ri Aurobindo College of Dentistry

Indore, Madhya Pradesh

INDIA

MODULE PLAN

- TOPIC :BIOPSY
- SUBJECT:ORAL SURGERY
- TARGET GROUP: UNDERGRADUATE DENTISTRY
- MODE: POWERPOINT – WEBINAR
- PLATFORM: INSTITUTIONAL LMS
- PRESENTER:DR.GEETI V. MITRA

Definition of Biopsy

Removal of tissue from a living individual for diagnostic examination

Indications for Biopsy

- Any lesion that persists for more than 2 weeks with no apparent etiologic basis
- Any inflammatory lesion that does not respond to local treatment after 10 to 14 days.
- Persistent hyper-keratotic changes in surface tissues.
- Any persistent tumescence, either visible or palpable beneath relatively normal tissue.

Indications for Biopsy

- Inflammatory changes of unknown cause that persist for long periods
- Lesion that interfere with local function
- Bone lesions not specifically identified by clinical and radiographic findings
- Any lesion that has the characteristics of malignancy

Characteristics of lesions that raise the suspicion of malignancy

- Erythroplasia—lesion is totally red or has speckled red appearance
- Ulceration—lesion is ulcerated or presents as an ulcer
- Duration— lesion has persisted more than 2 weeks

Characteristics of lesions that raise the suspicion of malignancy

- Growth rate– lesion exhibits rapid growth
- Bleeding— lesion bleeds on gentle manipulation
- Induration– lesion and surrounding tissue is firm to the touch
- Fixation– lesion feels attached to adjacent structures

Principles and Techniques of Biopsy

- It is important to develop a systematic approach in evaluating a patient with a lesion in the Oral and Maxillofacial region.

These steps include :

- A detailed health history
- A history of the specific lesion
- A clinical examination
- A radiographic examination
- Laboratory investigations
- Surgical specimens for histo-pathologic evaluation

Health History

- An accurate health history may disclose predisposing factors in the disease process or factors that affect the patients management.
- Up to 90% of systemic diseases can be discovered through history taking.
- The same can be true of oral lesions when one is familiar with the natural progression of the more common disease processes.

Medical conditions that warrant special care include:

- Congenital heart defects
- Coagulopathies
- Hypertension
- Poorly controlled diabetics
- Immuno compromised patients

Historical Reasons for the Lesions:

- Trauma to the area
- Recent toothache
- Habits

Clinical Examination

- The clinical examination should always include when possible:
  - Inspection
  - Palpation
  - Percussion
  - Auscultation

Clinical Evaluation

- The anatomic location of the lesion/mass
- The physical character of the lesion/mass
- The size and shape of the lesion/mass
- Single vs. multiple lesions
- The surface of the lesion
- The color of the lesion
- The sharpness of the boundaries of the lesion
- The consistency of the lesion to palpation
- Presence of pulsation
- Lymph node examination

Radiographic Examination

- The radiographic appearance may provide clues that will help determine the nature of the lesion.
- A radiolucency with sharp borders will often be a cyst
- A ragged radiolucency will often be a more aggressive lesion
- Radiopaque dyes and instruments can help differentiate normal anatomy

Laboratory Investigation

- Oral lesions may be manifestations of systemic disease.
- If a systemic disease is suspected it should be pursued.

Types of Biopsy

- Oral cytology
- Aspiration biopsy
- Incisional biopsy
- Excisional biopsy
- Needle biopsy

Oral Cytology

- Developed as a diagnostic screening procedure to monitor large tissue areas for dysplastic changes.
- Most frequently used to screen for uterine cervix malignancy
- May be helpful with monitoring post-radiation changes, herpes, pemphigus.

The Disadvantage of oral cytological procedures include:

- Not very reliable with many false positives.
- Expertise in oral cytology is not widely available
- The lesion is repeatedly scraped with a moistened tongue depressor or spatula type instrument. The cells obtained are smeared on a glass slide and immediately fixed with a fixative spray or solution.

Aspiration Biopsy

- Aspiration biopsy is the use of a needle and syringe to penetrate a lesion for aspiration of its content

Indication of Aspiration Biopsy

- Aspiration should be carried out on all lesions thought to contain fluid or any intra-osseous lesion before surgical exploration
- a fluctuant mass in the soft tissues should also be aspirated to determine its contents
- Any radiolucency in the bone of the jaw should be aspirated to rule out a vascular lesion that can cause life threatening hemorrhage

Technique of Aspiration Biopsy

- A 18-gauge needle is connected to a 5 or 10 ml syringe
- The tip of needle may have to be repeatedly repositioned to locate a fluid center

Excisional Biopsy

- Removal of the entire lesion
- A perimeter of normal tissue surround the lesion is also excised to ensure total removal
- Constitute definitive treatment

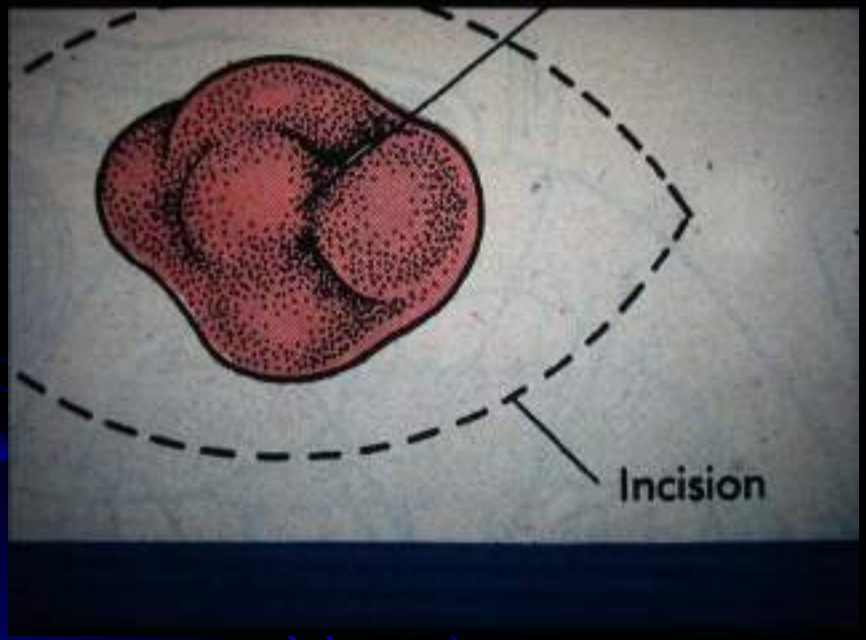
Indication of Excisional Biopsy

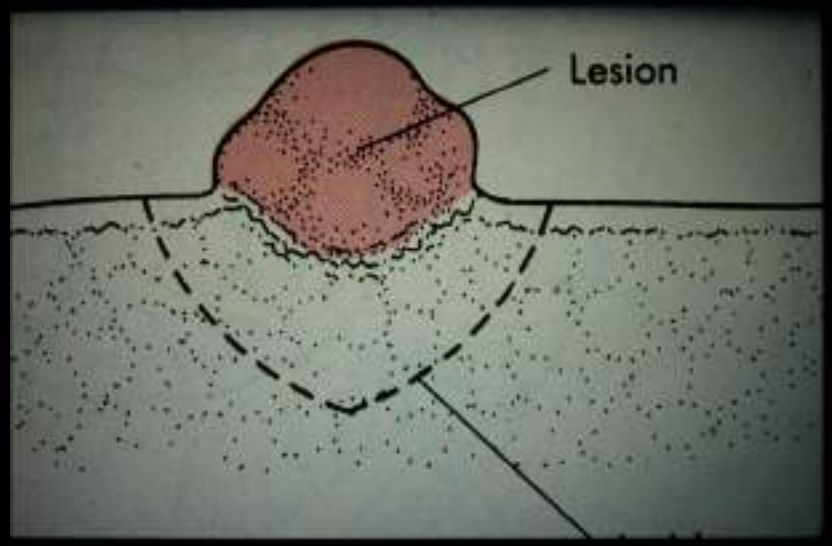
- Smaller lesions(<1cm, in diameter) that, on clinical examination, appear to be benign

Principle of Excisional Biopsy

- The entire lesion, along with 2 to 3 mm of normal appearing surrounding tissue, is excised

Principle of Excisional Biopsy





Incisional Biopsy

- Samples only a particular or representative part of the lesion
- Lesion is large
- Lesion has different characteristics at different location

Indication of Incisional Biopsy

- Extensive size (>1 cm in diameter)
- Hazardous location
- A great suspicious of malignancy

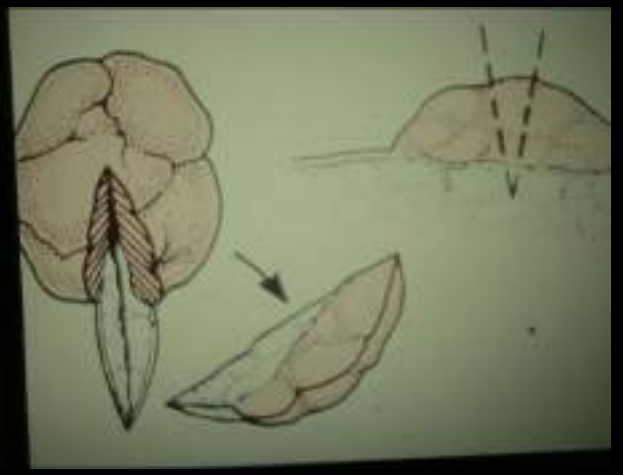
Principles of Incisional Biopsy

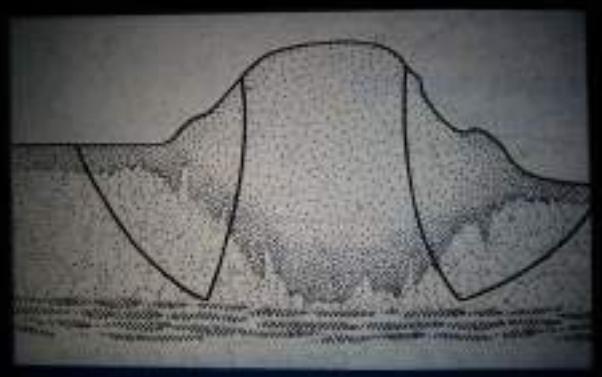
- Representative areas of lesion should be incised in wedge fashion
- Selected in an area that shows complete tissue changes (the lesion extends into normal tissue at the base and/or margin of the lesion)

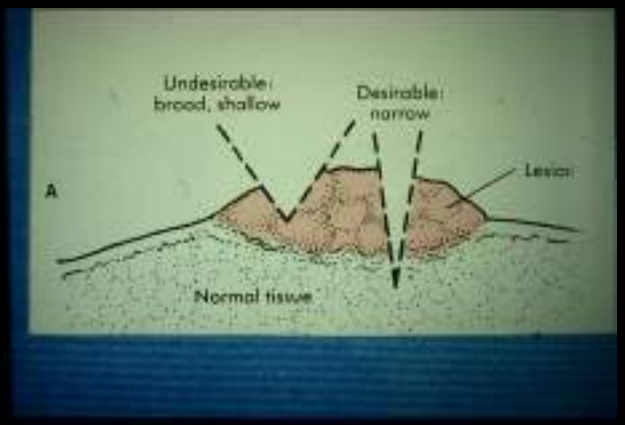
Principles of Incisional Biopsy

- Necrotic tissue should be avoided
- Taken from the edge of the lesion to include some normal tissue
- A deep, narrow biopsy rather than a broad, shallow one

Principles of Incisional Biopsy







Anesthesia

- Block local anesthesia techniques are employed when possible
- The anesthetic solution should not be injected within the tissue to be removed, because it can cause artificial distortion of the specimen

Anesthesia

- When blocks are not possible, infiltration of local anesthesia may be used locally ,but the solution should be injected at least 1 cm away from the lesion

Tissue Stabilization

- Tongue or soft palate

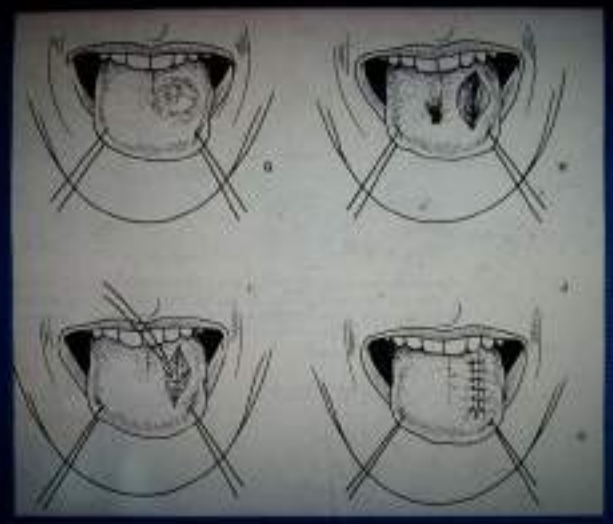
  --Heavy retractive sutures

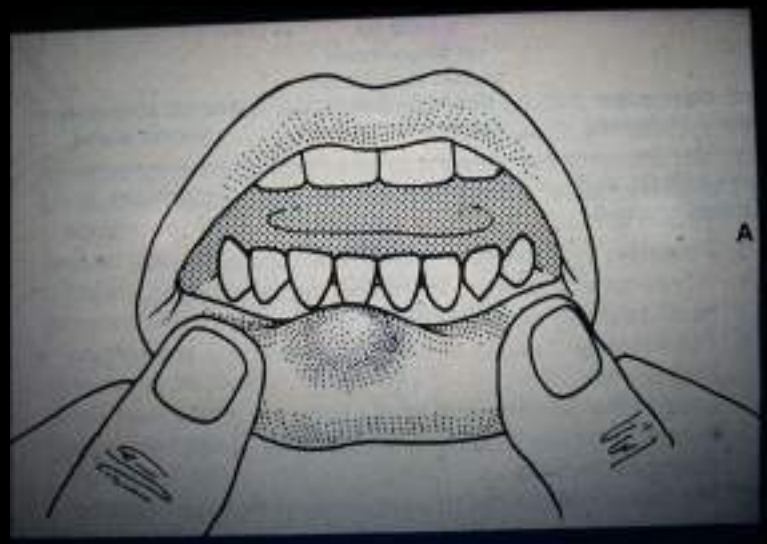
  --Towel clips

- Lip

  -- assistant's finger pinching the lip on both sides of the biopsy area

Tissue Stabilization





Identification of Surgical Margins

- Marked with a silk suture to orient the specimen for the pathologist
- If the lesion is diagnosed as requiring additional treatment, the pathologist can determine which margin, if any had residual

Identification of Surgical Margins

- One must be certain to illustrate the orientation of the lesion and the method with which the specimen was marked in the pathology data sheet

Hemostasis

- Avoid suction device
- Gauze wrapped over the tip of the low volume suction device
- Simple gauze compression

Specimen Care

- Immediately placed in 10% formalin solution that is at least 20 times the volume of surgical specimen
- Totally immersed in the solution

Specimen Care

- Care should be taken to be sure that the tissue has not become lodged on the wall of the container above the level of the formalin

Surgical Closure

- Primary closure of the elliptic wound is usually possible
- Palatal biopsy: best managed postoperatively with the use of an acrylic splint

Surgical Closure

- Dorsum or lateral border of the tongue: sutures to be placed deeply and at frequent intervals into the substance of the tongue to retain closure

Intra osseous or hard tissue biopsy technique & surgical principles

Aspiration biopsy of radiolucent lesion

- Any radiolucent lesion that requires biopsy should undergo aspiration biopsy before surgical exploration, which provides valuable diagnostic information regarding the nature of the lesion
- Brisk, pulsating- vascular lesion
- Straw colored fluid – cyst
- Air – maxillary sinus

Mucoperiosteal flaps

- Most hard tissue lesions approached through mucoperiosteal flaps
- Full thickness flaps,incision through mucosa, sub-mucosa & periosteum
- Dissection to expose bone done sub periosteally

Osseous window

- Lesions within jaws (central lesions) require the use of cortical window

Removal of specimen

- Most small lesions that have a connective tissue capsule can be removed with their entirety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