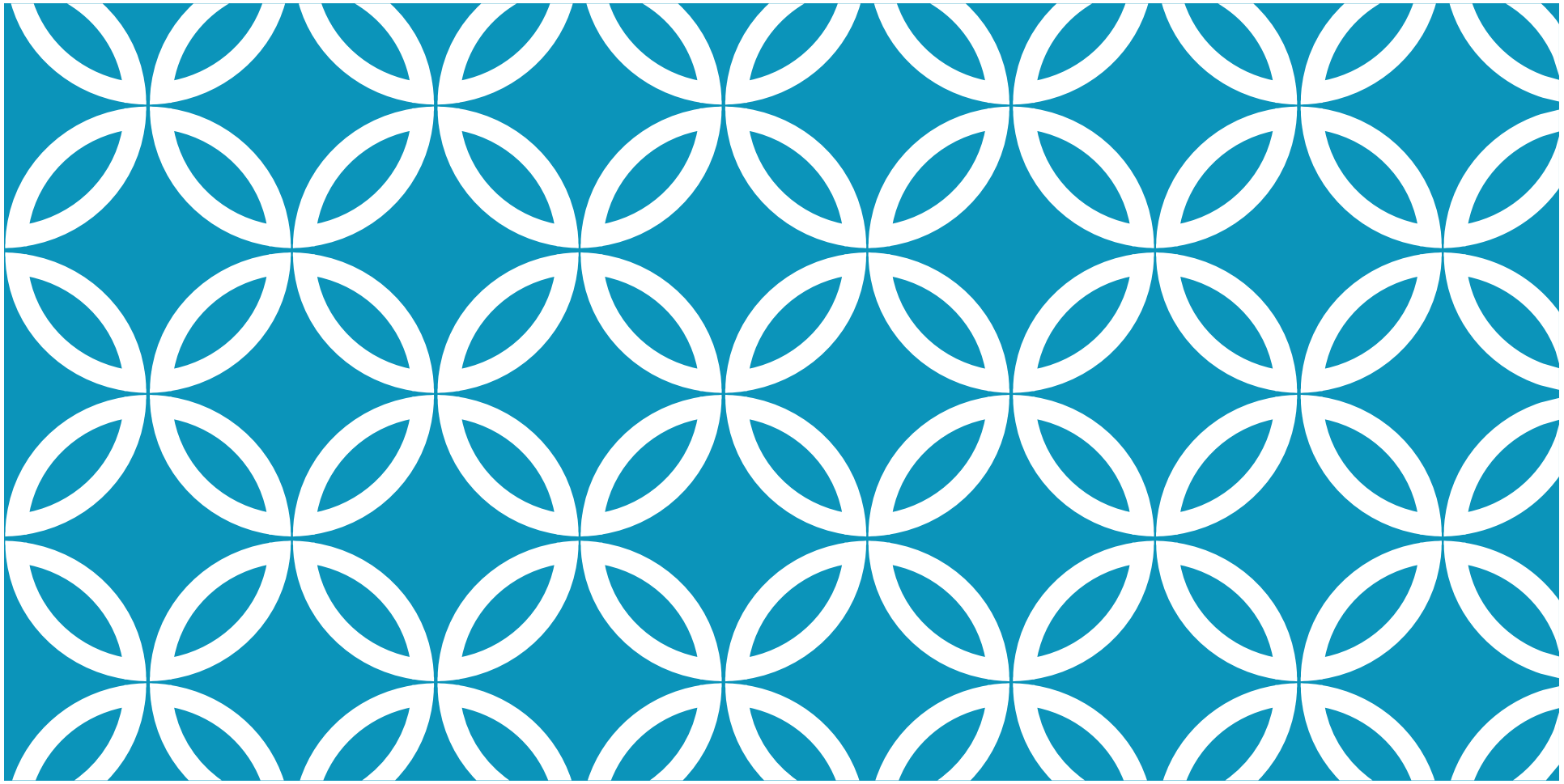


MINOR SURGICAL PROCEDURES IN PEDIATRIC DENTISTRY

Lecture By,
Dr. PURVA

CONTENT

Soft tissue abnormalities

1) Mucocele

2) Ranula

3)eruption cyst

4)odontogenic cysts

5)non odontogenic cysts

6)frenectomy

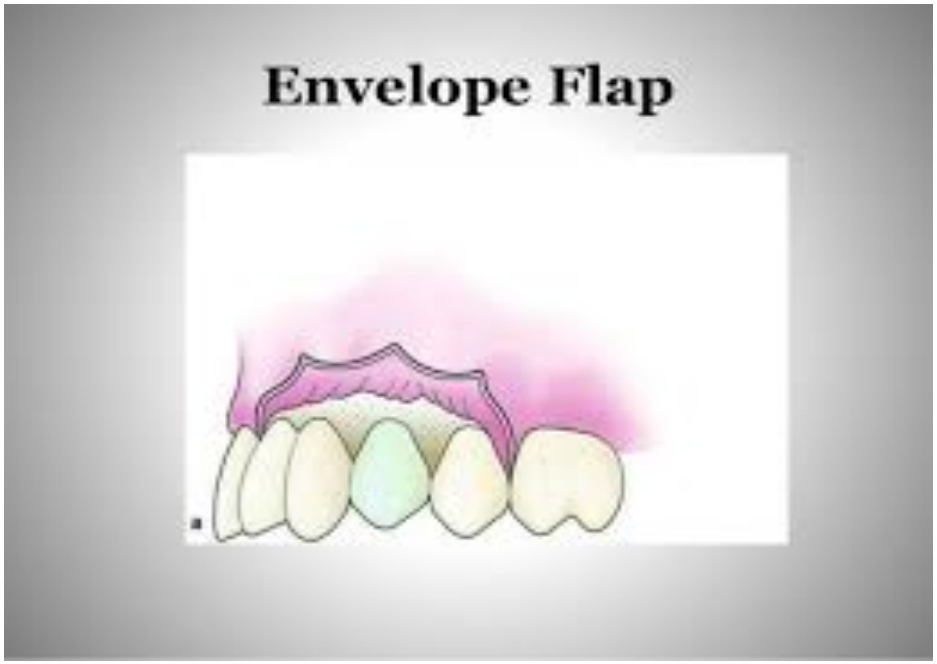
Hard tissue abnormalities

1)osteomyelities

2)apicoectomy

The basic steps involved in carrying out minor oral surgical procedures are incision and suturing

INCISION AND FLAP



- Commonly used flaps on the buccal side.
- Features of this flap are:
- All the incisions should be placed on sound bone.
- Flaps raised are generally mucoperiosteal in nature.

INCISION AND DRAINAGE

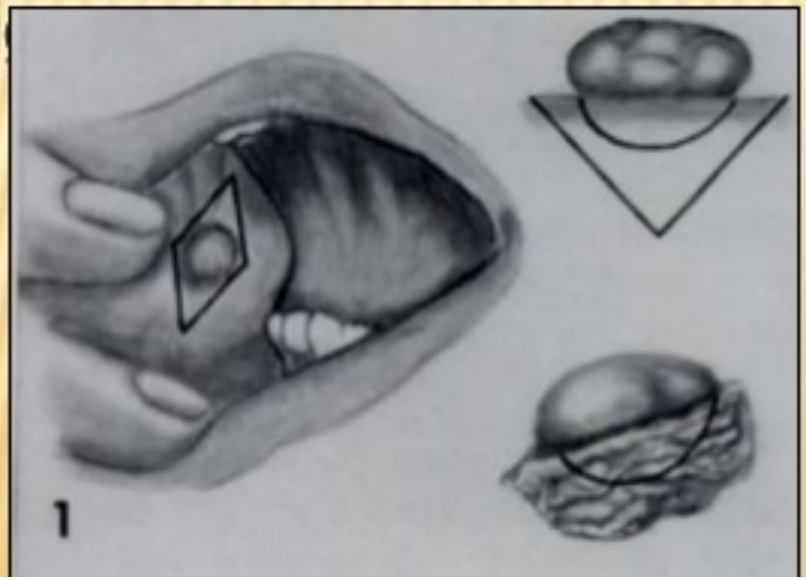
When the exudate(pus) collection is confined to the hard tissue , a dull ,boring , excruciating pressure pain develops . However, a swelling occurs and the pain diminishes as the exudate penetrates the cortical plate.

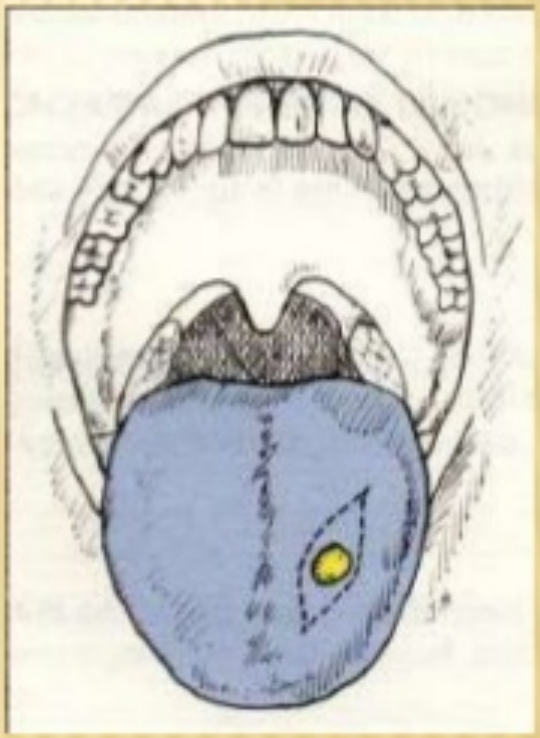
INCISIONAL BIOPSY

Incisional biopsies are performed to confirm the diagnosis by removing a part of the lesion.

Excisional Biopsy

The entire lesion with 2 to 3mm of normal appearing tissue surrounding the lesion is excised if beni





SOFT TISSUE ABNORMALITIES

Mucocele

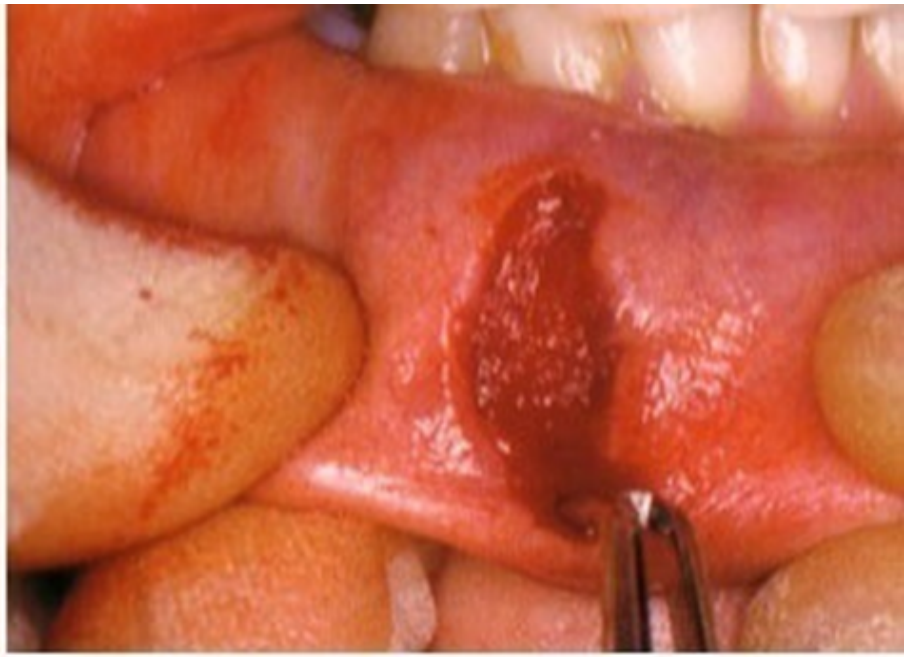
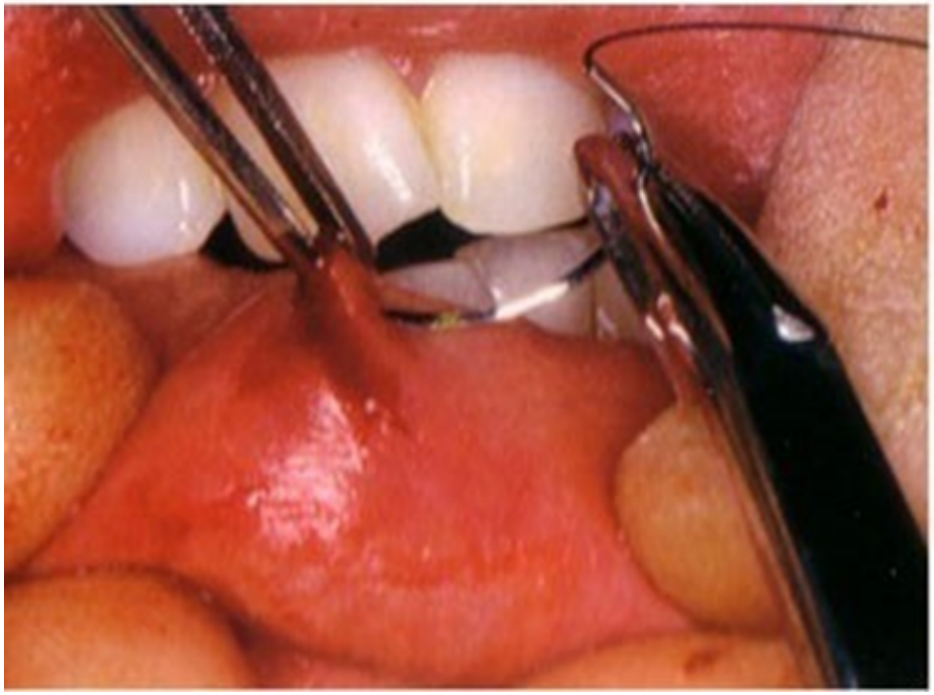
The mucocele is an extravasation type of cyst (or can be a retention cyst). The cause is commonly trauma to minor salivary glandswith the mucus / fluid spreading into the adjacent tissues which gets covered by a fibrous lining. Credence is given to this theory by the fact that they ,most commonly occur on the lower lip area.

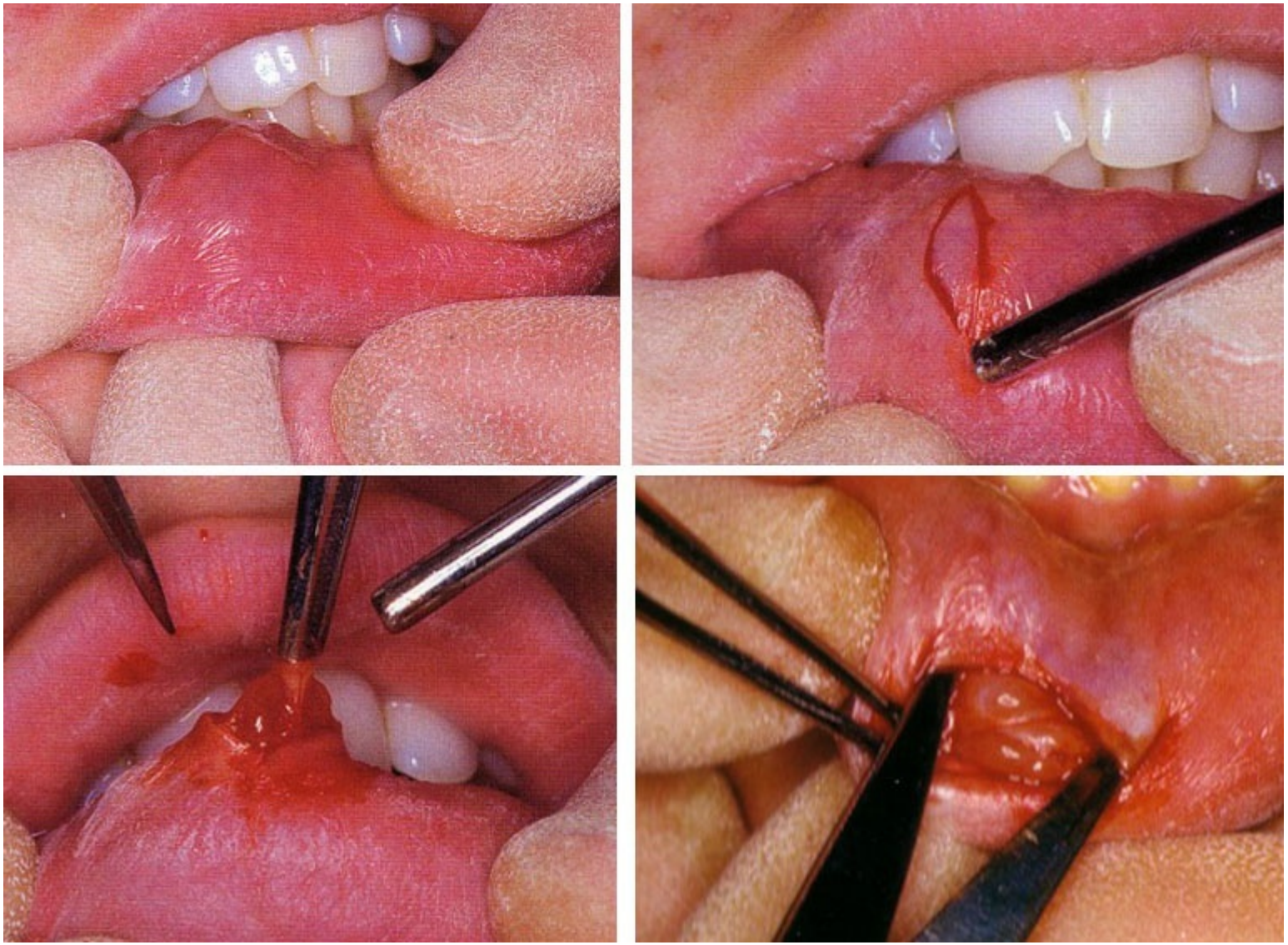
"Plain puncturing" if the lesion is associated with recurrence. Thus" enucleation" of the lesion along with the removal of the adjacent minor salivary glands is the treament of choice.

Excision : 2 approaches have been suggested:

A) The incision is elliptical and around the lesion. Then the lesion is excised .

B) The incision, a superficial one , is placed over the lesion involving the upper layers only. The tissue is then separated on either side and the lesion is excised.

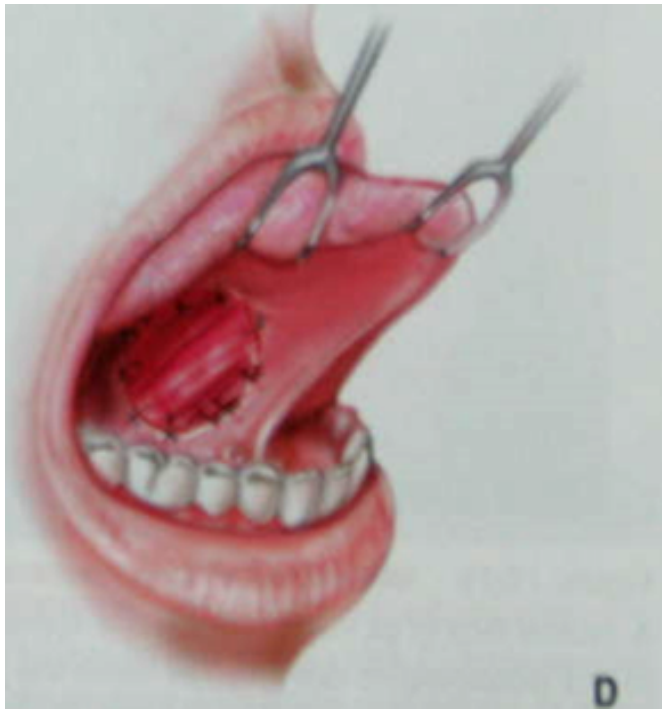




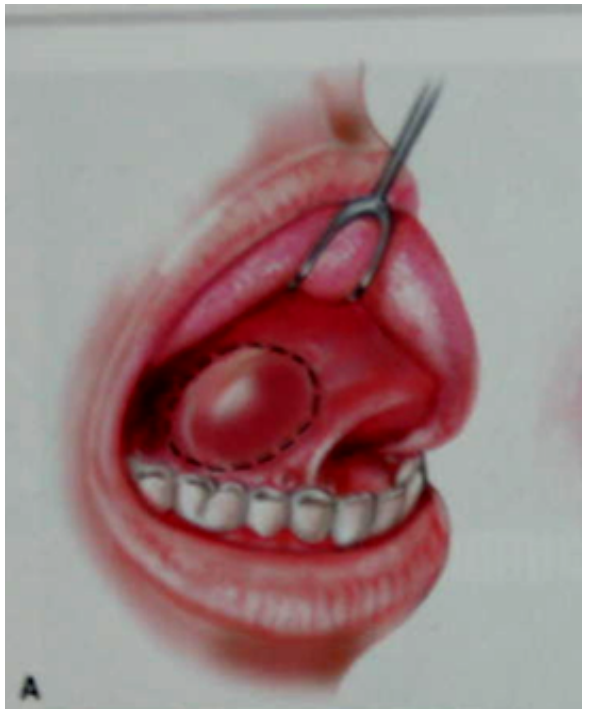



RANULA

- Another common retention cyst seen in children is ranula .
- Ranulas are cystic cavities located in the floor of the mouth.
- They are formed by the retention of the fluid in the sublingual or submaxillary gland or their ducts.
- In infants and toddlers ,ranula appearing in the floor of the mouth are congenital and those appearing in the older children and teenagers are usually post traumatic

- It begins its formation on one side of the jaw and fills the floor of the mouth by slow expansile growth.
- The ranulas are usually located in the sublingual space between the mylohyoid muscle and lingual mucosa.
- However , sometimes the swelling extends into the submental or the submandibular space by perforating through the mylohyoid muscle .causing a plunging ranula . The overlying tissues achieve a paperlike trhinness and the lesion becomes blue as it expands.

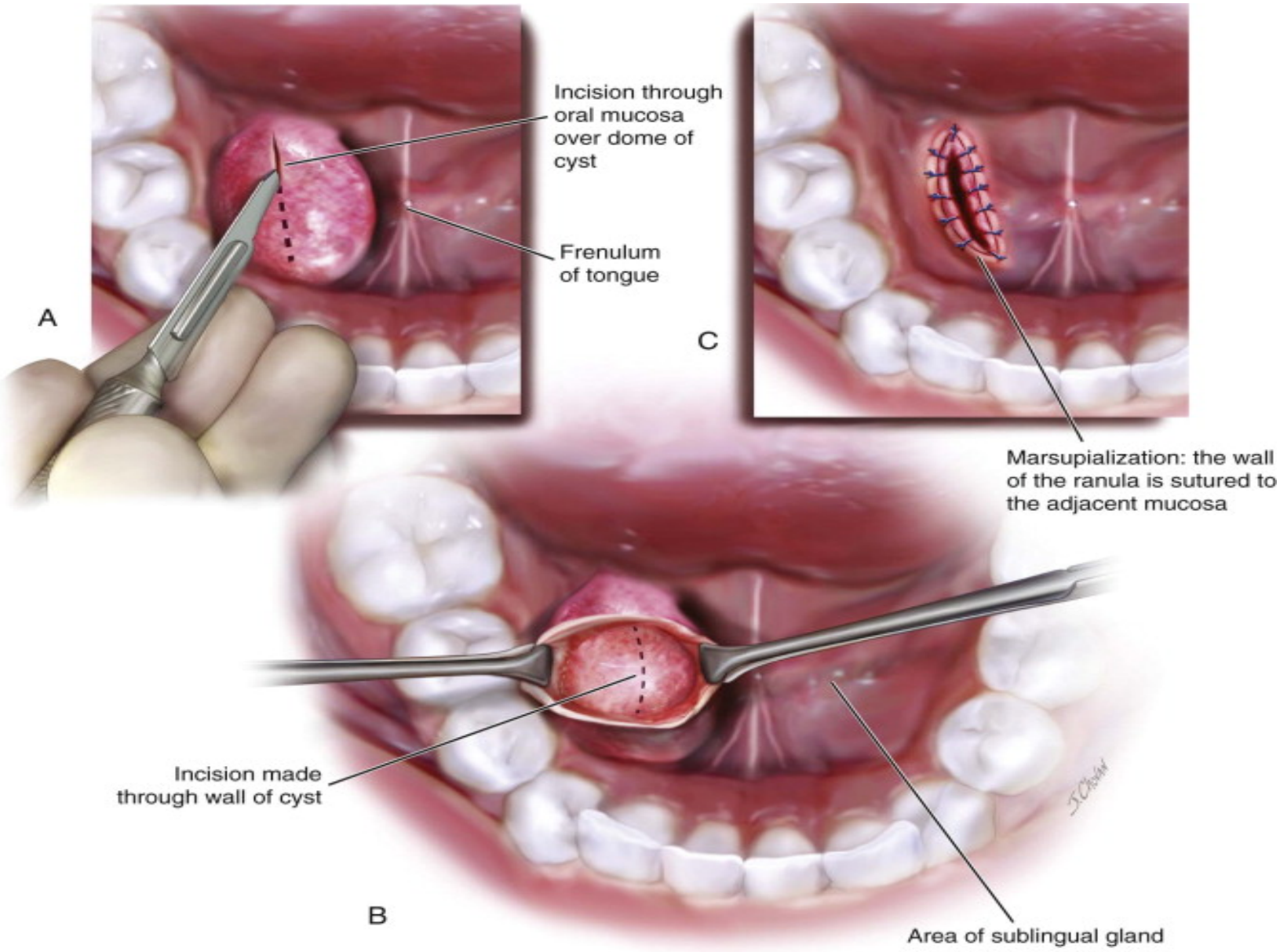


Treatment : the size of the ranula is difficult to access both clinically and radiographically .

- The extent of the ranula can be estimated by injecting a contrast medium into the cyst.The true lateral or the postero anterior view of the mandible radiographs should be taken to access the depth in the neck as well as the width of the lesion. " Simple incision and drainage" of the ranula always results in its recurrence.
- "Enucleation" of the ranula w/o ruputuring the thin cystic wall is practically impossible and results in complications . Once the cyst ruptures , it is difficult to pick up the continuity of the lining .

THE BEST SURGICAL PROCEDURE FOR RANULA IS MARSUPIALIZATION.



ERUPTION CYST

It is seen associated with the natal teeth in the newborn and also occurs in association with the eruption of the deciduous and the permanent teeth.

Most of the time, natal and neonatal teeth are normal primary central incisors.

These teeth should be observed and are to be extracted if they are extremely mobile.

They appear as clear or blood tinged ,fluid filled masses on the crest of the ridge.

They interfere with the feeding or bleed intermittently when traumatized , but are otherwise aymptomatic .

They usually disappesar when the underlying tooth erupts.

It should be unroofed or drained if the lesion becomes painful or infected .

ODONTOGENIC CYSTS

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In children, canines are more commoly involved than the third molars.

In the late mixed and early permanent dentition , dentigerous cyst is associated with the impacted premolars and 12 year molars .

In teenagers dentigerous cyst mostly involves the impacted wisdom tooth .

Lateral periodontal cysts and residual cysts are rare in children.

Odontogenic cysts are usually discovered when a permanent tooth has not erupted on time.

On the radiograph, cyst appears as the radiolucent area outlined by a thin a radiopaque line.

To avoid missing a cyst with a deeply impacted tooth , a panoramic X-ray is most useful.

2 procedures can be carried out for the treatment of the cystic cavity clean and prevent infection.

“Marsupialization” : the procedure basically involves removal of a part of the lining ,to establish drainage,then the lesion re-epithelizes after formation of the granulation tissue and shrinks in size.the cyst is then enucleated.

•It is indicated in the cases where the cyst is very large and its removal may cause pathologic fracture or devitalize the adjacent teeth.(including developing teeth displacement), the exposed lining is sutured to the edge of the mucosa.

•Ribbon gauze is placed in the cavity . Extra care is required on part of the patient to keep tOdontogenic cysts are mostky those associated with impacted teeth such as dentigerous cyst.

•Enucleation: the lesion is removed completely along with its lining .
•A wide flap is raised . the difference from marsupialization in that primary closure is achieved .
•An envelope flap is raised .Reflection is done such that a sound bome has been reached. All around the proposed bone opening.
•Often the bone would be perforated by the expanding cyst or just a thin layer may be covering it.
•As far as possible the cyst should be removed in toto .
•Bi-angled spoon excavators are used to separate the lining frm the bone .
•The adherence of the cyst to a neurovascular bundle or to the adjacent teeth should be checked , the need for apicoectomy and the root canal treatment should be evaluated.
•The keratocyst has the high rate of recurrence and thus should be treated with care . As the lining is quite thin and friable so the cyst llining removal may be incomplete

Treatmtent of dentigerous cyst is the enuclation of the cyst and the removal of the impacted tooth.
However, large dentigerous cyst should be marsupialized…enucleation and tooth removal may result in the destruction of the nerve supply and blood supply to the adjacent teeth..
If the cyst involves the crown which can serve a useful purpose, it should be marsupialized and teeth should be moved to the dental aerch with orthodontic aid.

NON ODONTOGENIC CYSTS

The most common non-odontogenic cyst in childhood is the traumatic bone cyst=extravasation cyst=progressive hemorrhagic bone cavity.

Etiology –trauma

Features- this cyst does not contain any epithelial lining. And is lined by connective tissue.

Trauma causes intraosseous hemorrhage into the cancellous tissue,resulting in osteoclastic cavity.

Simultaneously, there is liquefaction of trabeculae in the medullary bone.

Expansion of the cyst occurs by a progressive infiltrating edema of the bone marrow that causes furthrt trabecular resorption

Treatment : surgical exploration followed by curettage to estsablish fresh bleeding.
Before primary closure, gelfoam or bone graft should be packed into the cavity.

FRENECTOMY

Maxillary labial frenum: a band of fibroelastic tissue that is present in the midline is the maxillary labial frenum.

Its high attachment may sometimes cause the persistence of diastema.

Frenectomy is advised in such cases.

Indications:gingival recession

Diastema formation

Accumulation of debrisby reflection and opening of the sulcus.

Treatment : simple incision is associated with the high rate of recurrence
Complete excision is the ideal treatment
An incision is made perpendicular to the frenum, in the mucobuccal fold. This is then expanded around the frenum in both the directions such that a" bell shaped"t defect is elaborated. The incision should be carried to the bone.
The tissue thus delineated is excised.
In certain cases , where the vestibule is not deep, vestibule deepening procedure may be accompanied.
Suturing is carried out . Sometimes a periodontal pack can be given over the raw surface and is removed after 2 weeks.

HARD TISSUE ABNORMALITIES

a)one of the most common reasons for the lack of reruption of maxillary incisors is the presence of the supernumery tooth. It may erupt on its own after the removal of the supernumery tooth..

However, in most cases, due to the patient reporting late,the eruption potential of the tooth ,may be lost,and thus the tooth may have to be orthodontically brought into place.

The maxillary anterior region is the most common area for the impaction of the supernumery tooth.

removal : before raising the flap, the buccolingual position of the impacted tooth should be assessed.
The parallax technique or the “SLOB” rule can be used
When an IOP is taken with the cone slightly distally placed from normal, and if the object moves in the same direction as the cone, it is lingually placed.
It it moves mesially (opposite to the cone direction)it is placed bucally .
In maxilla , an occlusal radiograph is also essential to know the relation to various teeth and surrounding structures.
A crevicular incision is made bucally or palatally as desired. The palatal incision should preferably be extended on both the sides for better access.
In cases of palatally imaocted tooth removal, it is a good practice to prepare the cast of the patient and deliver a removable appliance , to prevent hematoma formation.

Of the odontogenic tumors , the most common is the odontoma.
It is termed as composite, as it contains a variety of tissues.
They are either compound or complex .
Sometimes , it may also obstruct the eruption of tooth.
It causes divergence of adjacent roots
It is well encapsulated.
Thus, is is best enucleated causing no harm to adjacent teeth.

OSTEOMYELITIS

Osteomyelitis is the inflammation of the soft tissue of the bone marrow spaces of the spongiosa and the haversian system of the cortex.

In infants –it occurs in maxilla

In adults-mandible

ACUTE OSTEOMYELITIS IN INFANTS

Usually strts 2 weeks after the birth. Rare condition.

Etiology.-birth trauma

Infection occuring from contaminated feeding bottles or unclean nipples of the mother.

Hematogenous infection can spread from boils or umbilicus.

Micro-org responsible=staphylococcus aureus.

c/f

Sudden onset. Sudden edema of the palate and eyelids with proptosis of the eye.

Induration and swelling of the cheeks

Abcess formation of the alveolar mucosa

Abcess is seen in the canine fossa

Multiple fistulae may form

Sequestra are formed frm orbitakl margin,anfd outer surface of maxilla and may affect the development of jaws and teeth.

Treatment:

Incise and drain the abcess intraorally to lessen the toxemia.

Administer broad spectrum antibiotics

If sequestration has occurred it has to be removed.

Good nutritious diet and fluid replacement to be provided.

ACUTE OSTEOMYELITIS IN CHILDREN AND ADULT

It may be localized or widespread , resulting in necrosis of the jaw with sequestration or even a pathological fracture.

Etilogy

1)trauma

2)acute dentoalveolar abcess

3)deep periodontal pockets present all over the jaws

4)Dry socket
5)Infective cysts and tumors
6)Acute facial infection and cellulitis
7 sinusitis
8)Mercury or bismuth stomatitis
9)In children osteomyelitis of jaw may occur following exanthmatous diseases like measles , diptheria , chicken pox , typhoid or pertusis.
c/f:
Fever
Neuralgic pain
Halitosis
Growth of the mandible affected resulting in a shift of the midline.
Multiple sinuses may be formed
Regional lymph nodes are enlarged and tender on palpation.
Pathological fracture may occur
Extensive oml of the maxilla shows ocular symptoms like proptosis, epiphora, and impaired mobility of eyeball and even blindness
Swelling and unilateral numbness of the lip and the associated cellulitis of the face.
May involve muscles of mastication leading to trismus .

Radiological:

No x-ray findings may be seen for the first 10 days

Later, multiple , small, radiolucent patches are seen in the bone due to break in the normal trabecular pattern.

If sequestration has occurred, a radiolucent margin surrounds the necrosed bone.

Treatment:

Incision and drainage of pus

Extraction of offending tooth. Curttage contraindicated at this stage.

Sesequestrum should be removed.

Culture ands sensitivity test, antibiotic therapy ,high protein and multivitamin diet along with the bed rest.

CHRONIC OSTEOMYELITIS

Usually secondray to an acute osteomyelitis

It can be primary when resistance of the host is good and virulence of the micro-org is low.

Symptoms are less severe.

Dull boring pain in the jaw, with the history of chronic discharge in the oral cavity or on the face.

Sequestration is common where the necrotic bone becomes separated frm the living bone.

A localized sclrosing osteomyelitis near the apex of the tooth is common in younger age group.
Treatment : sequestrectomy
Saucerisation-removal of bony cavity.

APICOECTOMY

It is the root resection or root amputation

If the periapical lesion persists following conventional treatment or there is persistent postoperative discomfort that occurs after root canal filling , periapical curettage and apicoectomy will frequently eliminate the symptoms.

2 clinical condition where apicoectomy may be considered:
1)A mechanical problem such as apical discharge or perforation that occurs during coventional treatment .
The mechanical problm can lead to failure.
Surgical removal of the untreated aapical portion corrects the problm.
2)Second situation is where definitive treatment occurs in case of unsucessfully treated apical accessoryt canal. A simple apicoectomy can remove apical accessory canals and failure in this situation Is rare.
Technique:
Aftr complting the root canal filling determine the level at which the root should be amputed.
This level should should be such as to remove the unfilled portion of root canal.
If periapical cyst or granuloma is present, this level should provide access ,to ensure its complete removal.
Mucoperiosteal flap should be designed keeping 3 things in mind:

1) A sharp, perpendicular to bone incision is essential for an adequate blood supply and tissue mass to avoid necrosis and poor healing.
2) Flap should be large enough to provide a good access
3) Flap should extend beyond the defective bone so that the soft tissue will be supported by a healthy bone when it is replaced.

Make an opening into the periapical bony defect using a surgical bur or chiesel. Extend the opening in the labial plate with a bur or chiesel so as to obtain a good access to the defect .then amputate the root at the level determined with the help of the radiograph with a fissured cylindrical bur. The cyst and granuloma should be enucleated ,preferably in total,using the small curettes.

Contol the hemorrhage within the defect by pressure , by cotton pledges dipped in epinephrine or by crushing bleeding points in the bone.

Suture the mucoperiosteal flap with silk or catgut suture material

Maintain firm pressure over the area for 10 min aftr closing to avoid hematoma formation

Take post –op radiograph for future comparison.

Except for cases of apical perforation or periapical granuloma or cyst , the purpose of an apicoectomy is to create an apical bevel that allows clinical access to the apex for retrograde filling
The inclination of this bevel varies depending on several factors.
The primary determining factors are anatomic location and existence of possible extra canals.
Clinicak visibility of the beveled apical area is directly proportionate to the bevel's inclination .
Beveling should be performed with a fissure bur such as a #701 to create a flat , smooth and easily visualized root surface

Zinc free amalgam is the most commonly used retrofilling material
Gutta percha can also be used as retrofilling material with success.