

GINGIVECTOMY, GINGIVOPLASTY



DCP 4 Semester 2

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Learning Outcomes

At the end of this lecture, you

1. should know the indications, contraindications and surgical technique of gingivectomy and gingivoplasty
2. should understand objectives, advantages , disadvantages of electrosurgery and precautions need to be taken during the use of electrosurgical unit

Gingivectomy

The word *gingivectomy* means “excision of the gingiva.” By removing the pocket wall, gingivectomy provides visibility and accessibility for complete calculus removal and the thorough smoothing of the roots .This creates a favorable environment for gingival healing and restoration of a physiologic gingival contour.

Gingivectomy is pocket reduction surgery limited to the gingival tissues only and not involving the underlying osseous structures

It used to be the surgical treatment of choice for the treatment of periodontitis

Gingivectomy

Indications:

- Elimination of gingival enlargements.
- Elimination of suprabony pockets if the pocket wall is fibrous and firm.

Contraindications

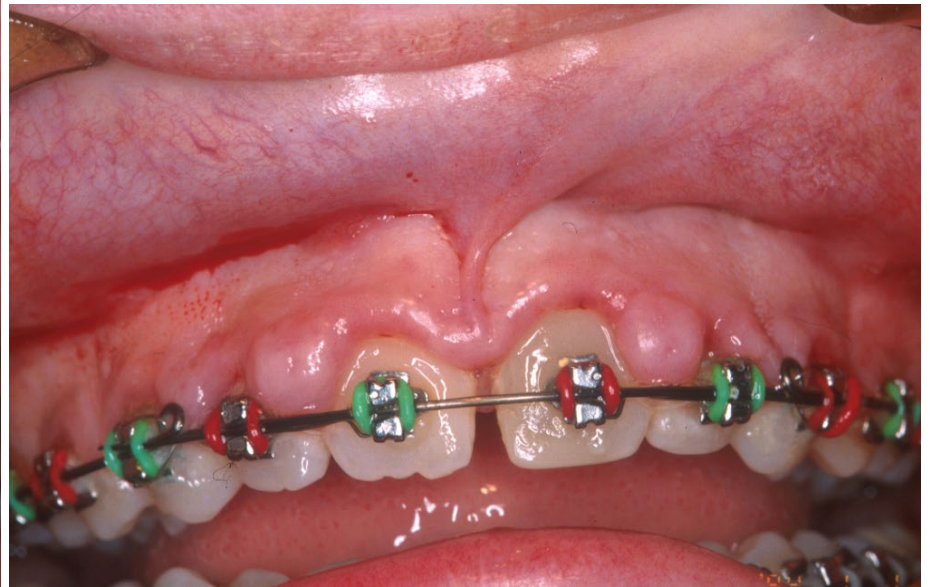
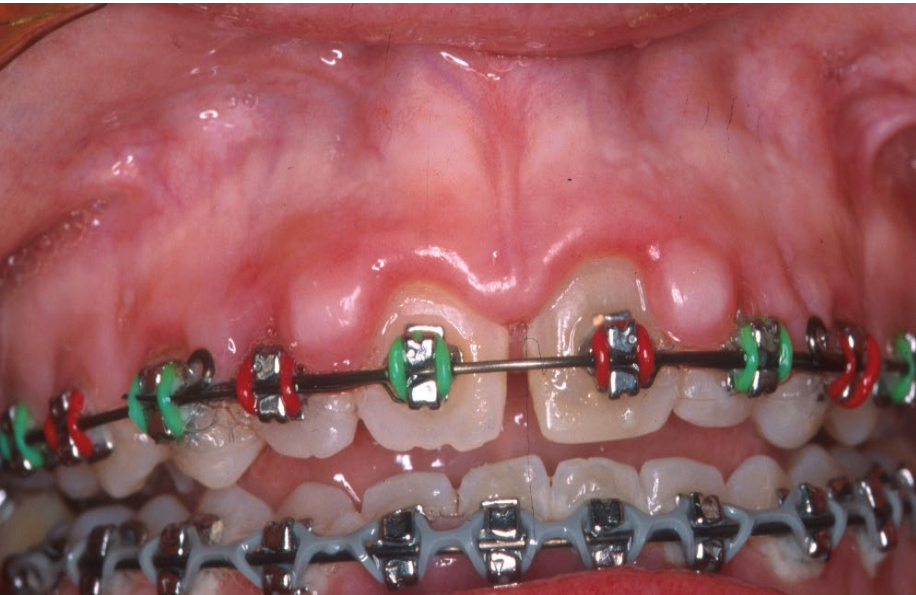
1. Access to bone required
2. Narrow zone of keratinized tissue
3. Aesthetics
4. Patients with high postoperative risk of bleeding

Gingivectomy

- The gingivectomy technique may be performed by means of scalpels, gingivectomy knives, electrodes and lasers

Procedure:

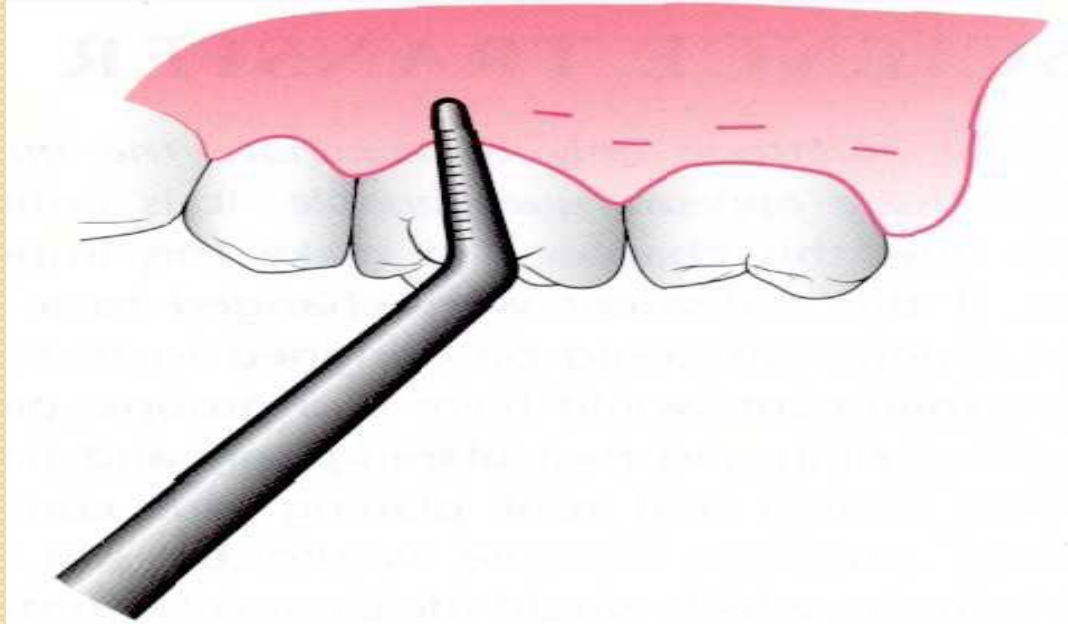
- I. Local anaesthesia, infiltration directly into the tissue; may need infiltration into sulcus. Rarely need block. The vasoconstrictor in the LA provides much needed haemorrhage control.



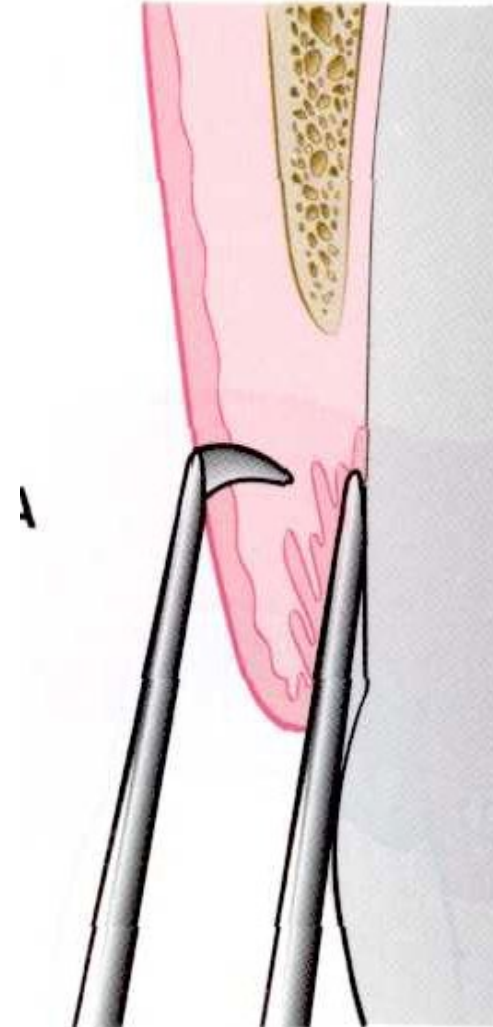
Gingivectomy

- 2. The pockets on each surface are explored with a periodontal probe and marked out with a pocket marker





- Marking the depth of a suprabony pocket. A pocket marker in position.



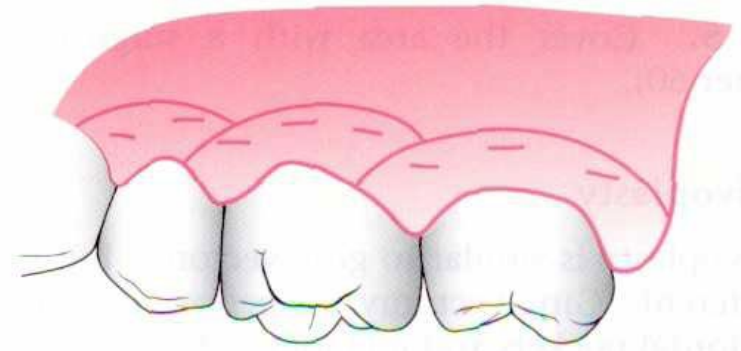
3.Incision

- Periodontal knives (e.g., Kirkland knives) are used for incisions on the facial and lingual surfaces and on those distal to the terminal tooth in the arch.
- Orban periodontal knives are used for interdental incisions.
- Bard–Parker blades (nos. 12 and 15) as well as scissors are used as auxiliary instruments.

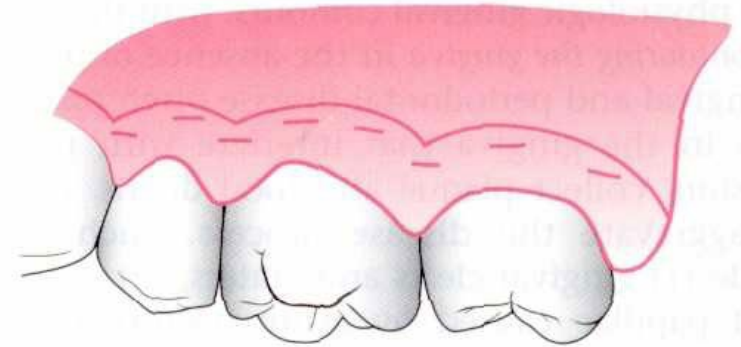


- The incision is started apical to the points marking the course of the pockets, and it is directed coronally to a point between the base of the pocket and the crest of the bone. It should be as close as possible to the bone without exposing it to remove the soft tissue coronal to the bone. Exposure of bone is undesirable. The incision should be beveled at approximately 45 degrees to the tooth surface, and it should recreate the normal festooned pattern of the gingiva.

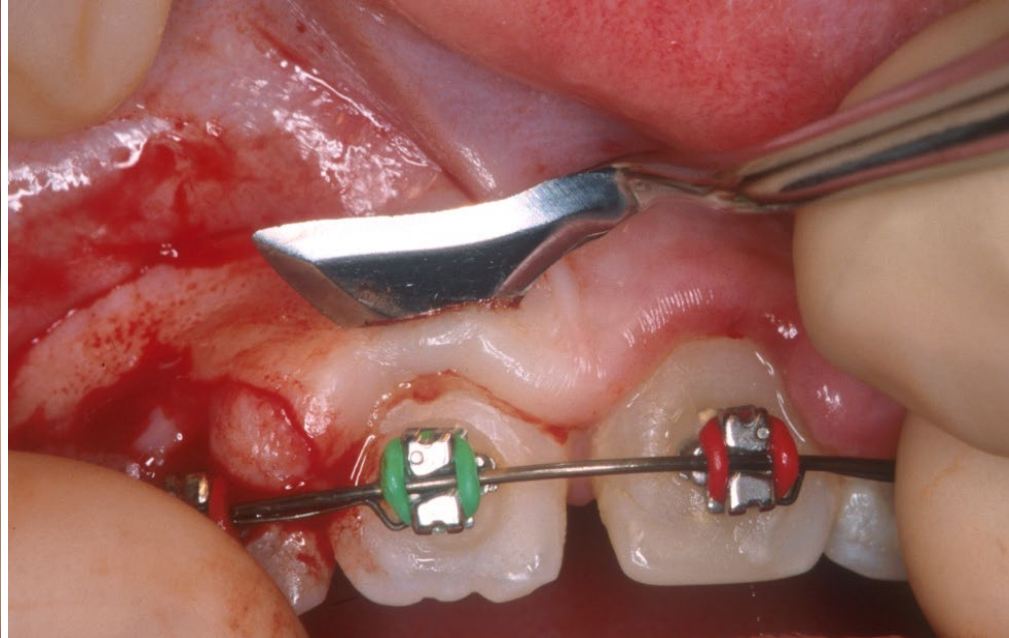
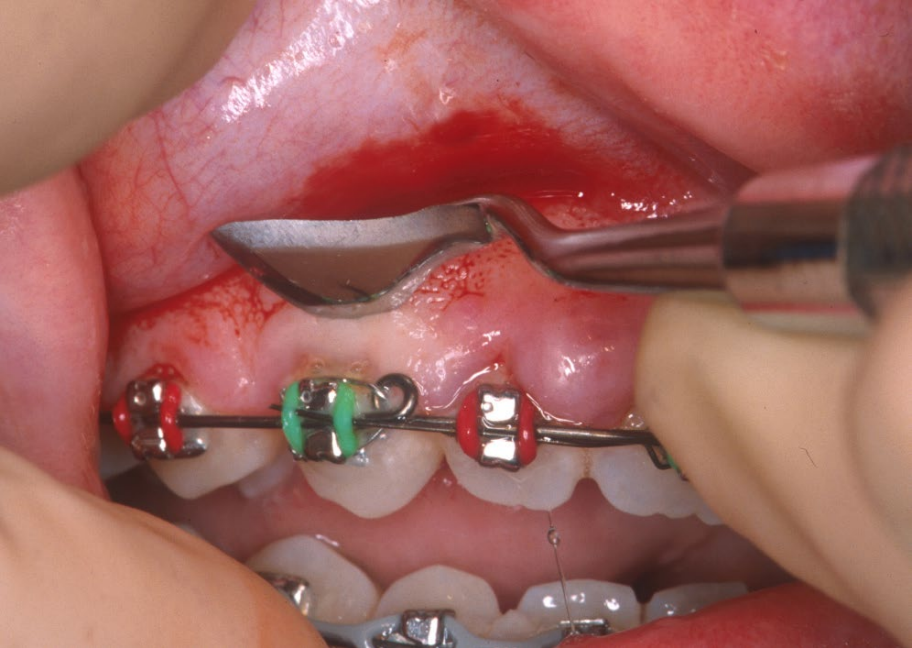
A



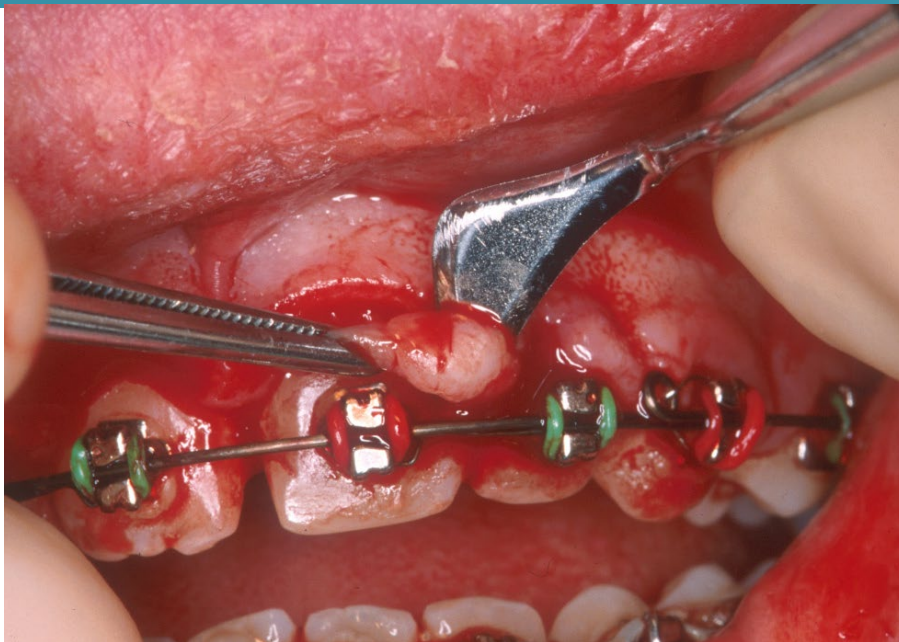
B



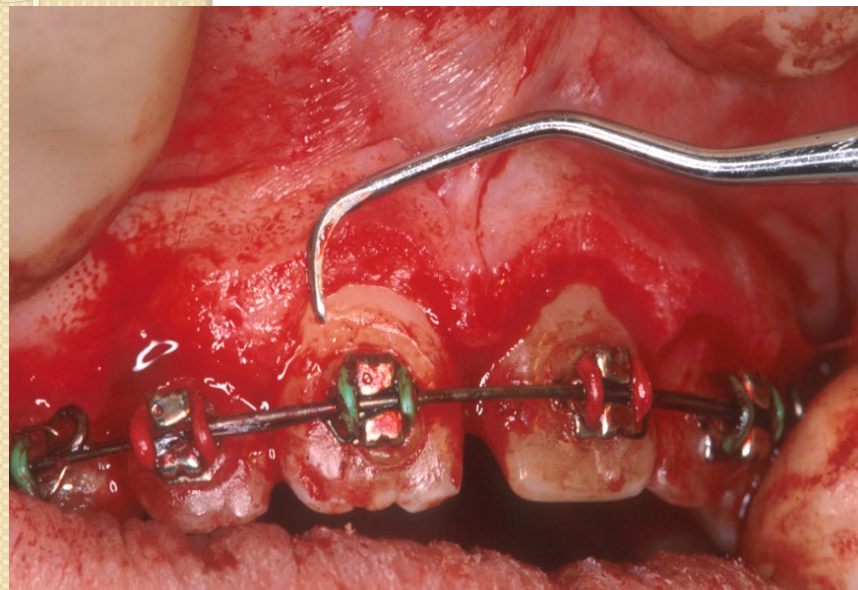
- **A, Discontinuous incision** apical to bottom of the pocket indicated by pinpoint markings.
- **B, Continuous incision** begins on the molar and extends anteriorly without interruption.



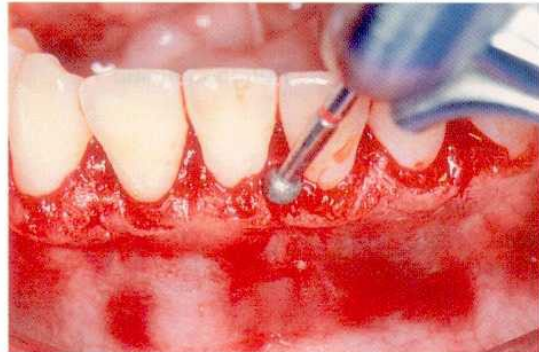
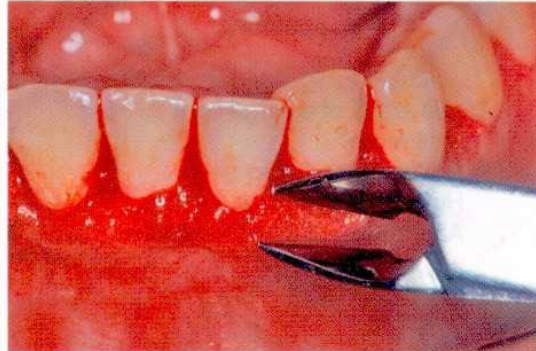
Kirkland knife, scalpel could also be used



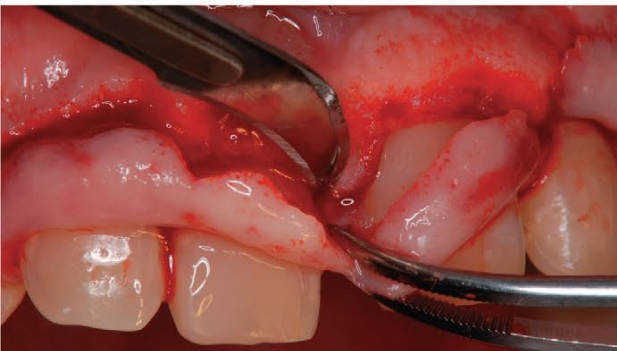
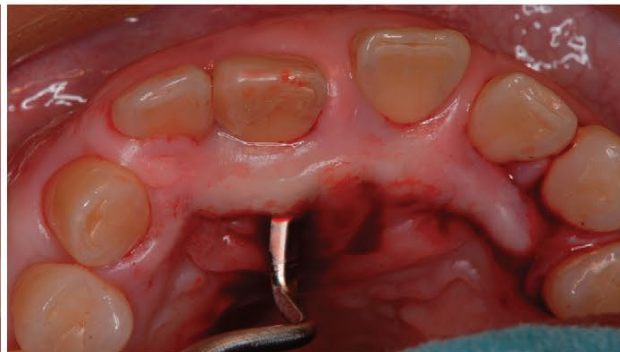
Gingivectomy



4. Remove calculus, granulation tissues, tissue tags
5. taper the gingival margin, create a scalloped marginal outline, thin the attached gingiva, and create vertical interdental grooves
6. Periodontal pack (Coepack™), chlorhexidine mouthwash 2x daily for 1 week
7. Review after 1 week

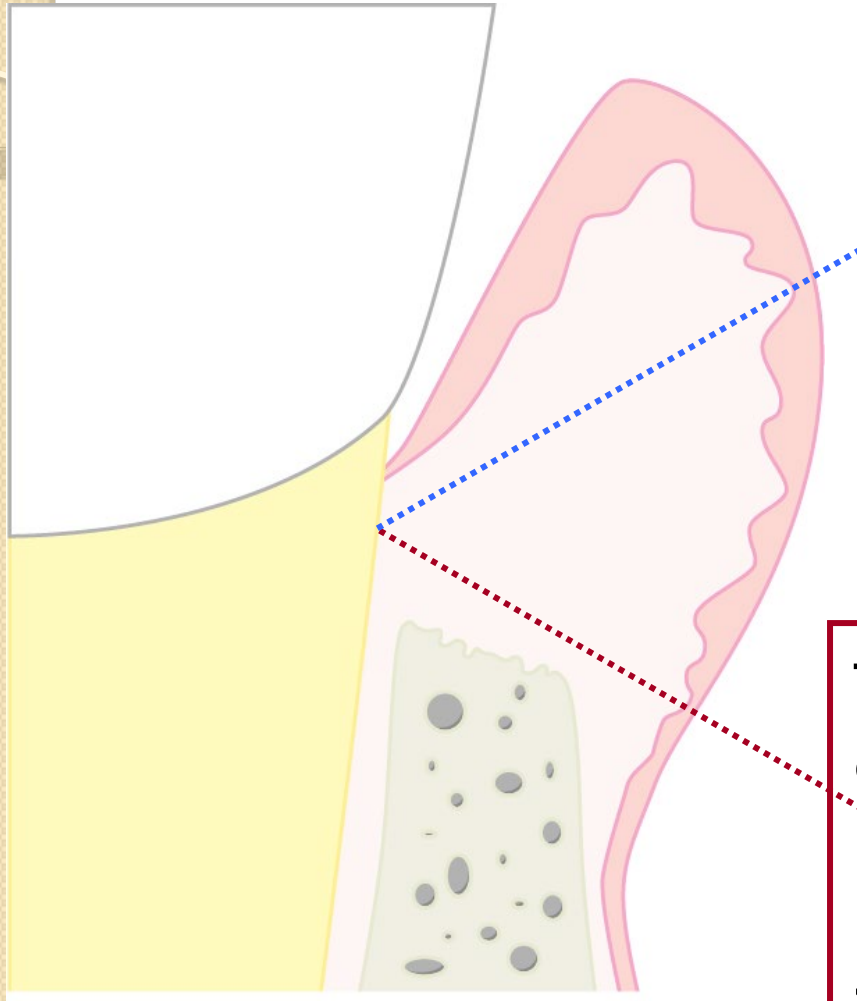


Coepak dressing
reduces post-op
discomfort &
prevents gingival
tissue regrowth.





Gingivectomy



When the tissue is very hyperplastic, an internal bevel incision can be used.
When the procedure is complete, the tissue is sutured.

Traditional gingivectomy:
continuous incision at 45° to long axis of tooth (external bevel incision) starting slightly apical to bleeding points.

Gingivoplasty

- Gingivoplasty is reshaping of the gingiva to create physiologic gingival contours with the sole purpose of *recontouring the gingiva* in the absence of pockets./aesthetics eg after NG
- Can be done with periodontal knife (Kirkland knife), scalpel, diamond stones or electrosurgery.

- The technique resembles that of the festooning of an artificial denture, which consists of tapering the gingival margin, creating a scalloped marginal outline, thinning the attached gingiva, creating vertical interdental grooves, and shaping the interdental papillae.



Healing after Surgical Gingivectomy

- The initial response after gingivectomy is the formation of a protective surface clot. The clot is then replaced by granulation tissue.
- By the third day, numerous young fibroblasts are located in the area. The highly vascular granulation tissue grows coronally, creating a new free gingival margin and sulcus.
- Capillaries derived from blood vessels of the periodontal ligament migrate into the granulation tissue, and within 2 weeks, they connect with gingival vessels.

- After 12 to 24 hours, epithelial cells at the margins of the wound start to migrate over the granulation tissue. After 5 to 14 days, surface epithelialization is generally complete.
- During the first 4 weeks after gingivectomy, keratinization is less than it was before surgery. Complete epithelial repair takes about 1 month.
- Vasodilation and vascularity begin to decrease after the fourth day of healing and appear to be almost normal by the sixteenth day.
- Complete repair of the connective tissue takes about 7 weeks.

Electrosurgery

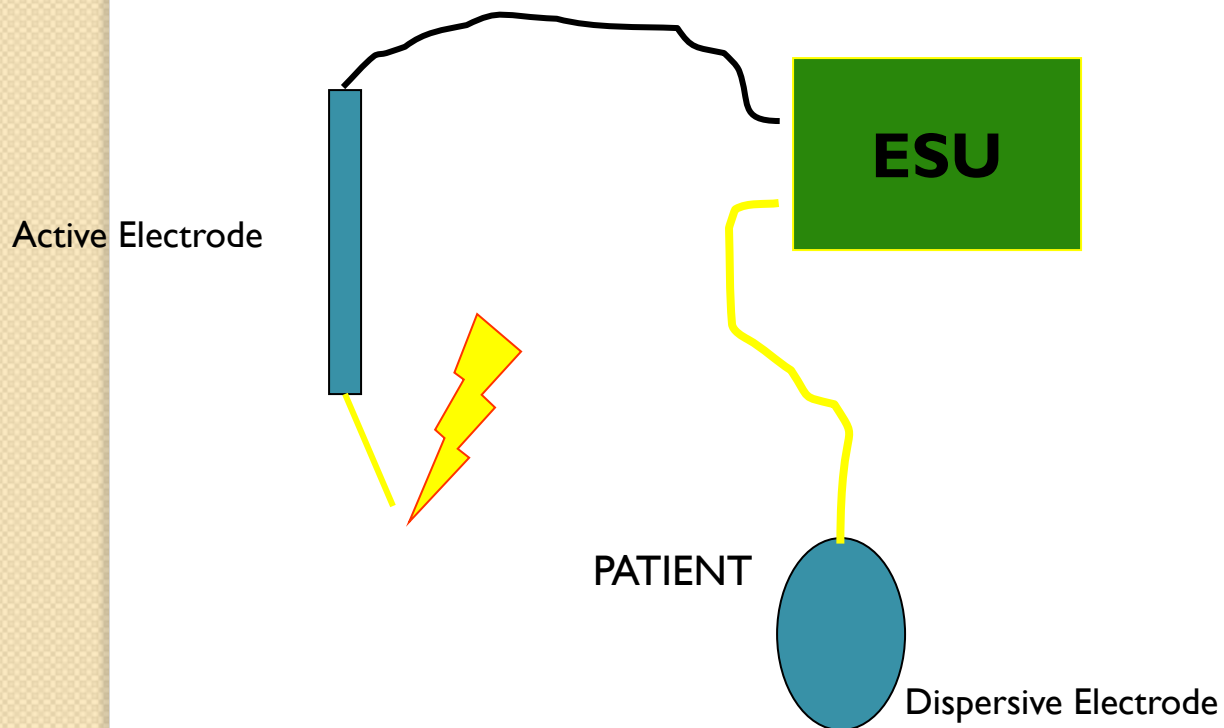
THERAPEUTIC OBJECTIVES

- Electrosection
- Electro-coagulation
 - White coagulation
 - Desiccation
 - 'Black coagulation' - Fulguration

Electrosurgical Units (ESU)

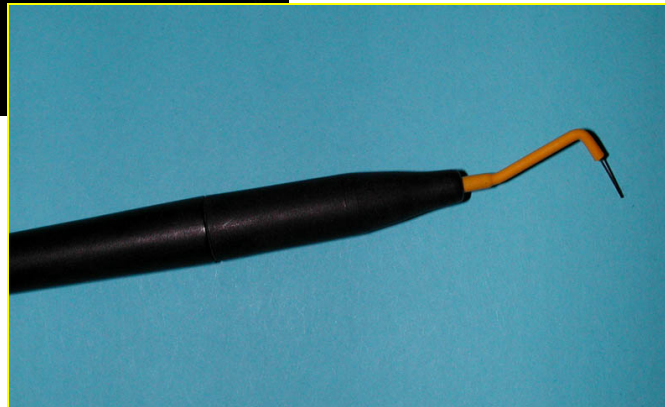
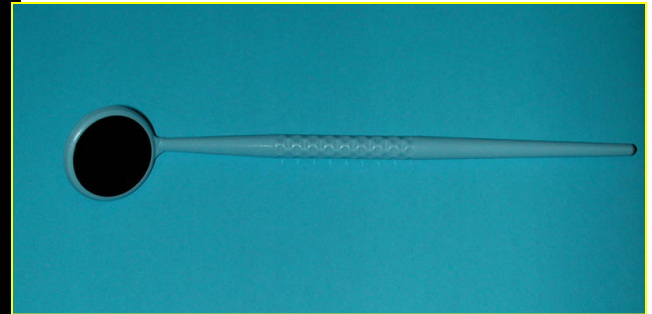
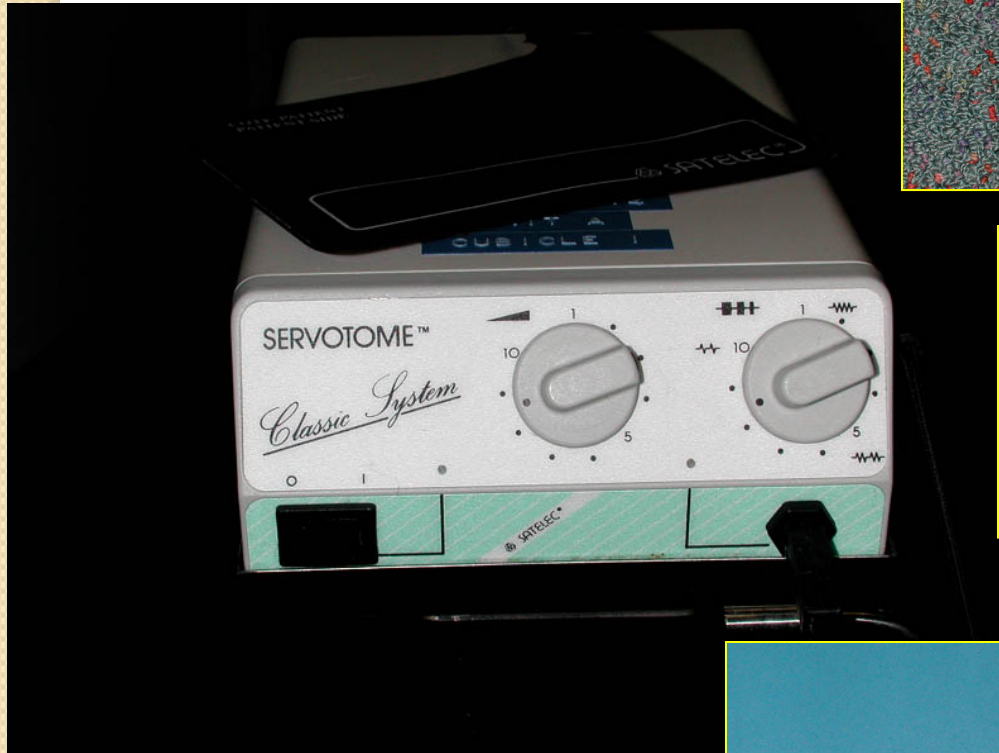
- Monopolar
- Bipolar

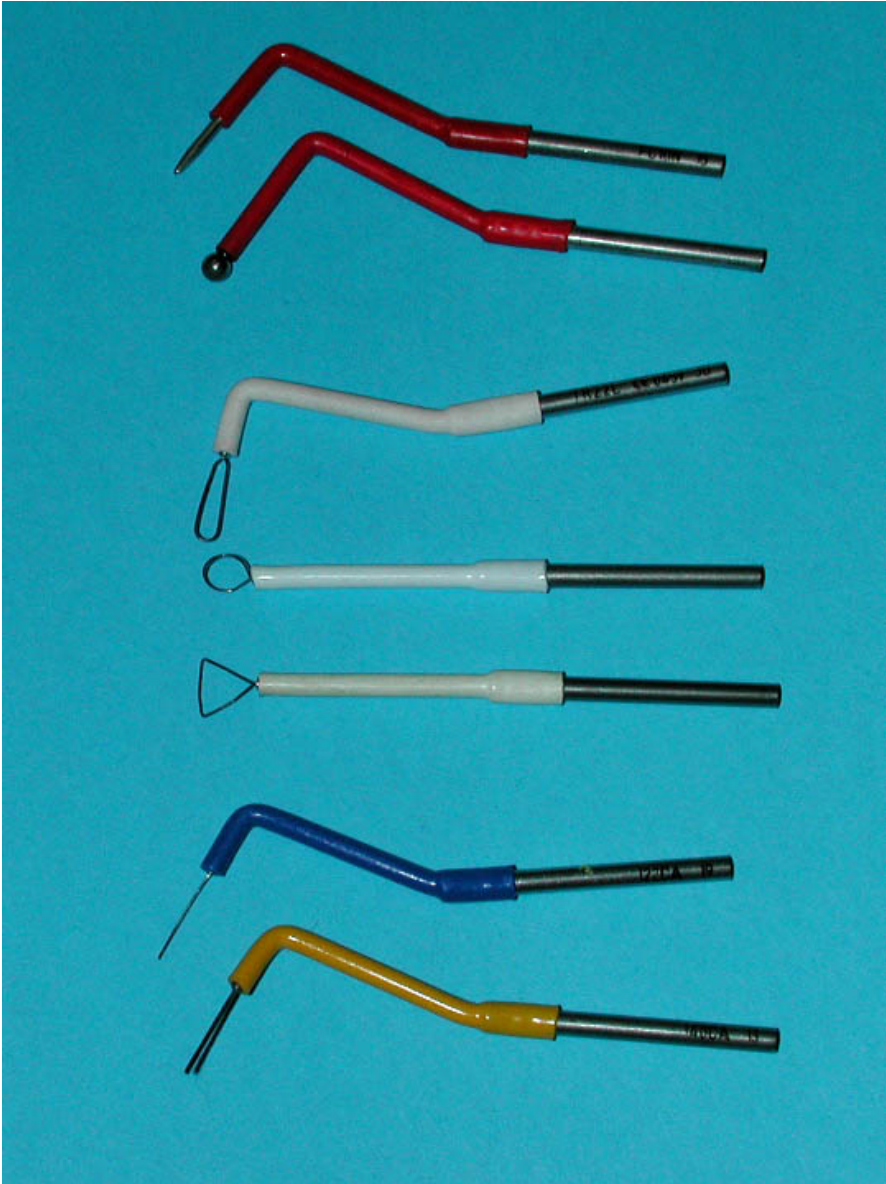
Monopolar ESU



Path of ESU Current

- Current passes from the site of contact through the tissues and is dissipated
- The path the current takes is beyond the operators control
- Nerves and blood vessels are more conductive than fat tissue, bone, enamel, dentine, cementum and air spaces
- Contact with teeth and metal fillings should be avoided
- Metal directs current towards the pulp
- Avoid electrosurgery around implants

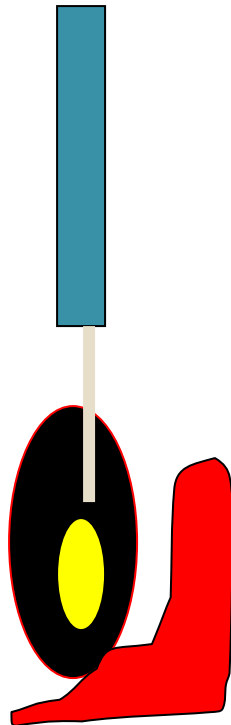




What occurs when the ESU probe is applied to tissue?

- Temperature rises from 35° C – 45° C, reversible tissue changes
- Temperature beyond 45° C; coagulation of protein, tissue turns white, cellular forms remain intact
- Around 60° C water content of cells driven out – dessication. Haemostasis achieved without long term tissue damage
- Above 60° C cellular disintegration. Oxygen, nitrogen, hydrogen, carbon formation. **BLACK COAGULATION, ESCHAR, CARBONIZATION**
- 400 – 500° C cells vaporize. White smoke – PLUME

Electrosection



- **High voltage current builds up at the electroprobe tip.**
- **Creates an electric arc or spark**
- **If current density is high enough and probe movement is efficient, vapor layer is created which allows the probe to glide without contacting tissue**
- **Current ultimately dissipates in the tissue and then returns via the path of least resistance to remote dispersive electrode**

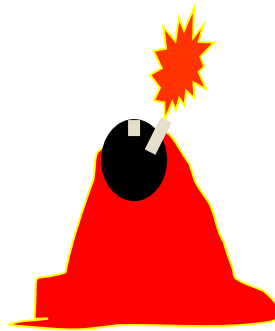
- Clean the surgical site with 0.2% Chlorhexidine solution on cotton pellet.
- Remove carbonised tissue debris from **INACTIVE** probe with alcohol on gauze

Electrocoagulation

- Coagulation of tissues achieves the therapeutic objective of hemostasis
- There are three levels of coagulation:
 - White coagulation
 - Dessication
 - Fulguration

Fulguration

- ESU probe held slightly away from tissue
- Arc jumps from electrode to the tissue in a random manner when current density is enough to overcome the capacitance of the gap
- Tissue is left charred/ sloughs off in days



Precautions with ESU

- Contraindicated in heart pacemaker patients
- Contraindicated in radiation therapy and acutely immuno-compromised patients
- Do not use near alveolar bone
- Do not contact alloy restorations
- Do not contact tooth
- Do not use near flammable vapors/liquids
- Do not use with N_2O or O_2
- Do not retract tissues with metal instruments
- Avoid prolonged tissue contact
- Have good ventilation/ suction (non-metal)
- Adjust current for optimal use

Procedure with ESU

- Plan procedure, simulate on diagnostic model
- Give LA
- Set up ESU, ensure connections are correct
- Plastic retractors and suction tips
- Good lighting, efficient high volume suction
- Test anaesthesia
- Rehearse movement/ access
- Choose correct probe and settings
- Activate
- Wipe eschar off with alcohol gauze when probe off
- Wipe tissue debris away with chlorhexidine solution
- Assess surgical site and re-enter if required

Bipolar ESU

- Cuts, coagulates in irrigated, wet or dry fields
- Safe for pacemaker patients
- Patient not in the circuit
- No ground pads needed
- Used with lower voltage
- Safer- no electric arcing
- Reduced tissue charring
- Control more fine tuned
- Less heat and current spread
- Cuts and coagulates at far lower wattages than mono- polar ESU's

Gingivectomy by Electrosurgery

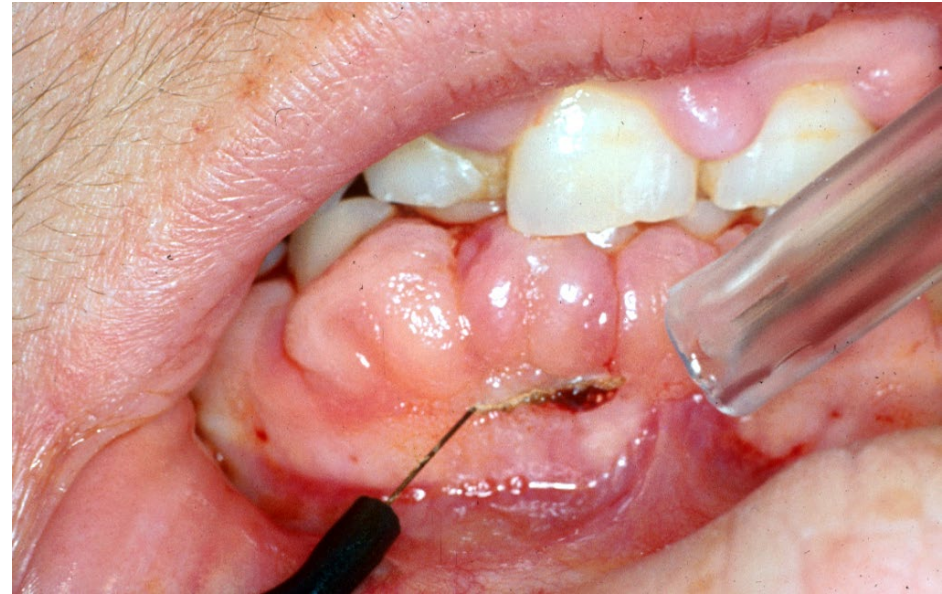
Advantages

- Electrosurgery permits an adequate contouring of the tissue and controls hemorrhage
- Sterilises as it cuts.
- Good accessibility (molars).
- Coagulation (vascular pathologies).

Disadvantages

- Electrosurgery cannot be used in patients who have cardiac pacemakers.
- The treatment causes an unpleasant odor.
- When used for deep resections close to bone, electrosurgery can produce gingival recession, bone necrosis and sequestration, a loss of bone height, furcation exposure, and tooth mobility
- When the electrode touches the root, areas of cementum burns are produced.
- Lack of tactile sensation.
- Quick cutting necessary.
- Time needed for heat dissipation.
- Soft tissue only.
- Metal restorations can act as conductors.

Gingivectomy with electrosurgery



3 weeks after
surgery



Technique

The removal of gingival enlargements and gingivoplasty are performed with the needle electrode, supplemented by the small, ovoid loop or the diamond-shaped electrodes for festooning.

A blended cutting and coagulating current is used. In all reshaping procedures, the electrode is activated and moved in a concise "shaving" motion.



Thank You