Prevention and management of extraction complications

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ROLL # 03
BDS FINAL YEAR

complications

- Soft tissue injuries
- problem with the tooth being extracted
- Injuries to the adjacent restoration
- Injuries to the adjacent structures
- Oroantral communicatin
- Post operative bleeding
- Delayed healing and infection
- Injuries of the mandible

Soft tissue injuries

- Causes

- Surgeon's lack of adequate attention to the delicate nature of the mucosa
- Attempts to do surgery with inadequate access
- Rushing during surgery
- Use of excess and uncontrolled forces

Soft tissue injury

- Tear of a mucosal flap
- Puncture wounds
- Stretch or abrasion

Tear of a flap

- The most common soft tissue injury during oral surgery
- Causes

Inadequately sized envelop flap

Forcibly retraction beyond the ability of the tissue to stretch (to gain needed surgical access)

tearing

Prevention

- Creating adequately sized flap to prevent excess tension on the flap
- Using controlled amounts of retraction force on the flap
- Creating releasing incisions when indicated

Management

- Carefully repositioned once the surgery is completed
- Excise the edges of torn flap to create a smooth flap margin

Puncture wound

- Causes

➢ Using uncontrolled force during using the Instruments such as straight elevator or a periosteal elevator which may slip from the surgical field and puncture or tear into adjacent soft tissues

prevention

- Use of controlled force
- Using finger rests
- Support from the opposite hand if slippage is anticipated

Rx

- Primary aim is prevention of infections and allowing healing to occur
- If wound bleeds excessively → hemostasis → left open unsutured → healing by secondary intension

Stretch or abrasion

- Common sites

Lips ,corners of the mouth

- Causes

- Abrasion or burns from the rotating shank of the bur rubbing on soft tissue
- Metal retractor coming into contact with the soft tissues

prevention

- Surgeon should focus on the cutting end of bur as well as the location of shank and shaft in relation to the soft tissues

Rx

- Clean the area with regular oral rinsing
- Usually such wounds heal in 4 -7 days with out scaring
- If such abrasion or burn does develop on skin advised to keep it moist with antibiotic ointment (5 -10 days)

Problems with a tooth being extracted

- Root fracture
- Root displacement
- Tooth lost into the pharynx

Root fracture

Most common problem

Predisposing factors

- Long ,curved ,divergent roots
- Roots that lie in dense bone
- Ankylosis

Prevention

- Always consider the possibility
- Use surgical extraction if high possibility of a fracture exists
- Don't use strong apical force on a broken root

RX

Bone cutting

Root displacement

- Most commonly displaced tooth root into unfavorable anatomical space is maxillary molar roots
- Displaced into maxillary sinus

Rx

Surgeon should assess

1. Size of root lost into the sinus
2. Assess whether there has been any infection of the tooth or periapical tissues
3. Assess the preoperative condition of the maxillary sinus

- Small Tooth fragment (2,3mm)
- Tooth and sinus have no pre existing infection
- If this technique fails – no additional surgical procedure should b performed

1st step

- radiograph
- Position & size

2nd step

- Irrigate thru the small opening in the socket apex

3rd step

- Suction the irrigating solution from the sinus via the socket

management

If swallowed

No coughing or respiratory distress

Travel down the GIT

Out

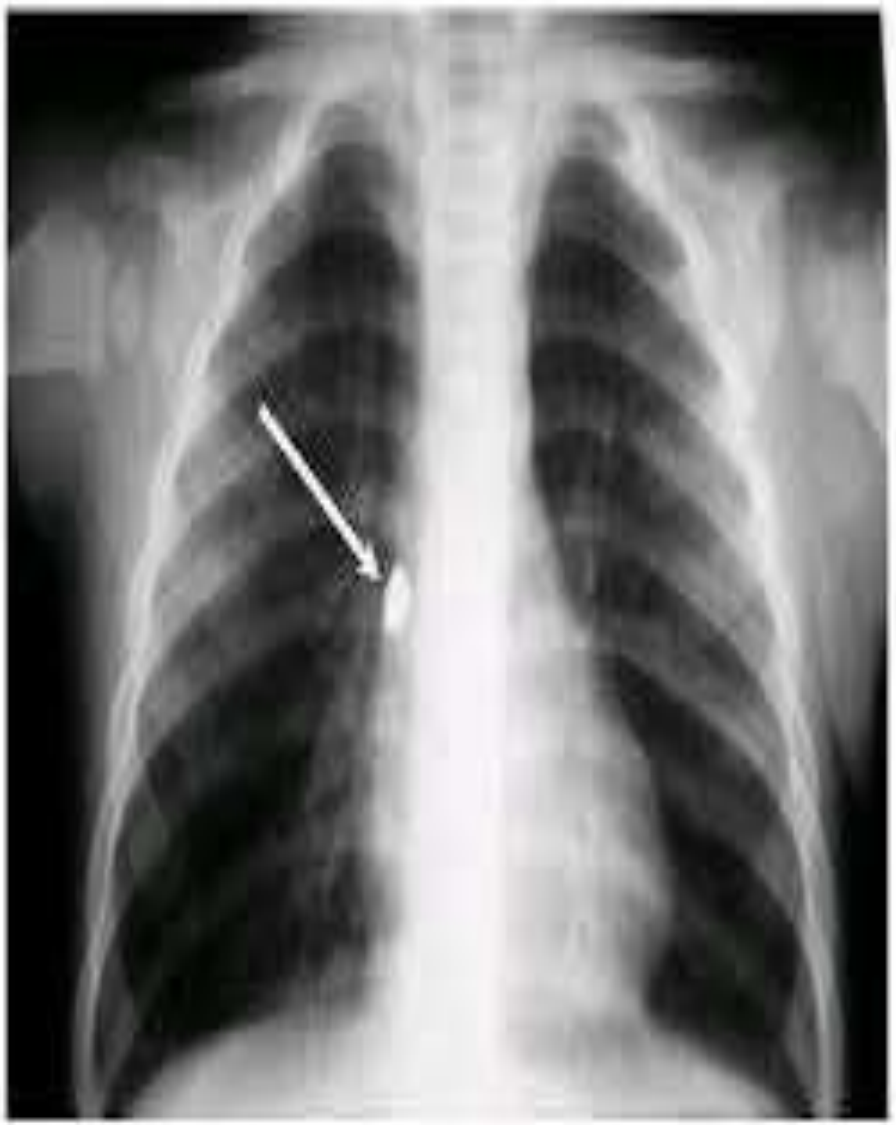
If aspirated

Episodes of coughing and dyspnea

Chest and abdominal radiographs

Maintain air way

Tooth removed thru bronchoscopy




A

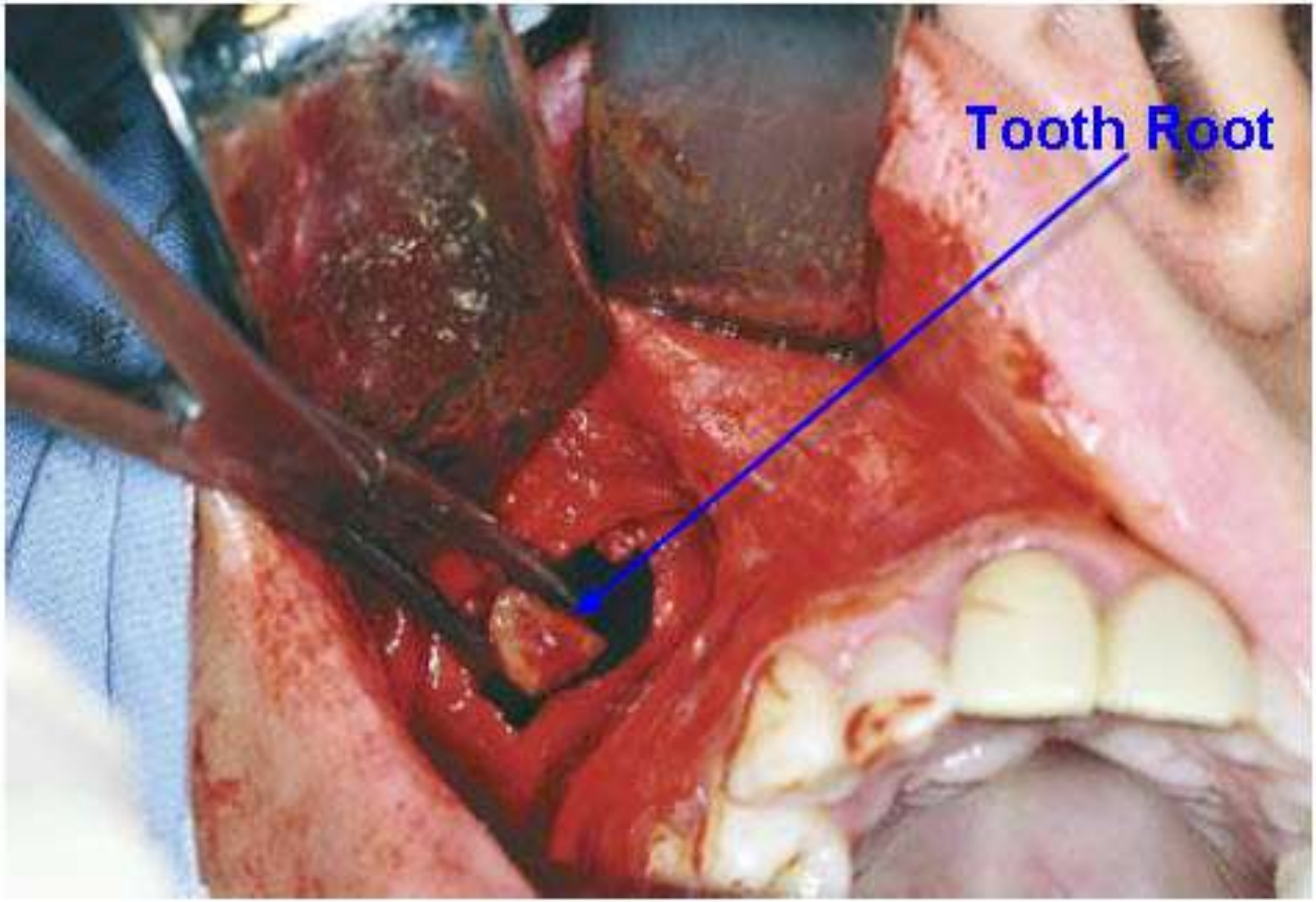
If large fragment or entire tooth is displaced into the maxillary sinus or the tooth root is infected

- CALDWELL-LAC approach into the maxillary sinus in the canine fossa region
- Followed by removal of the tooth

- Displacement into the infratemporal space

(during elevation of the elevator may force the tooth posteriorly thru the periosteum into the infratemporal fossa.

- Displacement into submandibular space. (fractured mand molar roots that are being removed with apical pressure may displaced thru the lingual cortical plate into the SMS.



Removal of a root from the maxillary sinus using the Caldwell–Luc surgical technique

Injuries to the adjacent teeth

- Fracture or dislodgment of an adjacent restoration
- Luxation of an adjacent tooth
- Extraction of the wrong tooth

Fracture or dislodgment of an adjacent restoration

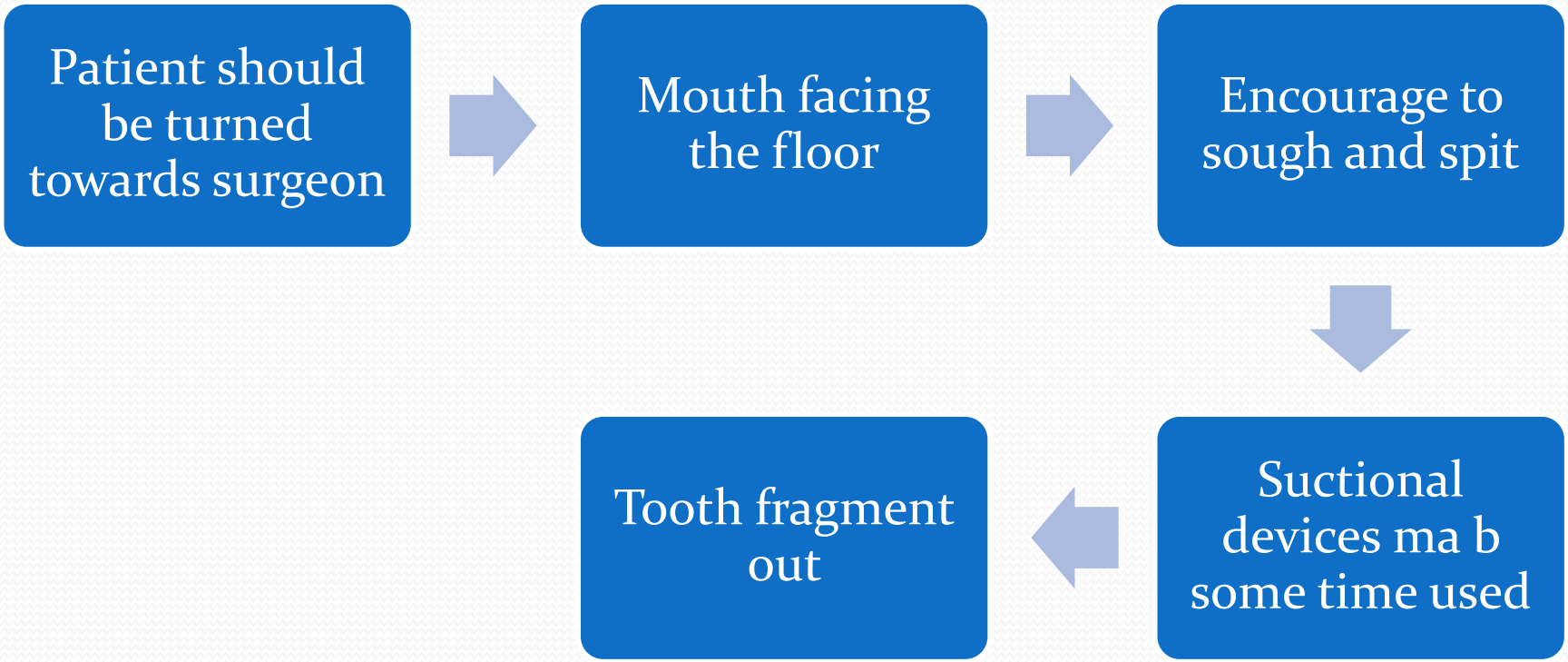
Prevention

- Avoid application of instrumentation and force on the restoration
- Straight elevator should be used with great care or not using it at all

Management

- Replacement of the displaced crown
- Placement of a temporary restoration
- Patient should be informed

If lost into the pharynx



Luxation of an adjacent tooth

- Cause
  - Inappropriate use of the extraction instruments
  - Prevention
  - Proper use of elevators and 4ceps
  - 4ceps with broader beaks should b avoided
- Rx
  - Reposition the tooth to its position and stabilizeit so healing occurs
  - Occlusion should be checked

Extraction of wrong tooth

- Causes

- Inadequate attention to preoperative assessment
- A dentist removes a tooth for another dentist
- Lack of knowledge about tooth numbering system and radiographs reading
- Extraction for orthodontic reasons

•prevention

- Careful preoperative planing
- Clear communication with referring dentist
- Attentive clinical assessment
- Focus attention on the procedure

• Rx

- Should be replaced into the socket immediately
- If extraction for orthodontic purpose –contact the orthodontist
- Patient should be informed

Injuries to osseous structures

- Fracture of the alveolar process
- Fracture of the mandibular tuberosity

Fracture of the alveolar process

- Causes and predisposing factors
  - Use of excessive force with the forcep
  - Age of the patient

Most common sites

- Buccal cortical plate over the maxillary canine
- Buccal cortical plate over the maxillary molars
- The portion of the floor of the maxillary sinus
- Maxillary tuberosity
- Labial bone over the mandibular incisor s

prevention

- Careful preoperative examination of the alveolar process (clinically and radio graphically)
- Do not use excessive force
- Early decision to perform an open extraction with removal of controlled amounts of bone
- In case of multi rooted teeth- sectioning of the roots

Management

- According to the severity

➢ **Less severe**

Bone has been fracture but still attached to the soft tissue – preservation of bone fragments –suturing

➢ **More severe**

Bone completely removed from the tooth socket along with the tooth- smooth any sharp edges and repositioning of the soft tissues over the remaining bone

Fracture of maxillary tuberosity

- Occur mostly during extraction of max 2nd and 3rd molars
- Rx
  - same as other bone fractures
  - Assess for an OAC.
- **COMPLICATIONS**
  - Denture stability is compromised
  - Oroantral communication

Injuries to the adjacent structures

- Injury to the regional nerves
- Injury to the tmj
- Injury to the regional nerves
- Branches of Vth cranial nerves esp mental nerve ,lingual N, buccal N ,nasopalatine nerve

Prevention

- Be aware of the nerve anatomy in the surgical area
- Avoid making incisions and streching the periosteum in the nerve area .

Injury to the TMJ

Causes

- Excessive application of force during extraction
- Inadequate jaw support

Prevention

- Support the mandible during extraction
- Do not force open the mouth too widely

Rx

- Recommend the patient for moist heat ,resting the jaw ,soft diet ibuprofen (600-800mg ,QDs for several days)
- Alternative drug acetaminophen (500-1000mg)

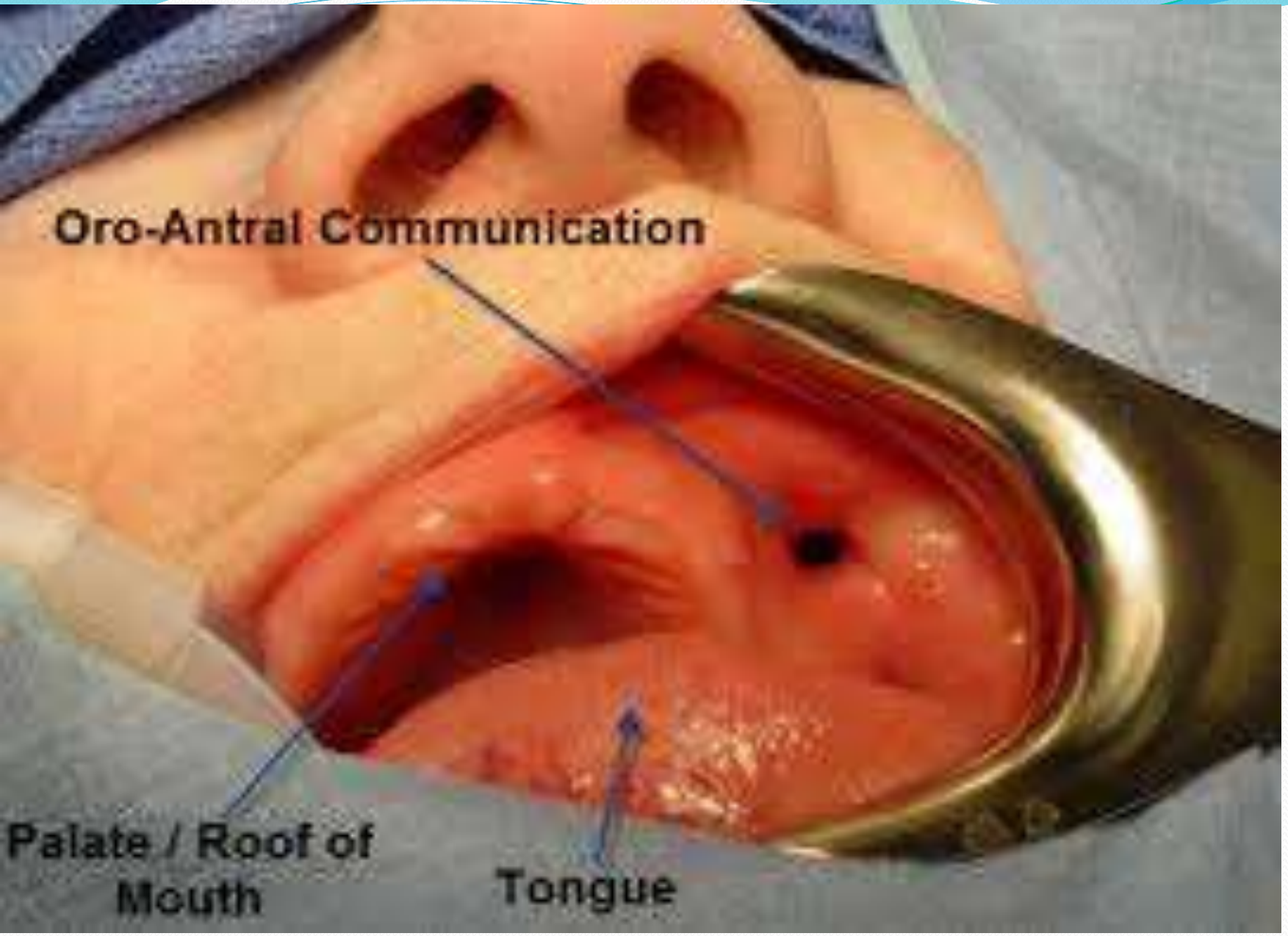
Oroantral communication

- Communication between the maxillary sinus and the oral cavity.

Etiology

Apicectomies of maxillary premolars & molars .

- Plunging an elevator through the bony floor during root tip removal.
- Forcing root tips or tooth into sinus.
- Penetration while exposing impacted teeth.
- Perforation during incorrect curettage.
- Fracture of segment of the alveolar process containing several teeth with tearing of floor of antrum


Oro-Antral Communication
Palate / Roof of Mouth
Tongue

Complications

- Post operative maxillary sinusitis
- Formation of chronic oroantral fistula

PREVENTION

- Conduct a thorogh preoperative radiographic examination
- Use surgical extraction early & section roots
- Avoid excessive apical pressure on maxillary posterior teeth.

Diagnosis

- Examine the tooth once extracted
- Nose blowing test
- Determine the size of the defect

2>mm diameter – no treatment required

Rx

Do not probe the defect

- Promote good blood clot
- Good gingival approximation
- Hæmostatic Agent
- Antibiotics
- Nasal decongestants
- Steam inhalations
- Antiseptic mouth-wash
- No nose-blowing or smoking Oro-Antral Communication

Moderate size defect (2-6mm)

- All mentiont above
- Plus
  - Figure of eight suture should be placed over the socket
  - Clot promoting substances (gelatin sponge)
  - Ask 2 follow sinus precautions
  - Medication to reduce maxillary sinusitis

Larger defect (7mmor <)

- Sinus communication repaired with a flap procedure
  - Buccal flap
  - Palatal flap
    - Palatal Rotational Advancement Flap
    - Palatal Pedicle Island Flap
    - V-shaped Palatal Flap
  - Baccal fat pad

Post operative bleeding

- **Prevention**
  - Obtain a history of bleeding
  - Use the atrumatic surgical technique
  - Obtain good hemostasis at surgery
  - Provide excellent patient instructions

Rx

- Control all factors that prolong bleeding
  - Absorbable gelatin sponge
  - Oxidized regenerated cellulose
  - Collagen
- Patients instructions

Delayed healing and infection

- **Infection**

- Most common cause of delayed healing
- Prevented by adopting aseptic technique and thorough wound debridement after surgery
- Wound dehiscence (Separation of wound edges)
- Problem of delayed healing

Causes

- Soft tissue flap is replaced n suturedwithout any bony foundation
- Suturing the wound under tension

Prevention

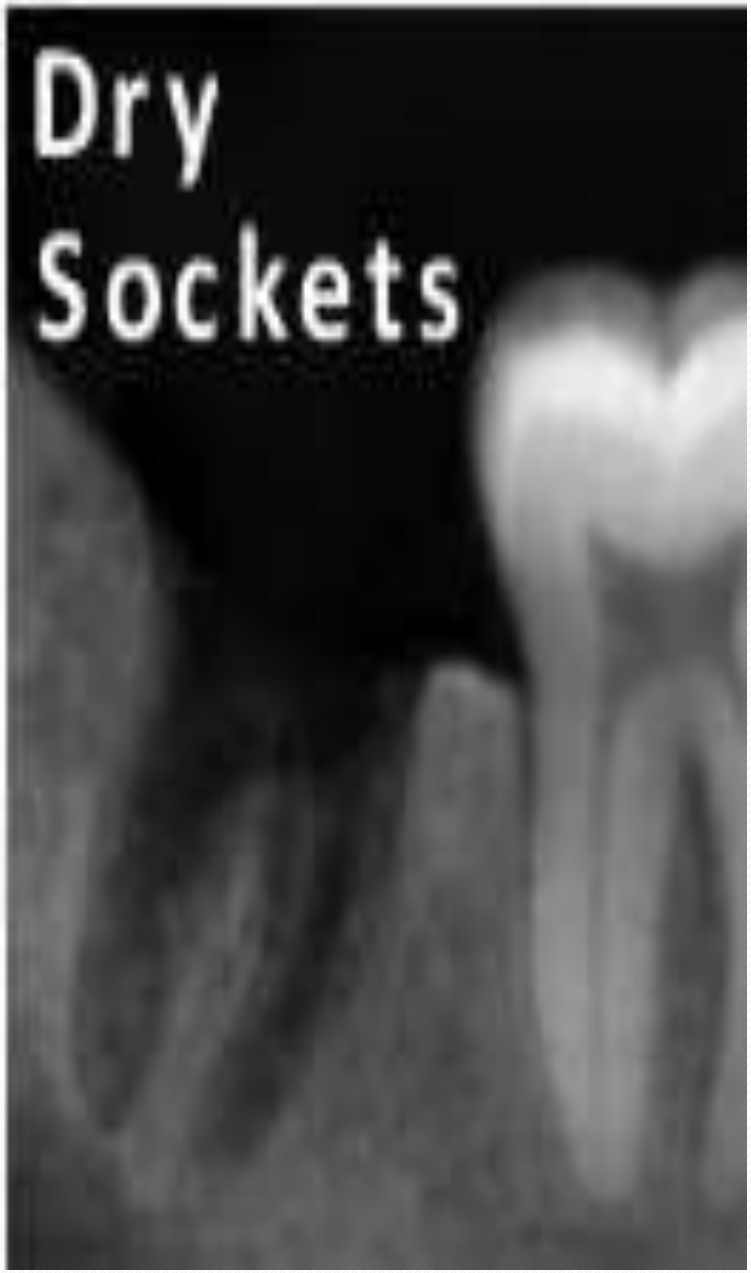
- Use aseptic technique
- Perform atraumatic surgery
- Close the incision over the intact bone
- Suture with out tension

Rx

- To leave the projection alone
- To smooth it with bone file

Dry socket

- Also known as alveolar osteitis
- It is a common complication of tooth extraction
- Usually occurs when the blood clot fails to form or it is lost from the socket..
- this leave an empty socket where the bone is exposed to the oral cavity causing a localized dry socket and it is associated with increased pain and delayed healing time .

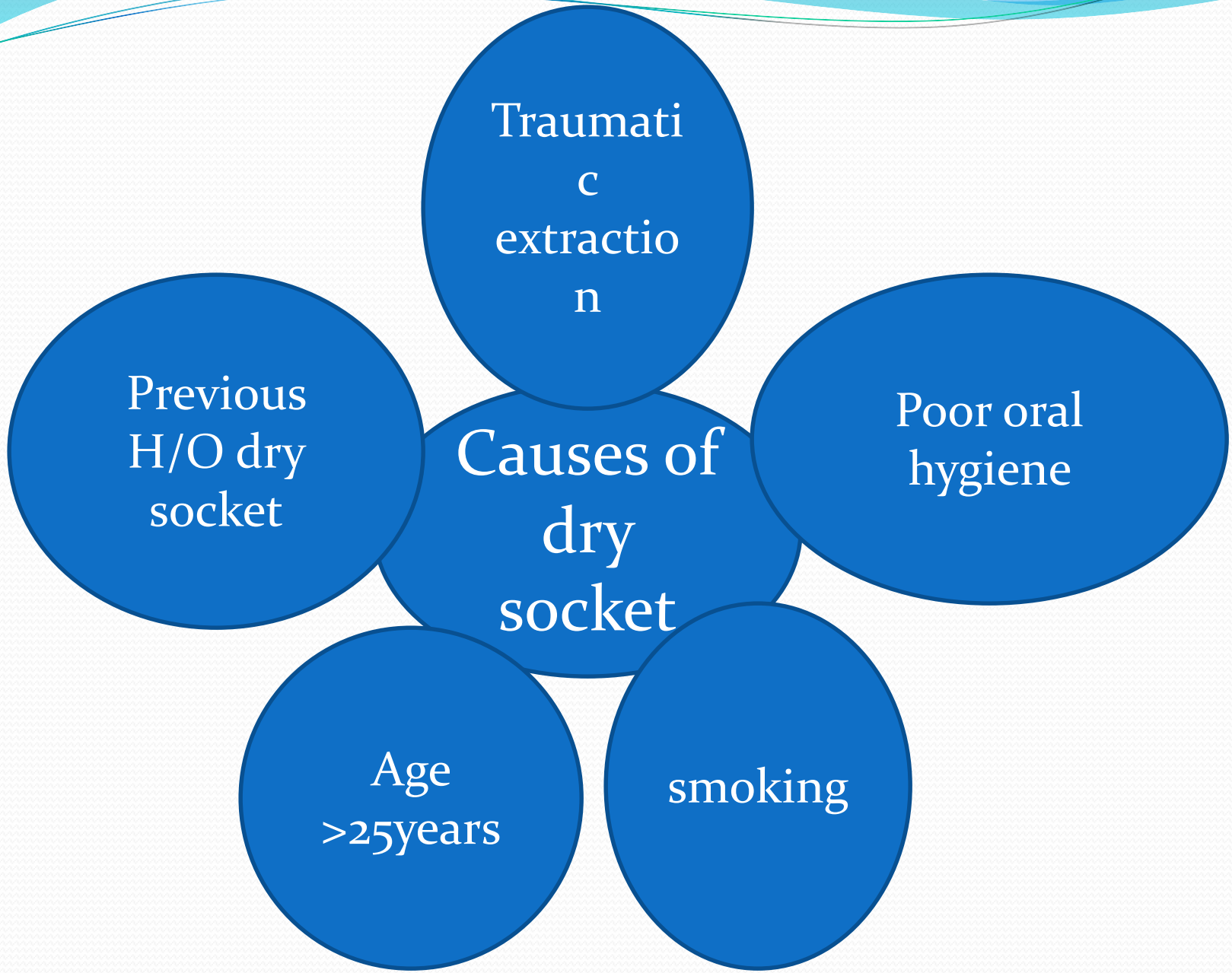

Dry
Sockets

signs

- An empty socket which is partially or completely devoid of blood clot.
- Exposed bone may be visible which is extremely painful and sensitive to touch.
- Inflammation of soft tissues around the socket
- Delayed healing of the socket .

Symtoms

- Severe pain and discomfort from the extraction site that start on 2nd and 3rd day after extraction.
- Radiating pain
- Intraoral halitosis


Traumatic extraction
Previous H/O dry socket
Causes of dry socket
Poor oral hygiene
Age >25years
smoking

Treatment

- **Cleaning** the socket by removing the food debris from the hole.
- Using **saline irrigation** for better cleaning.
- Forming the **blood clot** again inside the socket.
- Using of **medicated dressings** such as **Alvogyl** for rapid pain relief.
- **Analgesic** medications for the pain.

Fracture of mandible

- Rare complication
- Due to excessive use of force
- Mainly during the extraction of 3rd molars and impacted teeth

THANK YOU !