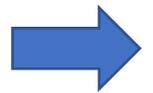
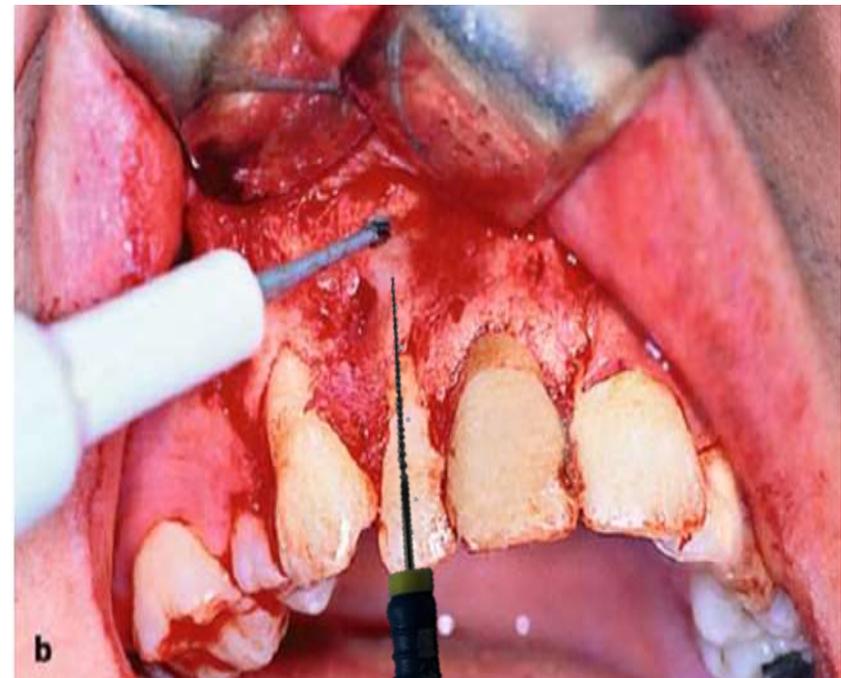
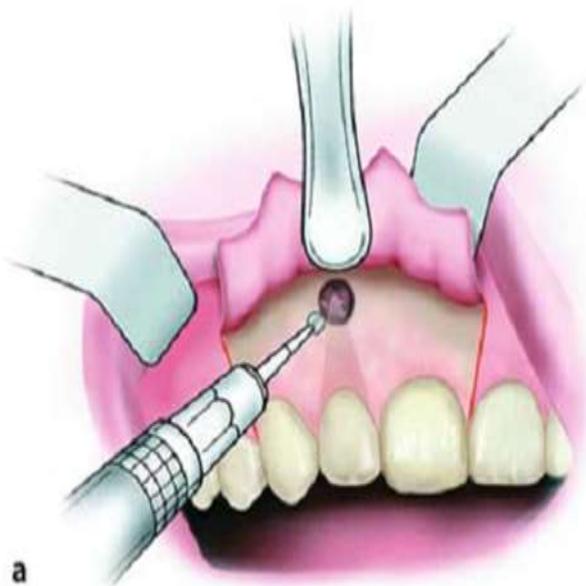
Incision and Reflection

Full-thickness flap is raised with sharp elevator in firm contact with bone. Enough tissue is raised to allow access and visibility to apical area.



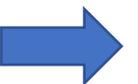
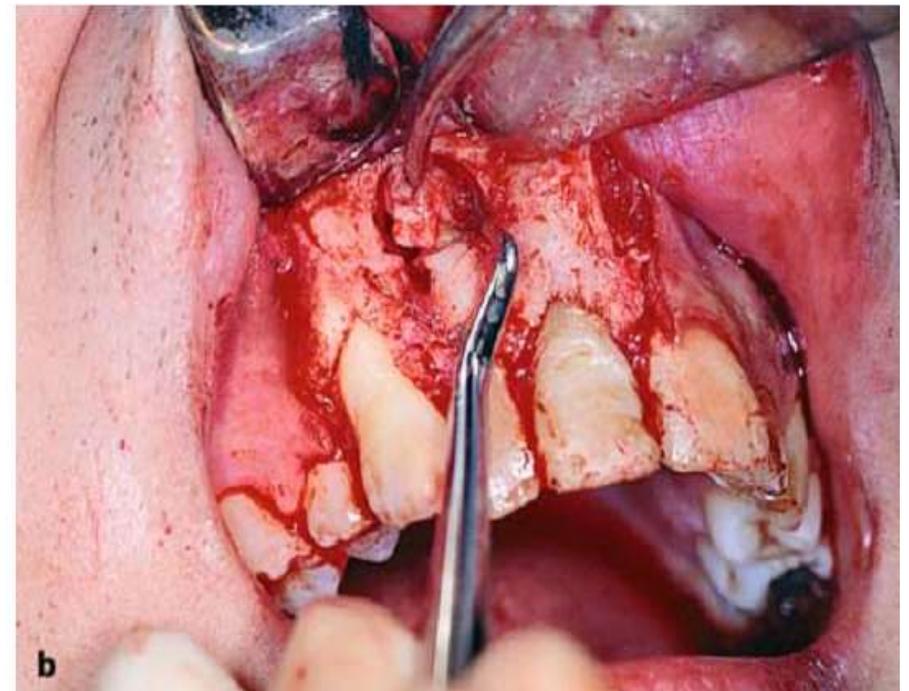
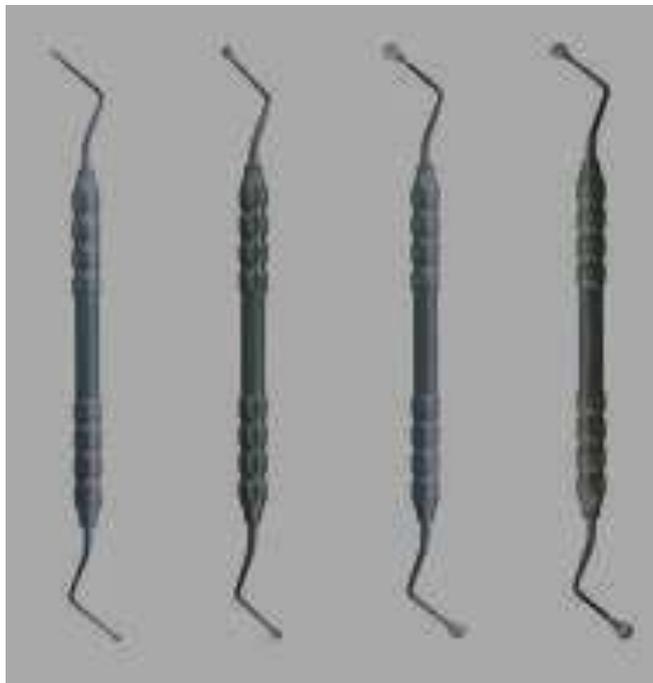
✓ *Periapical identification and Exposure*

1. *From the periapical lesion that perforate the bone.*
2. *By estimation of the root length you study it in dental anatomy*
3. *By use a file Determines the original length of the channel*

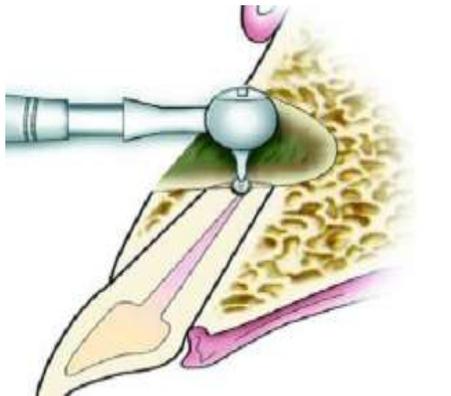


✓ Curettage

Removal of granulation tissue from the apical area by curette



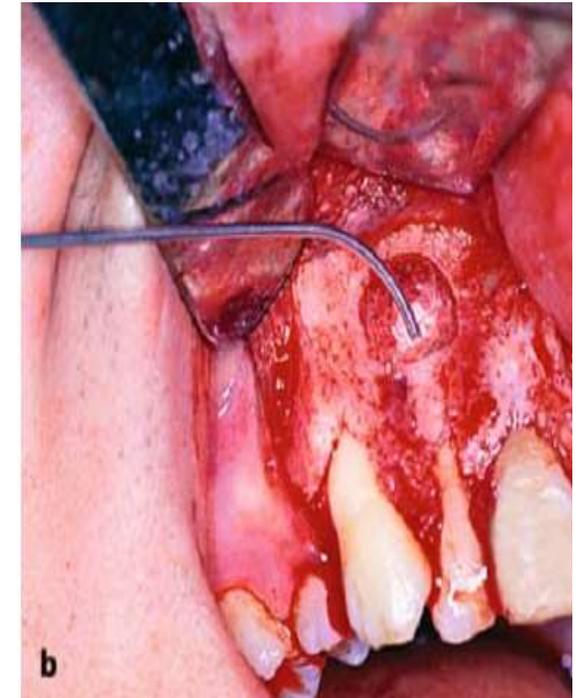
✓ Root End Resection



✓ Root End Preparation and Restoration



✓ Root End-Filling Materials



- ✓ Irrigation
- ✓ Flap Replacement and Suturing
- ✓ Postoperative Instructions



- Root end preparation may be done by slow speed, specially designed microhandpieces or by ultrasonic tips.
- Ultrasonic instruments are easy to use.
- They also permit less apical root removal in certain situations.
- They form a cleaner and better shaped preparation.



Microhead handpiece compared to a conventional handpiece. With this handpiece, preparation of the periapical cavity is greatly facilitated in areas with limited access



Advance endodontic techniques



Apicoectomy with microsurgery





LASER

Er:Yag lasers have been used for apical surgery.



The Er:YAG laser can make a dry incision (no bleeding)

Detoxification of the infected site by lasing directly on the bone

Er:YAG laser can be used for remodelling, shaping and ablation of necrotic bone.





Principles of Endodontic Surgery



Summary

1. You know the indications and contraindications for endodontic surgery.
2. The diagnosis and treatment planning.
3. the basics of endodontic surgical techniques.



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