

DISIMPACTION

By- Dr. BIPIN SADHWANI

Definition

An impacted tooth is a partially erupted or unerupted tooth that has been prevented from assuming its normal position in the arch by some mechanical or pathological means





CAUSES OF IMPACTION

- *Irregularity in position of adjacent teeth causing pressure on the impacted ones*
- *Long-standing chronic inflammation causing severe fibrosis and dense mucous membrane covering the impacted teeth.*
- *Long retention of deciduous teeth.*
- *Premature loss of deciduous teeth causing migration of the adjacent teeth and loss of space in the arch for the permanent successors.*
- *Local causes such as the presence of a tumor (odontoma), or the development of a cyst (dentigerous cyst).*



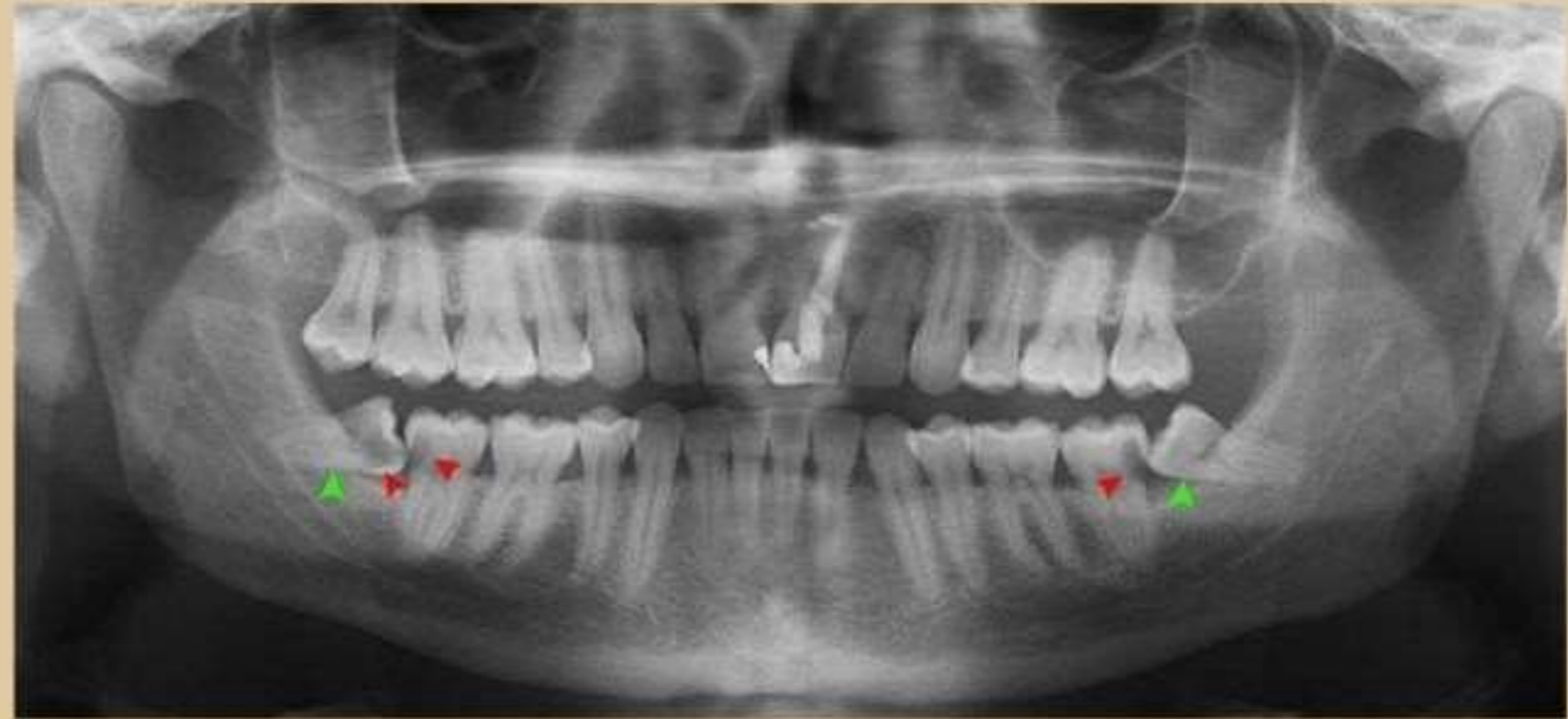
FREQUENCY OF IMPACTION

- *Mandibular 3rd Molar.*
- *Maxillary 3rd Molar*
- *Max. Canine.*
- *Mand. Canine.*
- *Mand. Premolars.*
- *Max. Central & Lat Incisor*

COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

1. CARIES

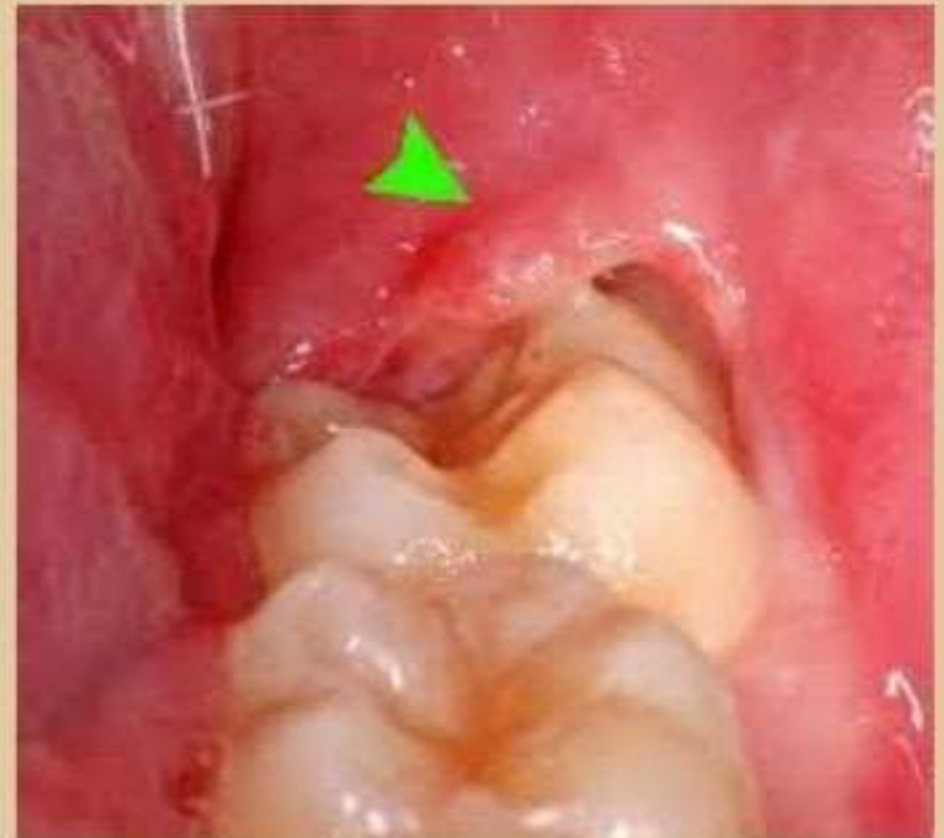
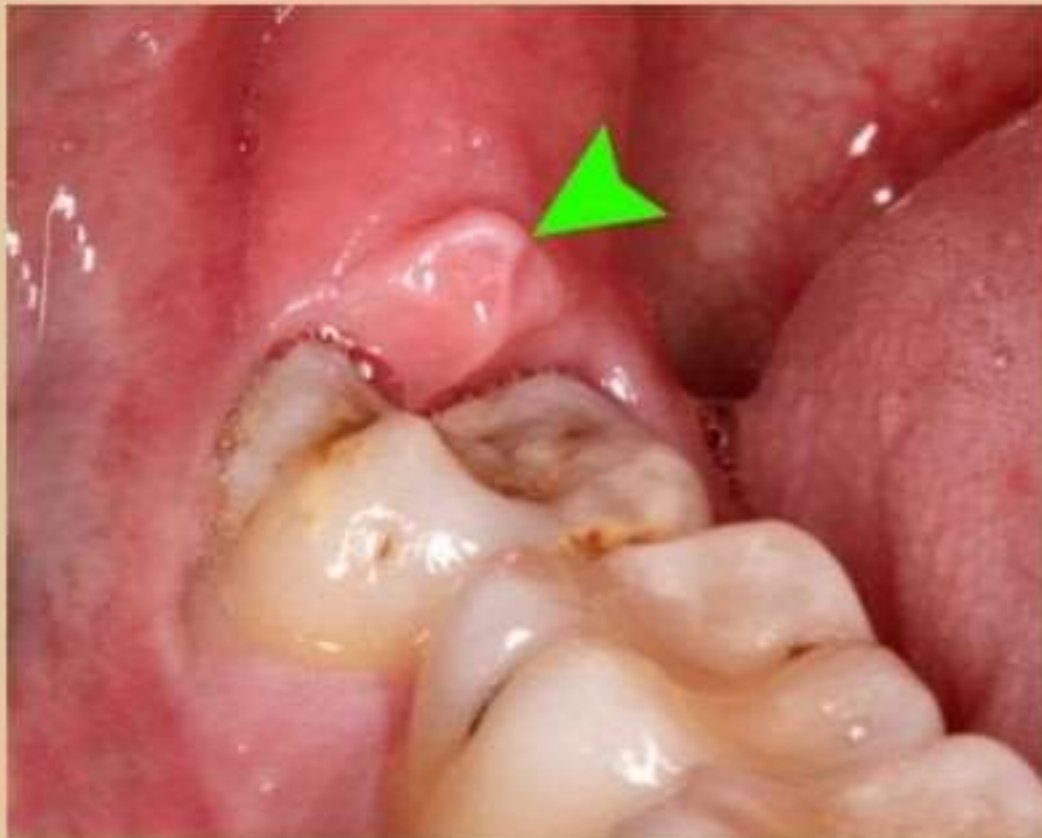
Caries in the adjacent tooth due to food impaction and accumulation of debris between the surface of the impacted tooth and the tooth next to it.



COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

2. INFECTION (PERICORONITIS)

Pericoronitis means acute infection of the soft tissues covering the semi impacted tooth and the associated follicle.





COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

2. INFECTION (PERICORONITIS)

This condition may be due to:

- 1. Injury of the operculum (soft tissues covering the tooth) by the antagonist third molar.*
- 2. Entrapment of food under the operculum.*
- 3. Bacterial invasion and infection of the area.*
- 4. It could be acute, subacute or chronic in character.*



COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

2. INFECTION (PERICORONITIS)

- *Acute pericoronitis is characterized by:*
 1. *Pain.*
 2. *Facial swelling.*
 3. *Limitation of jaw movement.*
 4. *Difficulty in swallowing.*
 5. *Regional lymphadenitis.*
 6. *Chills, fever and malaise.*

COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

2. INFECTION (PERICORONITIS)

Treatment:

- Relief of trauma from the opposing tooth.
- Irrigation under the flap using warm antiseptic solution.
- Antibiotic therapy + mouth wash.
- Operculectomy: that is removal of the overlying flap of tissue surgically.
- Removal of the impacted tooth after the acute condition is treated.





COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

3. NEUROLOGICAL SYMPTOMS:

- *The most frequent pain is due to pericoronitis.*
- *In absence of infection, pain may be due to deeply impacted tooth causing pressure on surrounding structures Õ Headache.*

4. ORTHODONTIC COMPLICATIONS

- *The pressure of an impacted (horizontal or mesioangular impaction) third molar on the second molar will transmit this force to the remainder of the arch.*
- *This could result in crowding of the anterior teeth.*

COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

5. DEVELOPMENT OF PATHOLOGICAL CONDITIONS

- *Dentigerous cyst as well as ameloblastoma may develop from the tooth follicle.*

6. FRACTURE OF THE JAW

- *Mainly occur in deeply impacted third molar → weakening of the jaw especially at the angle of the mandible.*



COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

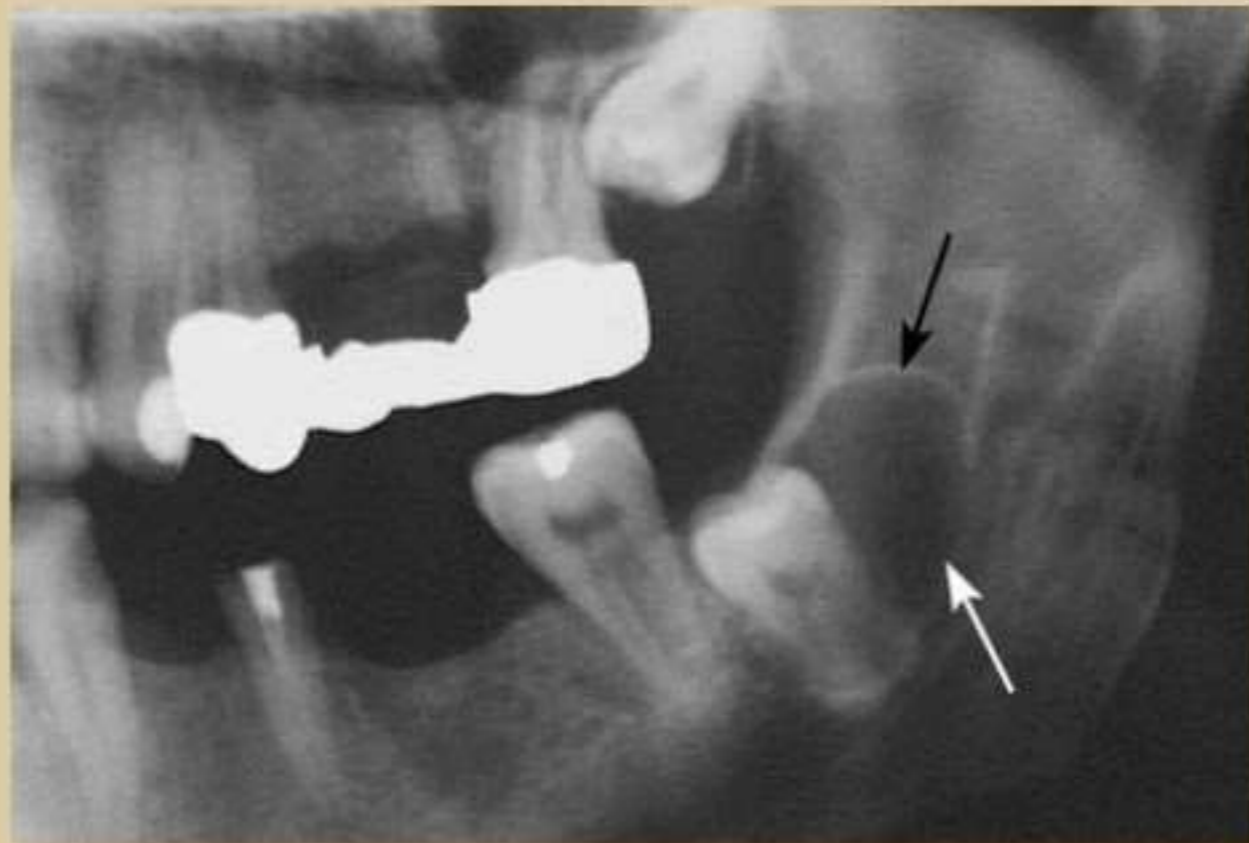
7. DECREASE BONE SUPPORT OF SECOND MOLAR:

- *It may become malaligned due to pressure on it.*
- *This pressure may cause resorption of the investing bone distal to the 2nd molar and also resorption of its roots.*



COMPLICATIONS OF IMPACTED TEETH (INDICATION FOR EXTRACTION)

8. *Obstruction of Placement of a Partial or Complete Denture.*
9. *Obstruction of the Normal Eruption of Permanent Teeth.*





APPROPRIATE TIMING FOR REMOVAL OF IMPACTED TEETH

In young pts:

- *When the resilience of the surrounding bone renders the operation relatively simple.*
- *Can deal with the overall surgical procedure and stress well, and present fewer complications.*
- *Have faster postsurgical wound healing compared with older patients.*

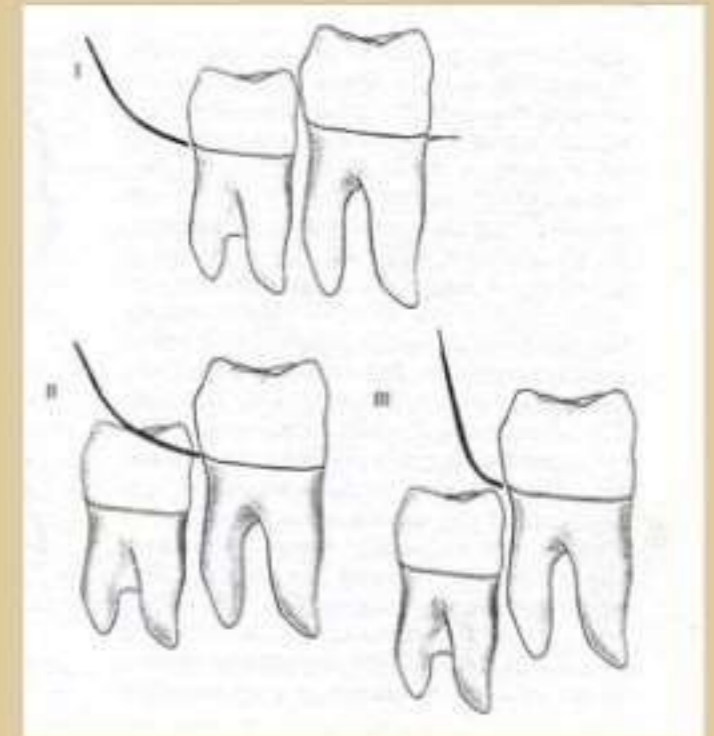


CLASSIFICATION OF IMPACTED TEETH

I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

A. Relation of the tooth to ascending ramus of the mandible and to the distal surface of the second molar

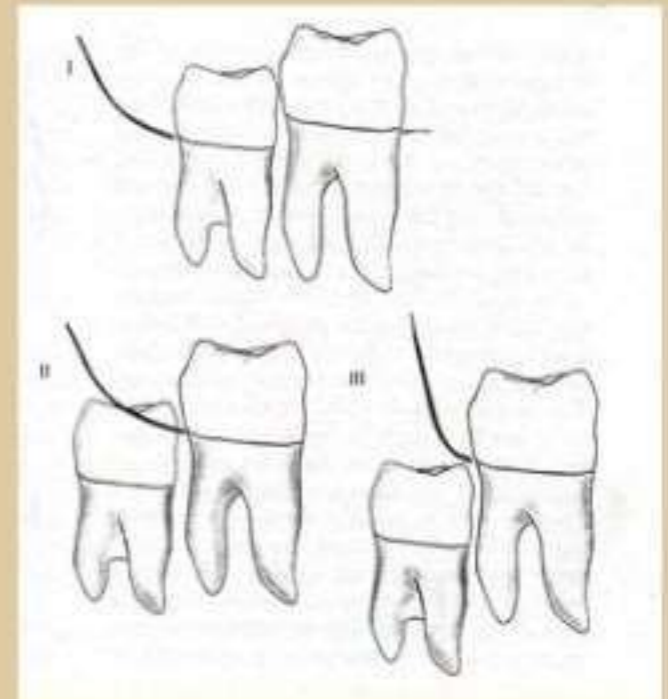
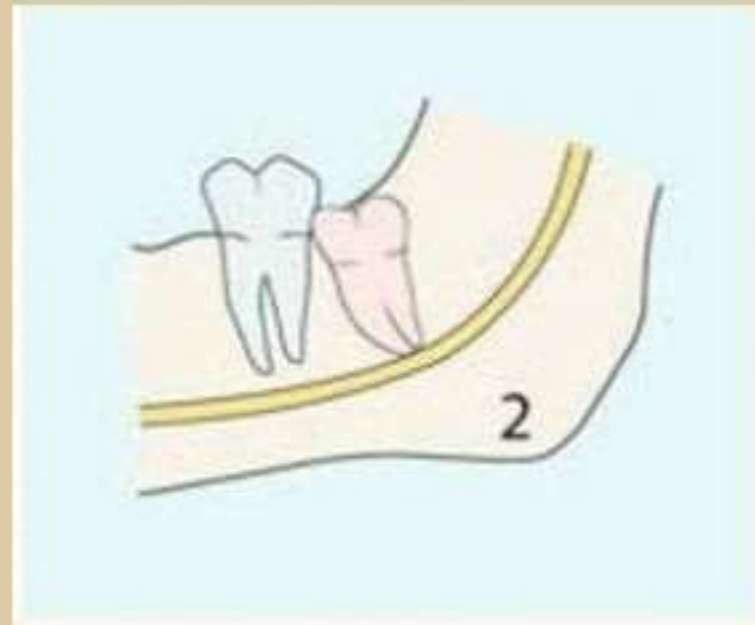
- **Class I:** *the space between the anterior parts of the ascending rams and the distal surface of the second molar is sufficient to accommodate the mesiodistal diameter of the crown of the third molar.*



I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

A. Relation of the tooth to ascending ramus of the mandible and to the distal surface of the second molar

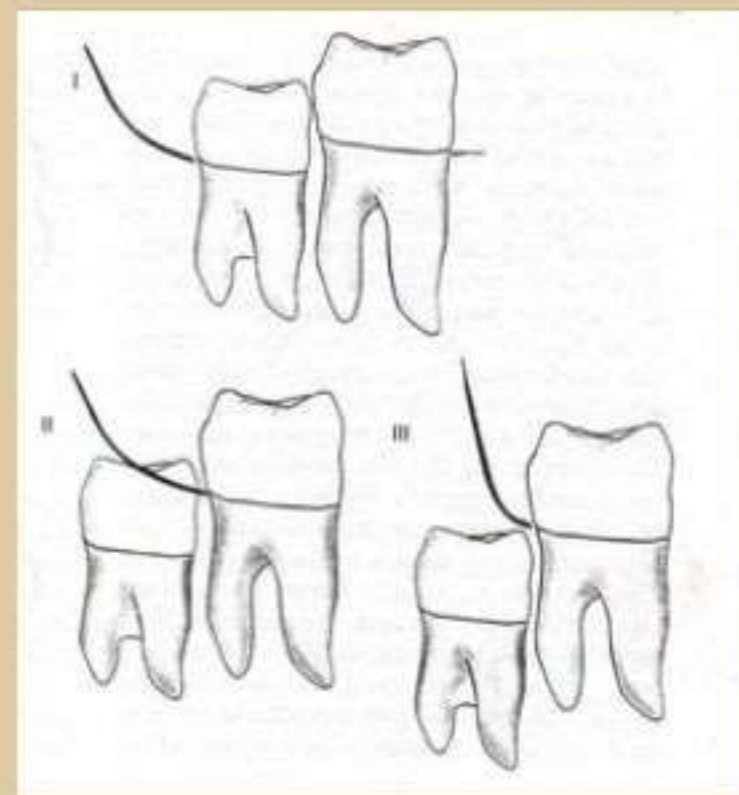
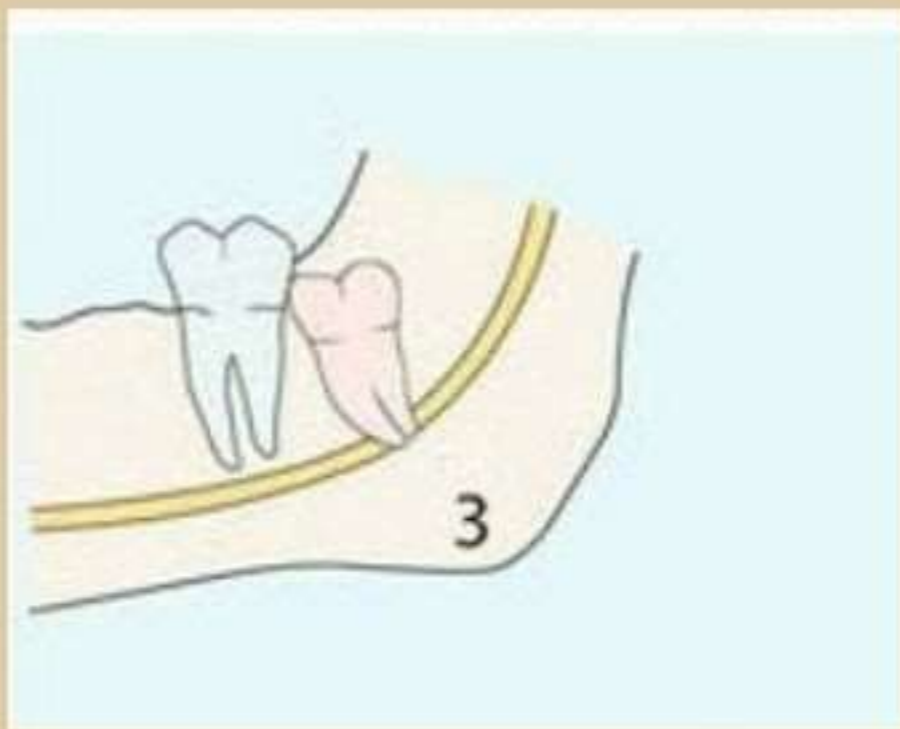
- **Class II:** *the space between the anterior part of the ascending ramus and the distal surface of the second molar is less than the mesiodistal diameter of the crown of the third molar. Part of the tooth is located within the ramus.*



I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

A. Relation of the tooth to ascending ramus of the mandible and to the distal surface of the second molar

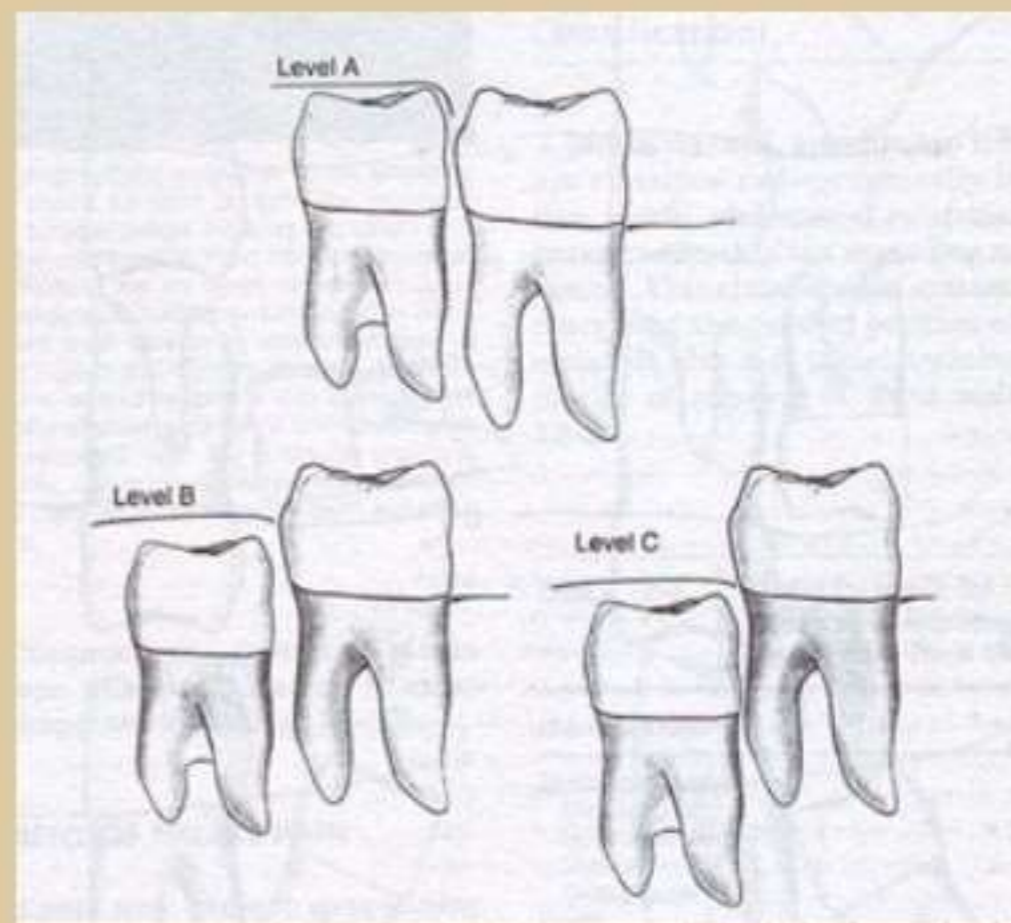
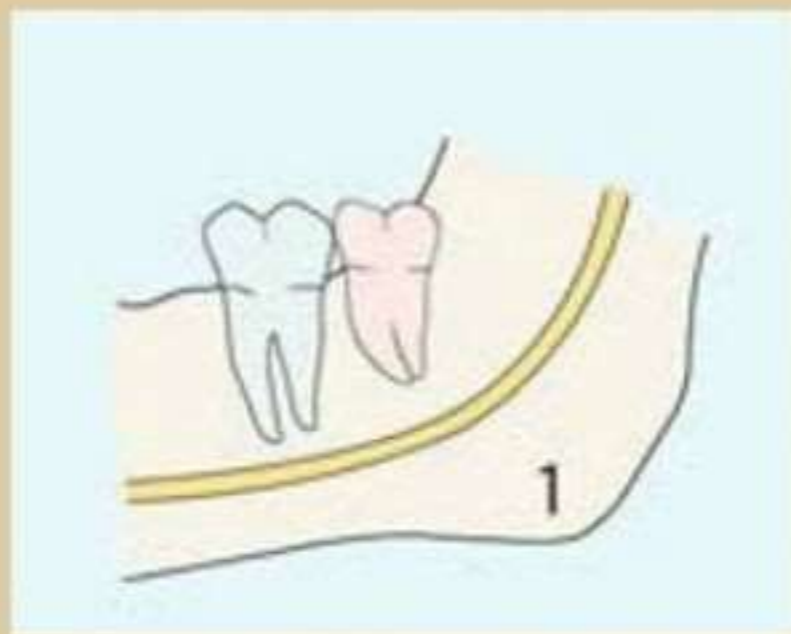
- **Class III:** *The entire third molar is located within the ascending ramus of the mandible.*



I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

B. Relative depth of the third molar in bone

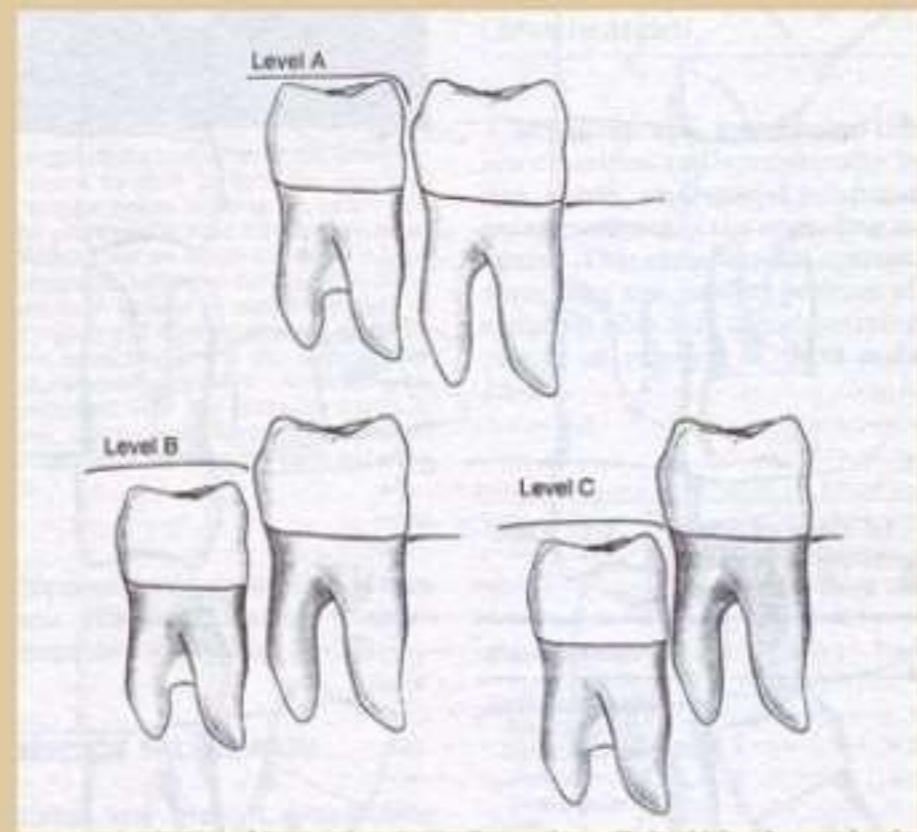
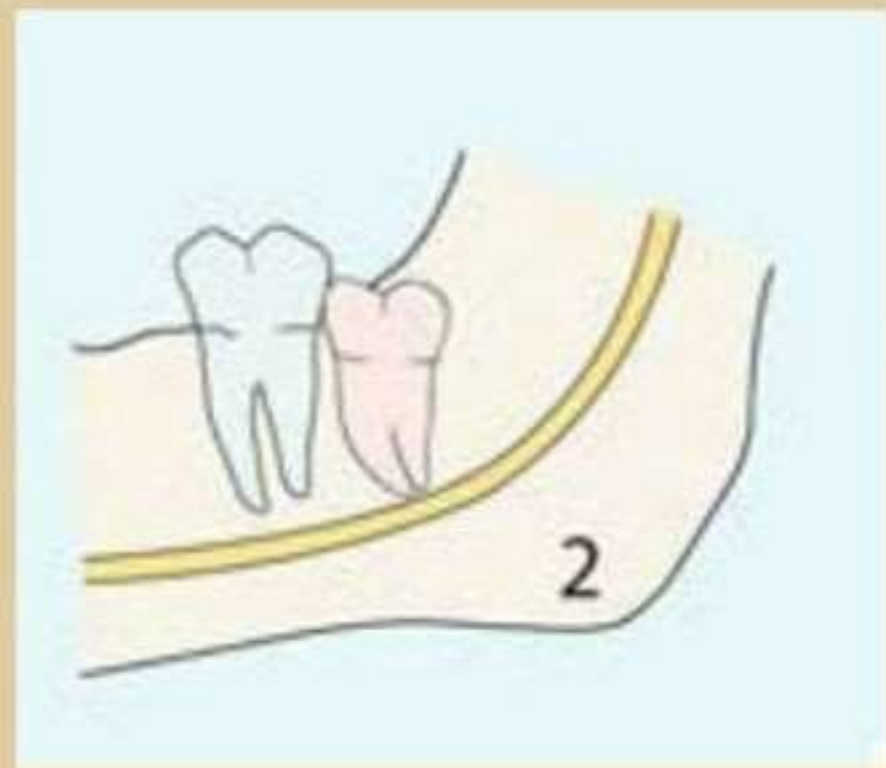
- **Position (A):** *The highest portion of the tooth is in level with or above the occlusal plane.*



I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

B. Relative depth of the third molar in bone

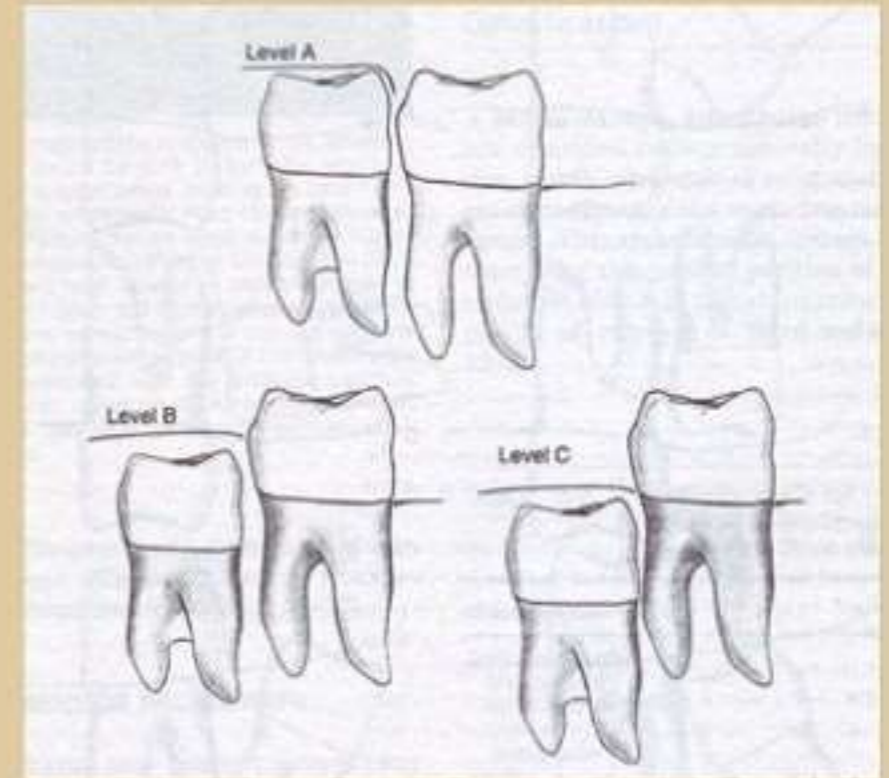
- **Position (B):** *The highest portion is below the occlusal plane but above the cervical margin of second molar.*



I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

B. Relative depth of the third molar in bone

- **Position (C):** *The highest portion of the tooth is below the cervical margin of the second molar. This is relatively a very deep impaction.*





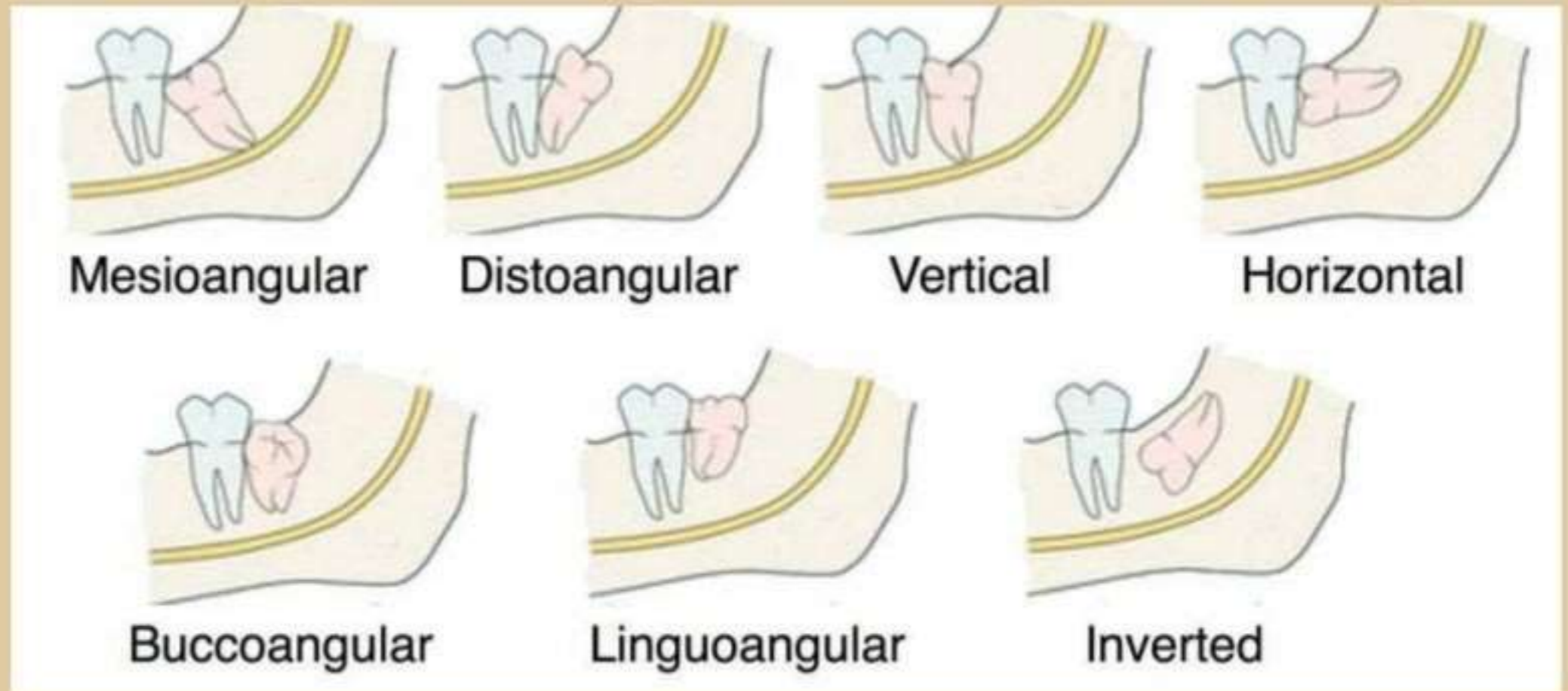
I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

C. The position of the long axis of the impacted tooth in relation to the long axis of the second molar:

- **Vertical:** *the long axis of the third molar is parallel to that of the second molar.*
- **Horizontal:** *the long axis of the third molar is at right angle to that of the second molar.*
- **Mesioangular** *impaction.*
- **Distoangular** *impaction.*
- **Inverted** *Impaction.*

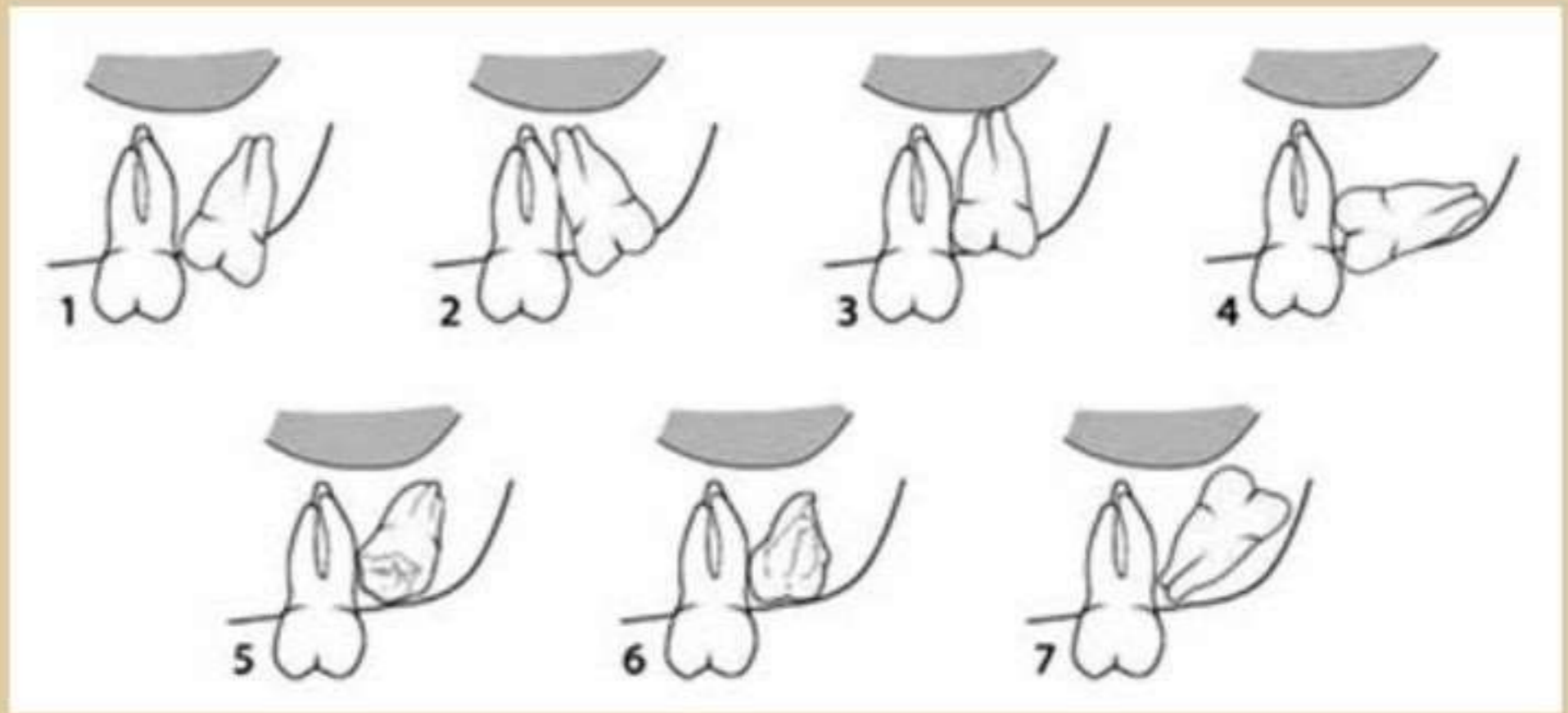
I. CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

C. The position of the long axis of the impacted tooth in relation to the long axis of the second molar:



II. CLASSIFICATION OF IMPACTED MAXILLARY THIRD MOLARS

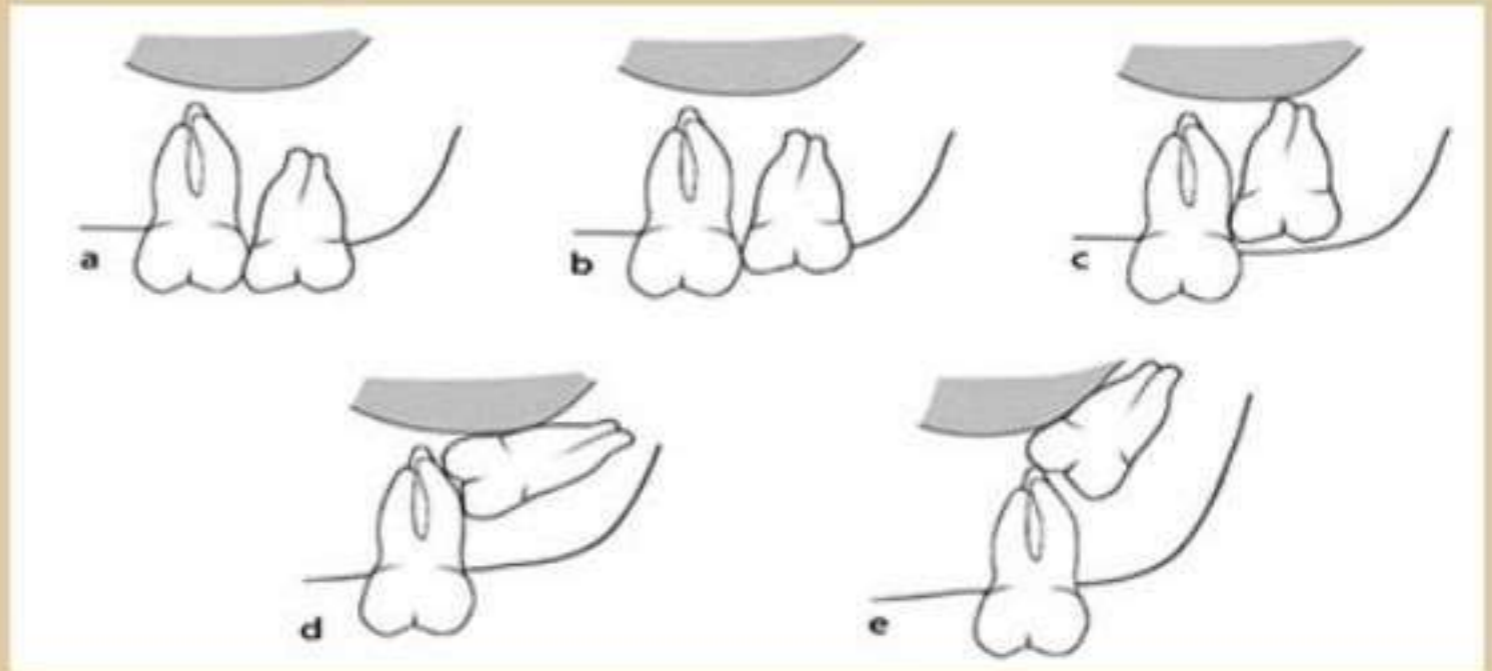
A. The last classification of mandibular third molar is applicable to maxillary third molars



II. CLASSIFICATION OF IMPACTED MAXILLARY THIRD MOLARS

B. According to the depth of impaction compared to the second molar, into three categories:

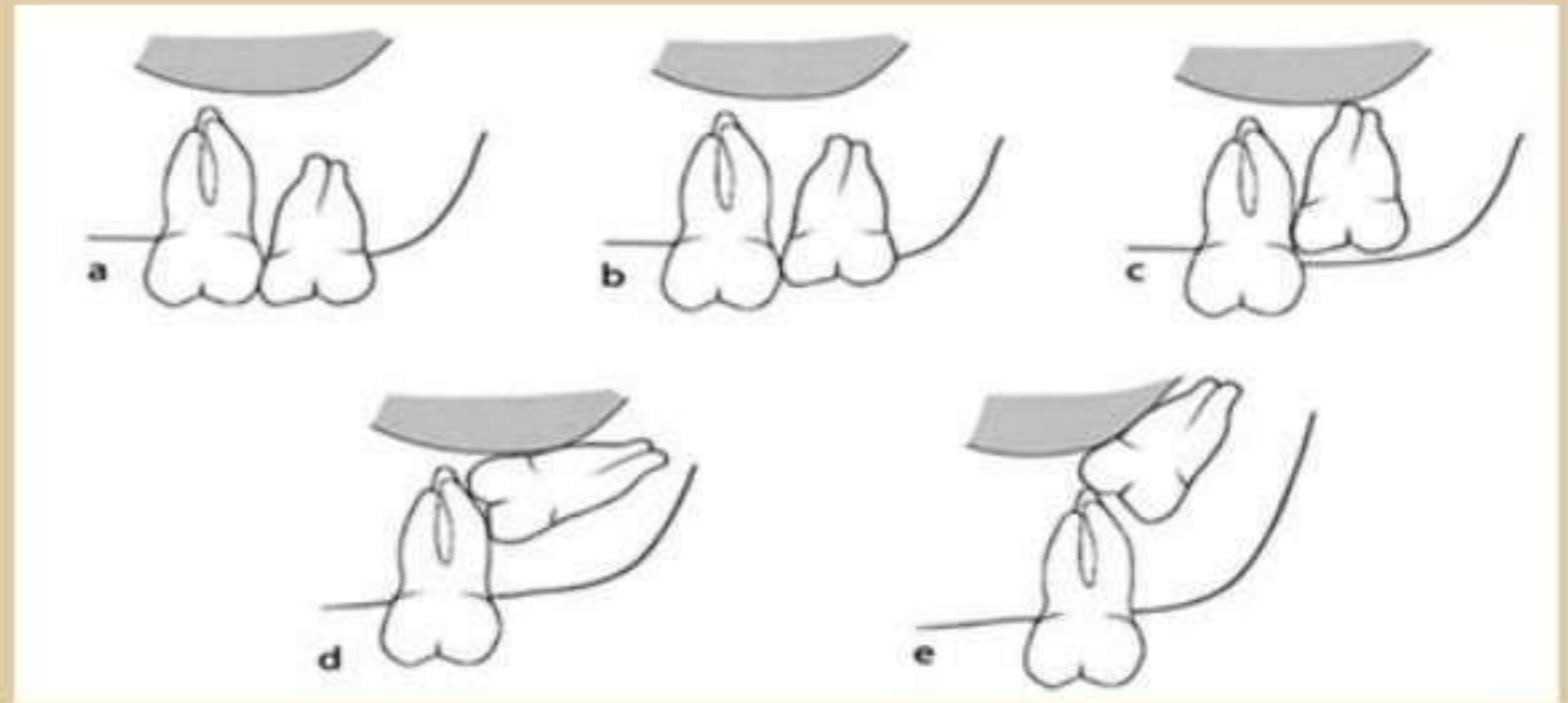
- **Class A:** *The occlusal surface of the impacted tooth is at approximately the same level as the occlusal surface of the second molar.*



II. CLASSIFICATION OF IMPACTED MAXILLARY THIRD MOLARS

B. According to the depth of impaction compared to the second molar, into three categories:

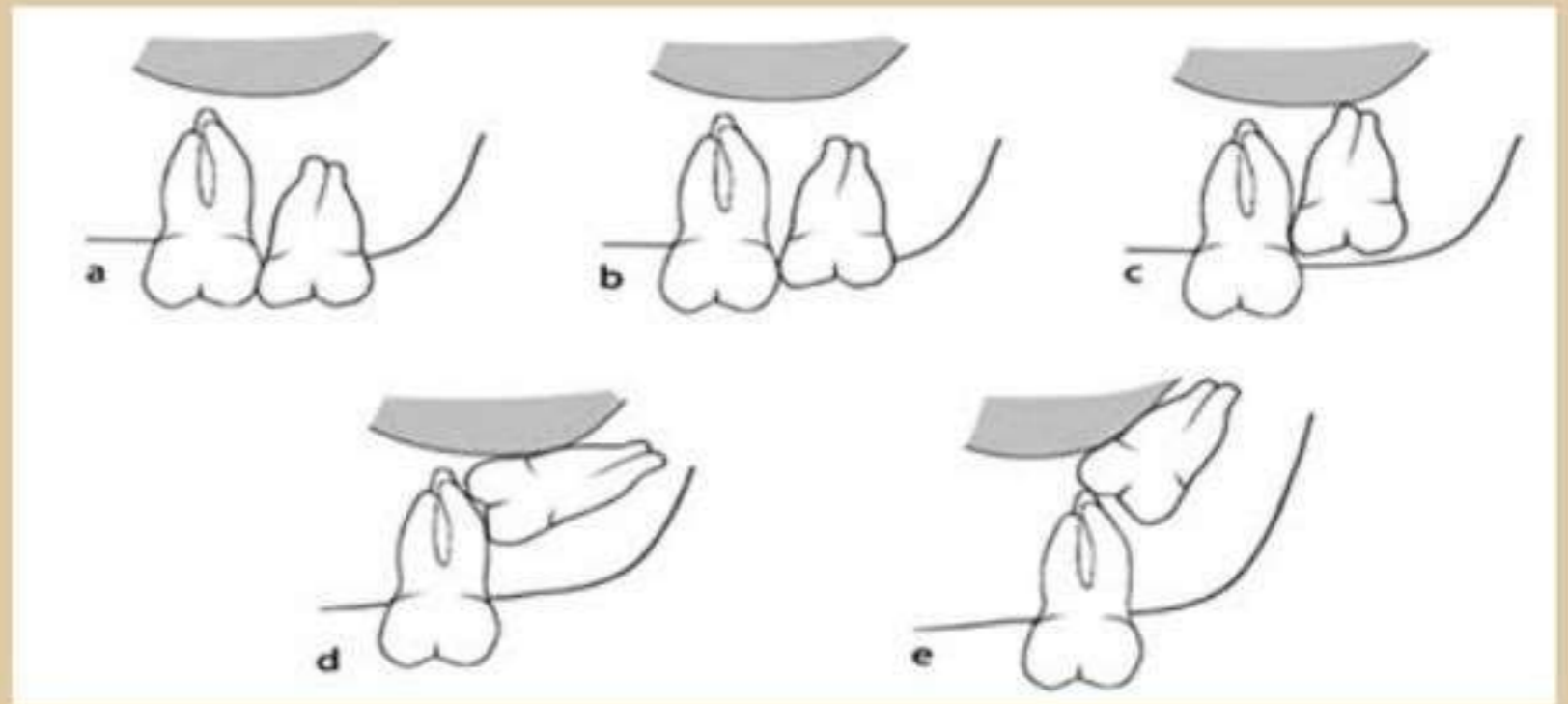
- **Class B:** *The occlusal surface of the impacted tooth is at the middle of the crown of the adjacent second molar.*



II. CLASSIFICATION OF IMPACTED MAXILLARY THIRD MOLARS

B. According to the depth of impaction compared to the second molar, into three categories:

- **Class C:** *The occlusal surface of the crown of the impacted tooth is below the cervical line of the adjacent molar or even deeper.*





II. CLASSIFICATION OF IMPACTED MAXILLARY THIRD MOLARS

C. The relationship of this tooth to the maxillary sinus:

- **Sinus approximation (S.A.)** where no bone or very little bone exists between the impacted tooth and the sinus.
- **No sinus approximation (N.S.A.)** where 2 mm or more of bone exist between the sinus and the impacted tooth.

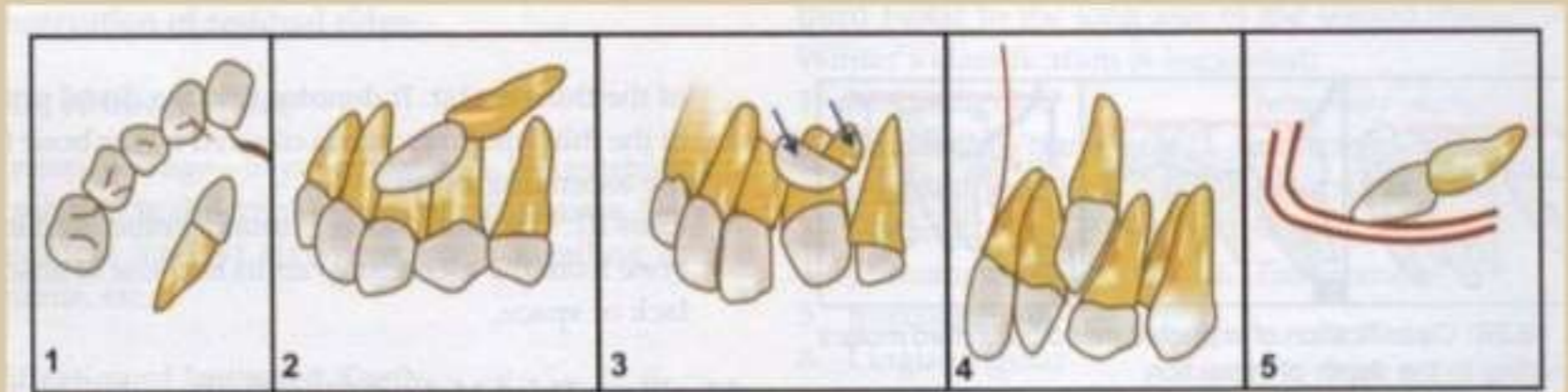
III. CLASSIFICATION OF IMPACTED MAXILLARY CANINES:

Class I: Palatally impacted canines: these could be in:

- Vertical,
- Horizontal, or
- Semi vertical position.

Class II: Labially impacted could also be in:

- Vertical,
- Horizontal or
- Semi vertical position.

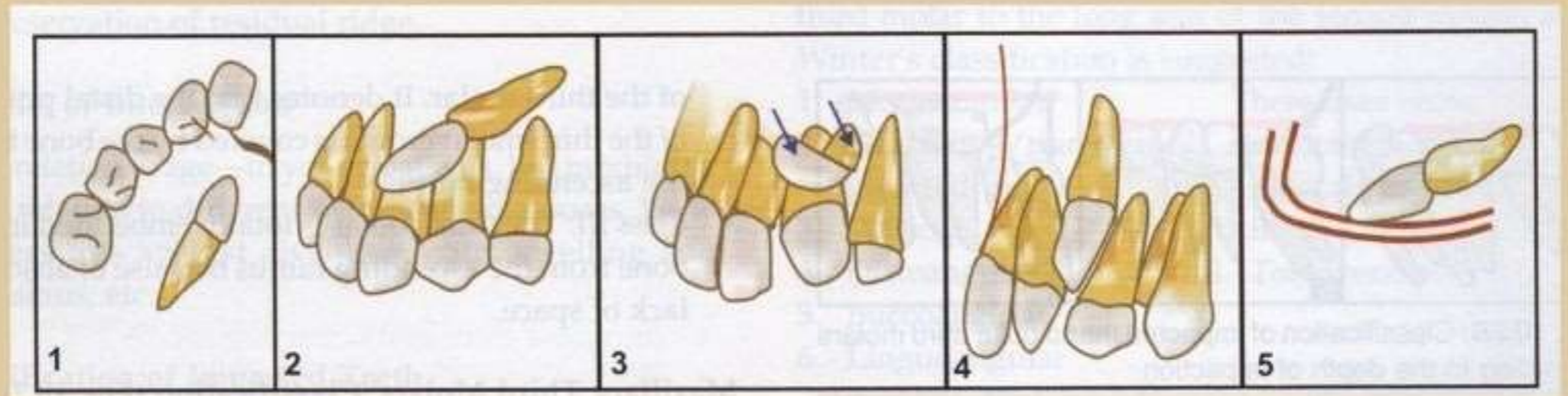



III. CLASSIFICATION OF IMPACTED MAXILLARY CANINES:

Class III: The canine is present with its root in the palate & its crown in the buccal aspect, or vice versa.

Class IV: Canine is placed in the alveolar process. The canine is present vertically between the lateral incisor & 1st premolar.

Class V: Impacted canine in edentulous maxilla.





**THE SURGICAL
PROCEDURE FOR
REMOVAL OF LOWER
IMPACTED THIRD
MOLAR**



Factors complicating the operative procedures of lower 3rd molar:

- *Abnormal root curvature & hypercementosis.*
- *Extreme bone density.*
- *Proximity to the mandibular canal.*
- *Ankylosis of the tooth.*
- *Difficult access to the operative field.*
- *Large & uncontrollable tongue.*
- *Involvement of the impacted tooth in a pathological lesion.*



1. ANESTHESIA.

Anesthesia in cases of impacted mandibular third molars is: inferior alveolar nerve block, buccal nerve block, lingual nerve block, and local infiltration for hemostasis in the surgical field.

2. GAINING ACCESS TO THE IMPACTED TOOTH

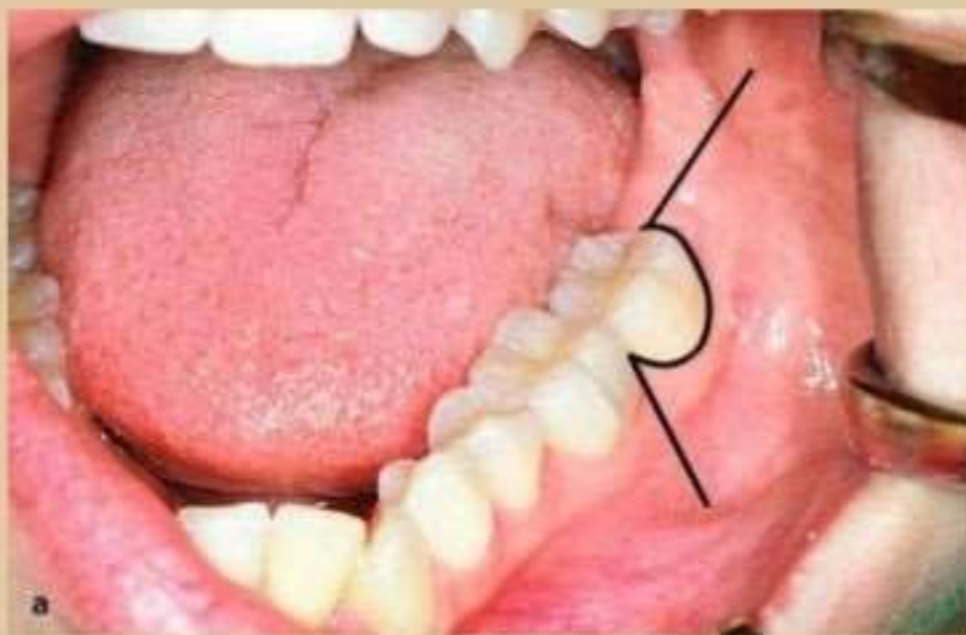
TRIANGULAR FLAP:

The incision for this type of flap begins at the anterior border of the ramus (external oblique ridge) and extends as far as the distal aspect of the second molar, while the vertical releasing incision is made obliquely downwards and forward, ending in the vestibular fold.



2. GAINING ACCESS TO THE IMPACTED TOOTH

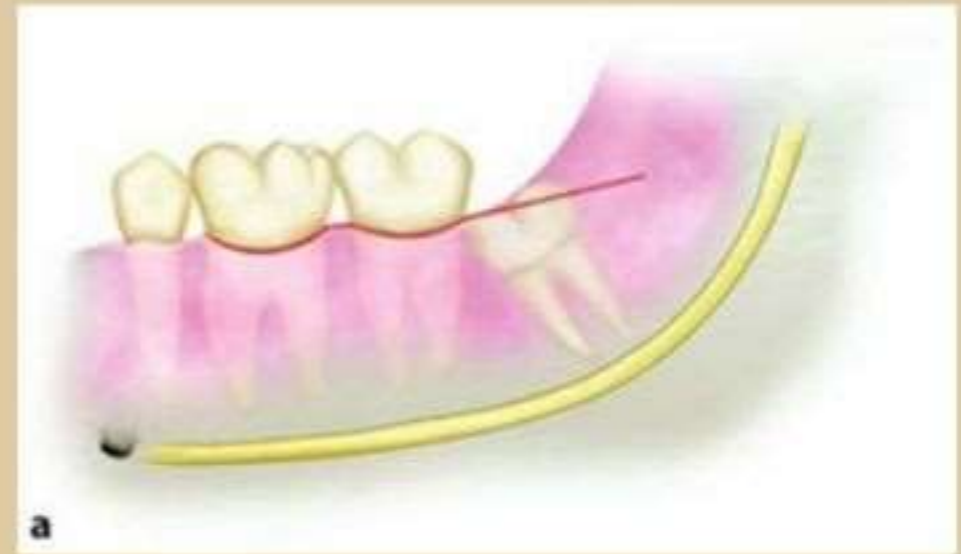
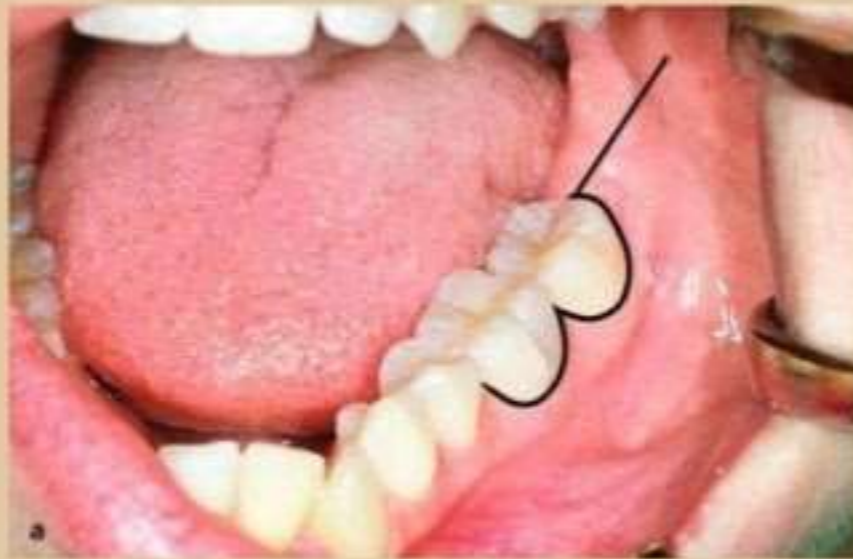
In certain cases, e.g., when impaction is deep, the incision may continue along the cervical line of the last tooth while the vertical incision begins at the distal aspect of the first molar.



2. GAINING ACCESS TO THE IMPACTED TOOTH

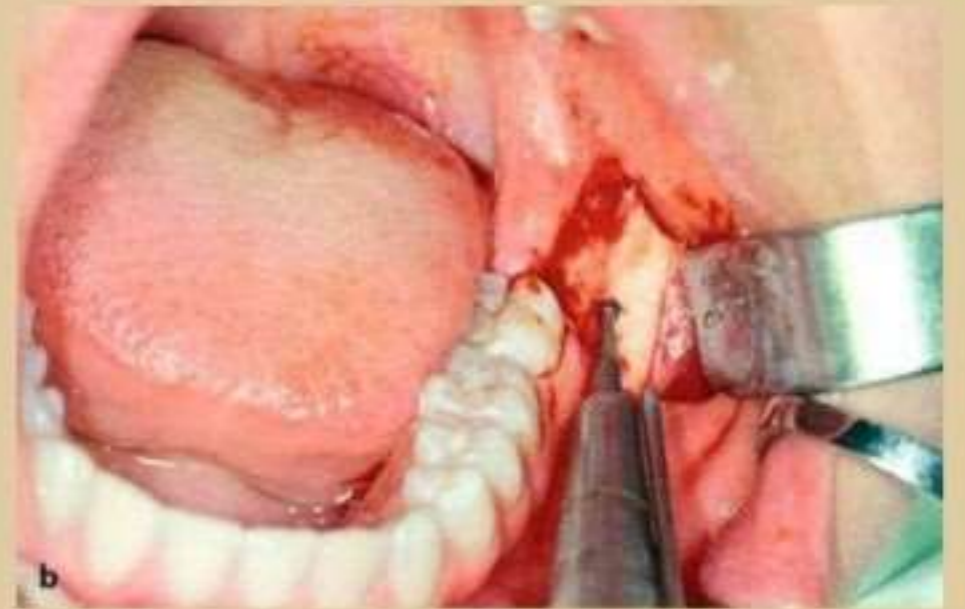
HORIZONTAL (ENVELOPE) FLAP:

- *The incision begins at the anterior border of the ramus and extends as far as the distal aspect of the second molar, continuing along the cervical lines of the last two teeth, and ending at the mesial aspect of the first molar.*
- *This type of flap is usually used in cases where impaction is relatively superficial.*



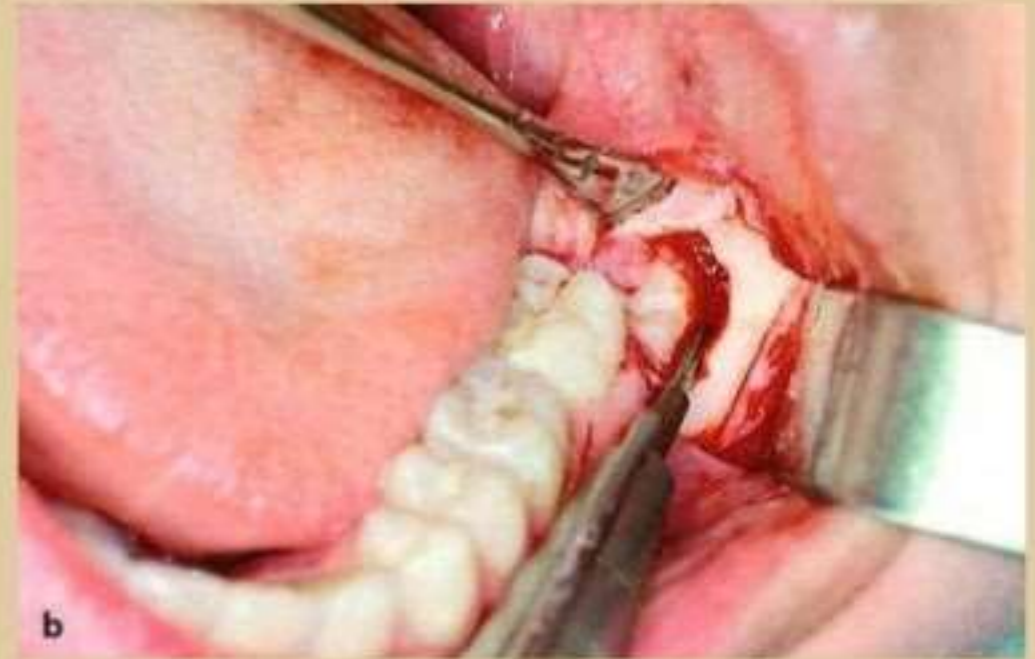
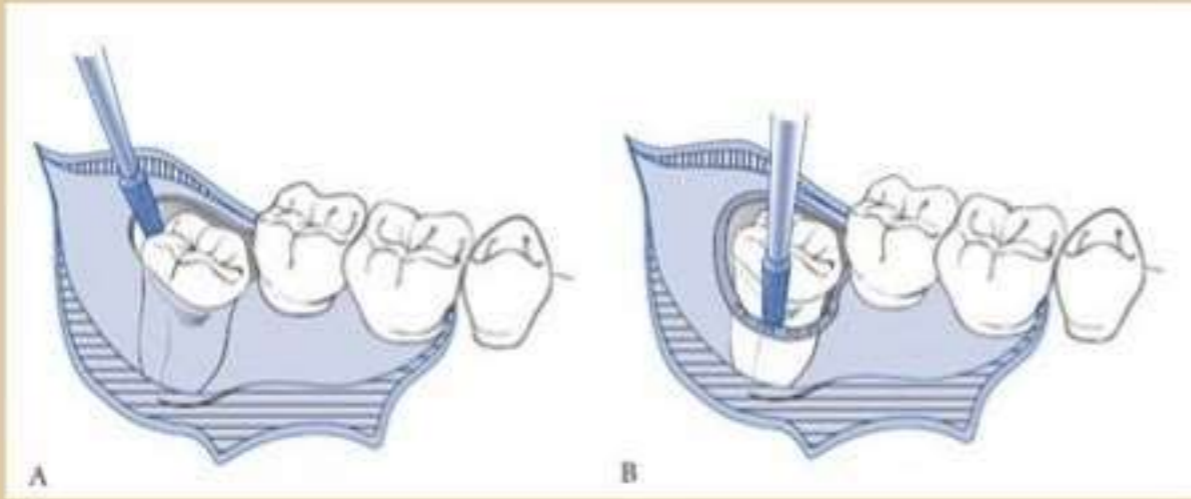
3. REMOVAL OF BUD OF IMPACTED MANDIBULAR THIRD MOLAR

- *After the flap is reflected, the bone covering the tooth is removed using a round bur, until the entire crown is exposed.*



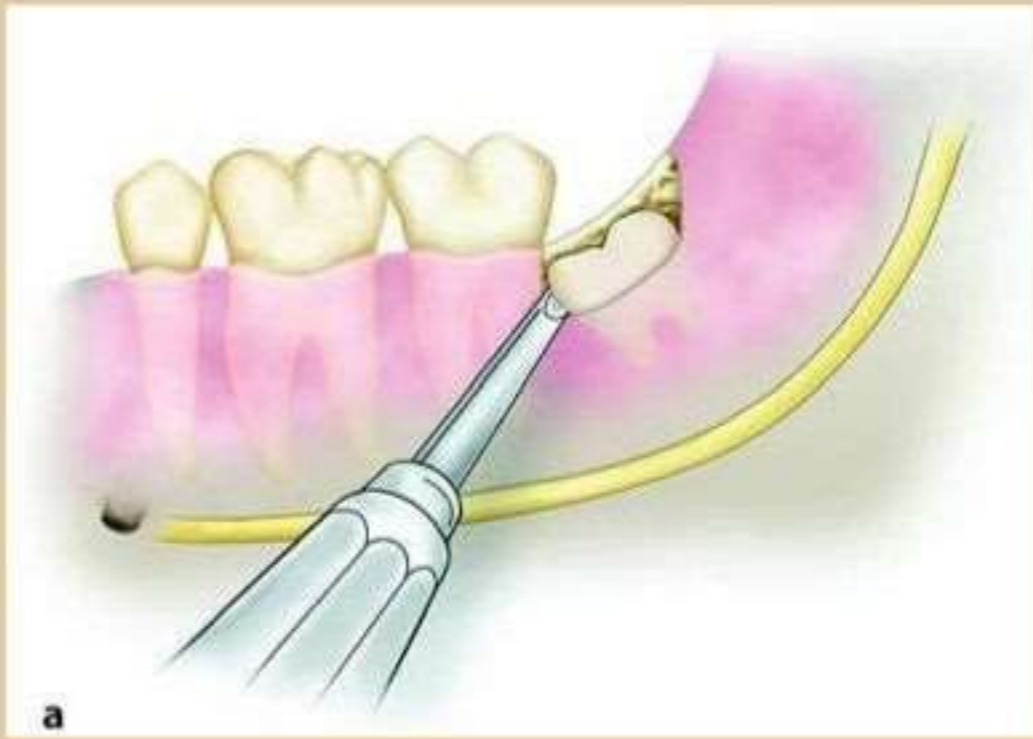
3. REMOVAL OF BUD OF IMPACTED MANDIBULAR THIRD MOLAR

- A sufficient bone must be removed from the buccal and distal aspects of the crown of the tooth (guttering technique).



3. REMOVAL OF BUD OF IMPACTED MANDIBULAR THIRD MOLAR

- After exposing the impacted tooth sufficiently, the straight elevator is placed in the mesial region and the tooth is elevated with a rotational movement distally.



4. PREPARATION OF THE WOUND FOR CLOSURE

- Gently irrigate the wound with normal saline to remove minute tooth & bone debris.
- The residual tooth follicle is removed by the use of 2 small curved artery forceps & bone curette.
- All bone & tooth spicules should be removed by tissue forceps and bone curette.
- The edges of the socket and site of bone removed (sharp edges of bone) should be smoothed by bone files.



5. CLOSURE OF THE WOUND

- *The first suture is placed at the corner of the flap to ensure correct repositioning of the flap, while the rest are placed along the posterior and vertical incisions.*



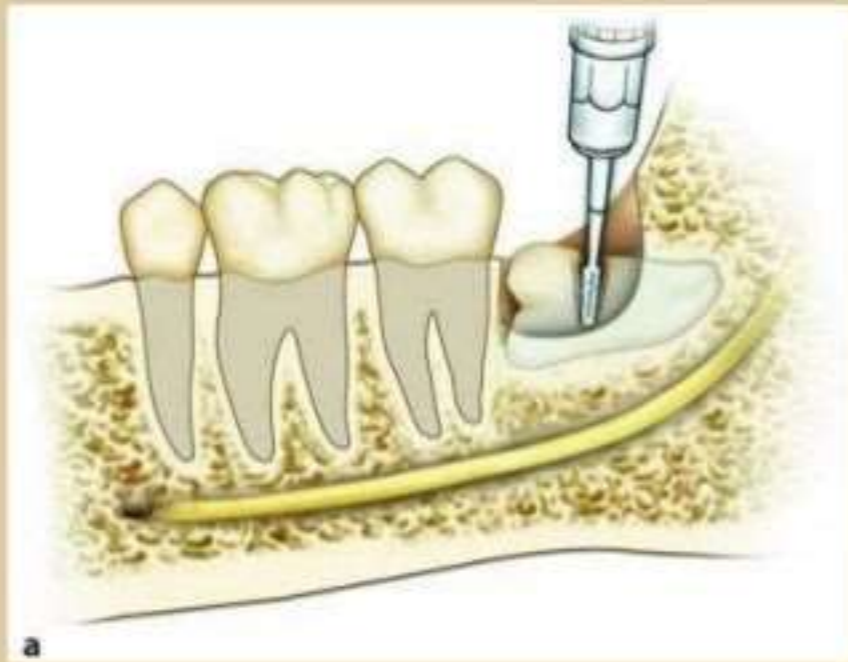


5. POSTOPERATIVE CARE

- *Pressure packs is applied over the wound to control bleeding.*
- *Cold application (ice bags) used for the first 6hrs post-operatively to reduce bleeding tendency and postoperative swelling.*
- *Hot saline or antiseptic mouth wash after the 1st 24 hrs.*
- *Analgesics are used to control pain.*
- *Antibiotics therapy.*
- *Completely closed wounds, sutures removed after 8 days.*

EXTRACTION OF IMPACTED THIRD MOLAR IN HORIZONTAL POSITION

- *Making a horizontal incision.*
- *The bone covering the tooth is removed using a round bur, until the crown is entirely exposed.*
- *A groove is then created vertically using a fissure bur, at the cervical line of the tooth, to separate the crown from the root.*



EXTRACTION OF IMPACTED THIRD MOLAR IN HORIZONTAL POSITION

- The groove created by the bur should not be deep \bar{O} to avoid injury of inferior alveolar nerve.
- The straight elevator is placed in the groove to separate the crown from the root with a rotational movement.
- The crown is removed separately, using the straight elevator and the root is then easily removed, using a straight or angled elevator.





EXTRACTION OF IMPACTED THIRD MOLAR IN HORIZONTAL POSITION

- *After smoothing the bone, the area is irrigated with saline solution and sutures are placed.*
- *The first suture is placed at the distal aspect of the second molar and the rest are placed at the interdental papillae and the posterior end of the incision.*
- *If the tooth has two roots, sectioning and removal of the crown then separate the roots Õ first the distal root is removed then the mesial root.*

EXTRACTION OF THIRD MOLAR WITH MESIOANGULAR IMPACTION

- *the mesial cusps of 3rd molar are in contact with the distal aspect of the second molar.*
- *Making a horizontal incision.*
- *The bone covering the tooth is removed using a round bur, until the entire crown is exposed.*
- *Using a fissure bur & sufficient bone is removed using the guttering technique & on the buccal and the distal aspect of the tooth.*



EXTRACTION OF THIRD MOLAR WITH MESIOANGULAR IMPACTION

- If the tooth is single-rooted, to facilitate its removal, the mesial portion of the tooth is removed first, while the remaining portion is then luxated.
- If the tooth has two roots, the roots may be separated and each root may be extracted.



EXTRACTION OF THIRD MOLAR WITH MESIOANGULAR IMPACTION


- The straight elevator is placed in the groove to separate the 2 root with a rotational movement.
- The tooth is removed in two steps.
- First the distal root is elevated together with part of the crown.
- Second, the other root is removed with rotational movement distally after placing the elevator from the mesial aspect.
- Care of the socket and suturing.



EXTRACTION OF THIRD MOLAR WITH DISTOANGULAR IMPACTION

- Making a horizontal incision.
- The bone covering the tooth is removed using a round bur, until the crown is entirely exposed.
- the distal portion of the crown is sectioned using a fissure bur, and removed.
- the remaining segment of the tooth is then luxated, after placing the elevator at the mesial aspect of the tooth.
- Care of the socket and suturing.





**THE SURGICAL
PROCEDURE FOR
REMOVAL OF UPPER
IMPACTED THIRD
MOLAR**

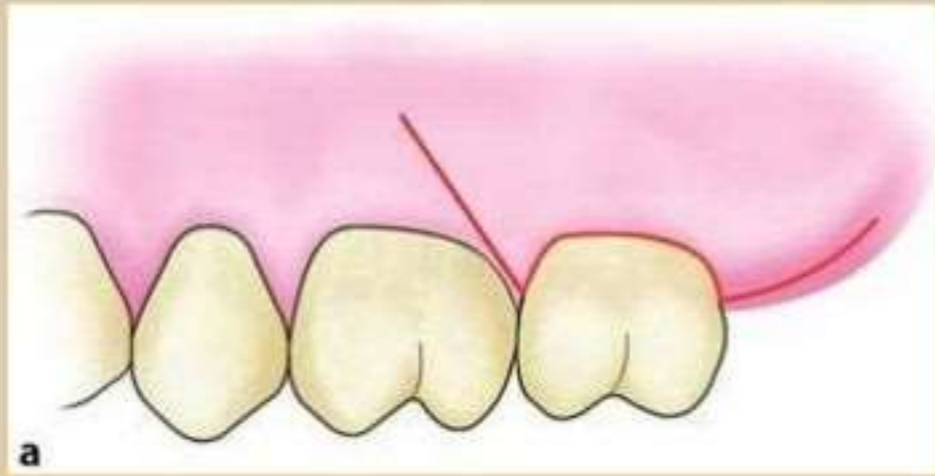


Factors complicating Removal of an impacted maxillary third molar:

- *Insufficient visualization of the area.*
- *Limited access.*
- *Close proximity to the maxillary sinus.*

Steps of removal:

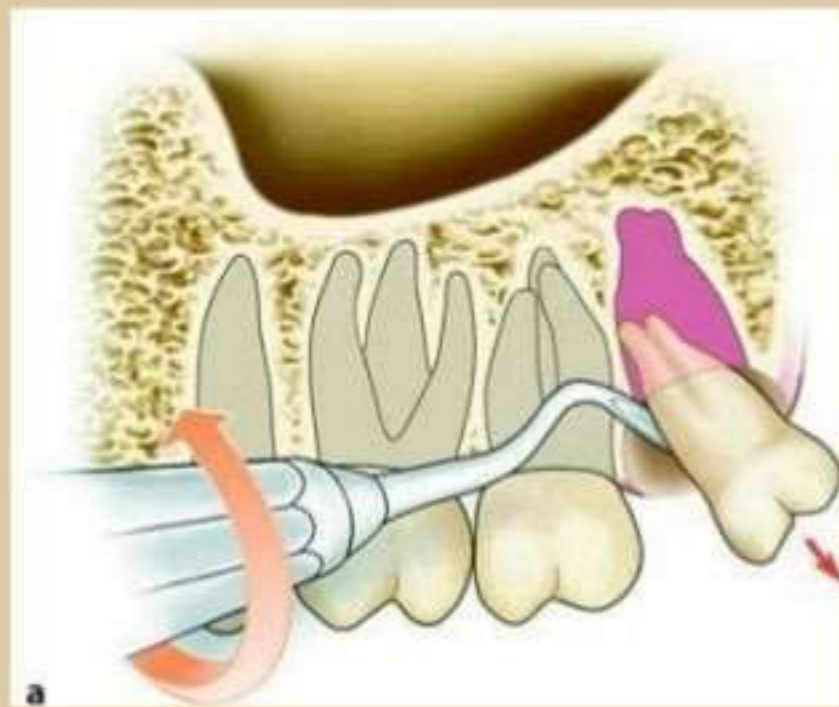
- *Making a triangular incision.*



- *the buccal bone is removed until the entire crown of the impacted tooth and part of its roots are exposed.*
- *sufficient space must be created by bone removal around its crown to luxate the tooth.*

Steps of removal:

- using a straight or double-angled elevator on the mesial aspect of the tooth → buccally → the tooth is luxated.
- Care of the wound and suturing.





SURGICAL REMOVAL OF IMPACTED CANINE



The localization of impacted canines

- *using occlusal radiograph or periapical radiographs and panoramic radiographs.*
- *the technique used for exact localization of the labial or palatal position of the impacted tooth is based on the tube shift principle.*

Extraction Using Labial Approach

- *Make a trapezoidal incision.*
- *The bone covering the tooth is removed using a round bur until the entire crown of the tooth and part of the root are exposed.*
- *A groove is then created at the cervical line using a fissure bur*
○ *separate the crown from the root.*



Extraction Using Labial Approach

- A groove is then created at the cervical line using a fissure bur
○ separate the crown from the root.
- Separation completed by a straight elevator.
- The crown is removed first and the root is then luxated and removed.

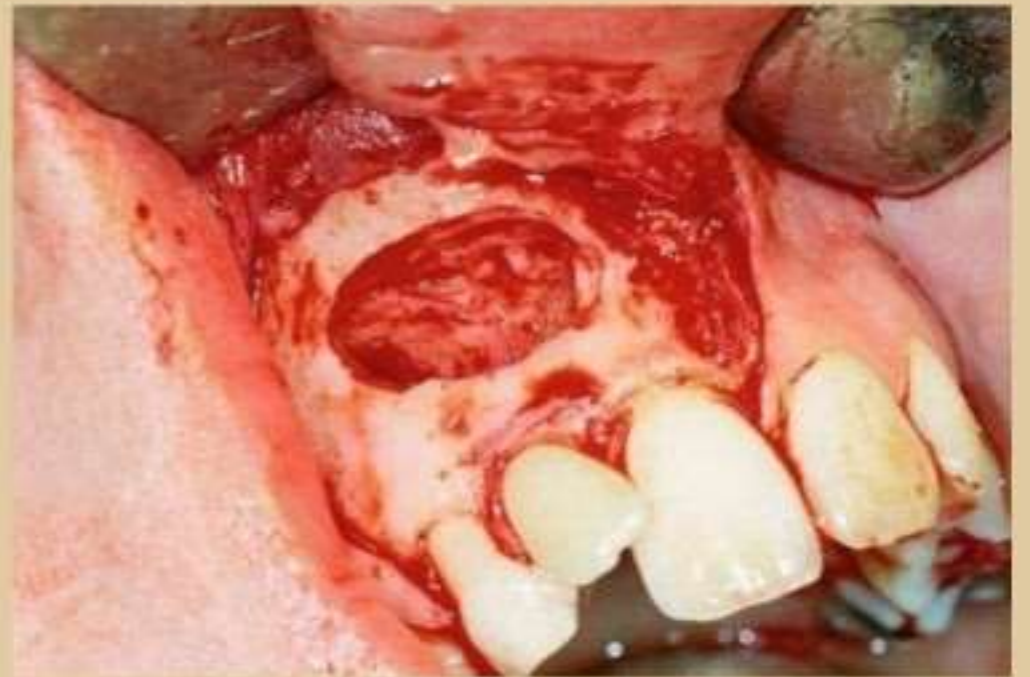


Extraction Using Labial Approach



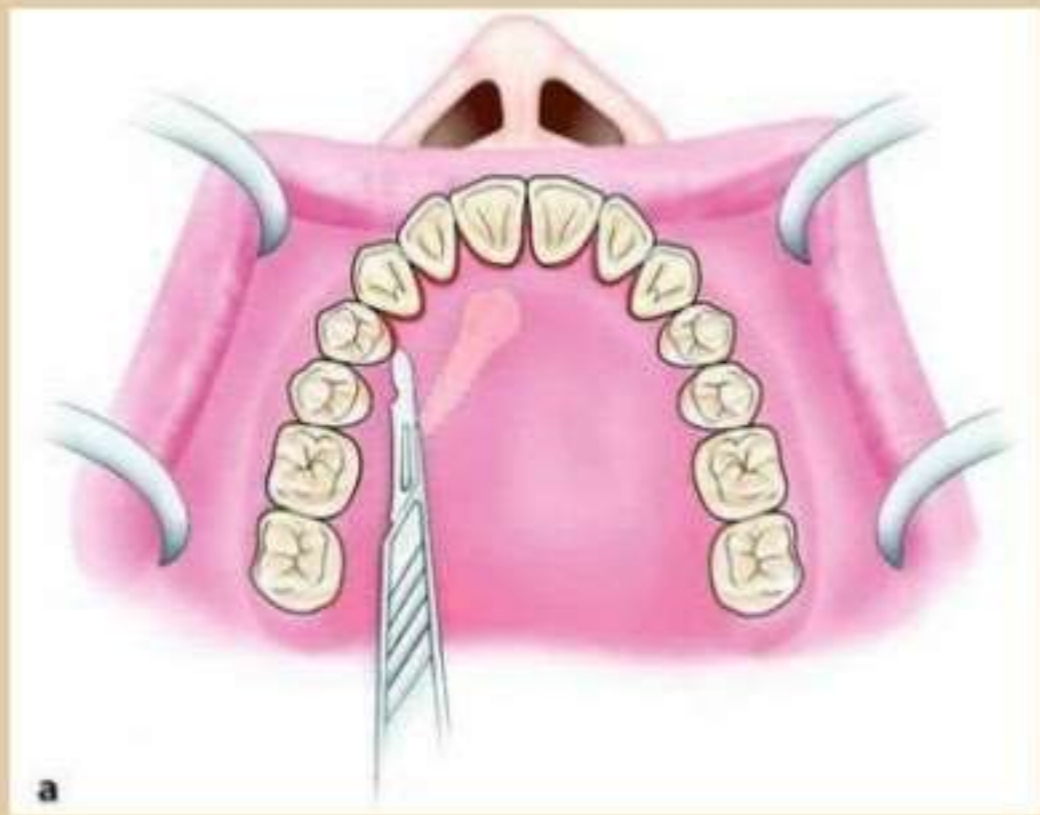
Extraction Using Labial Approach

- *Smoothing the bone + irrigated with saline solution + wound is sutured.*



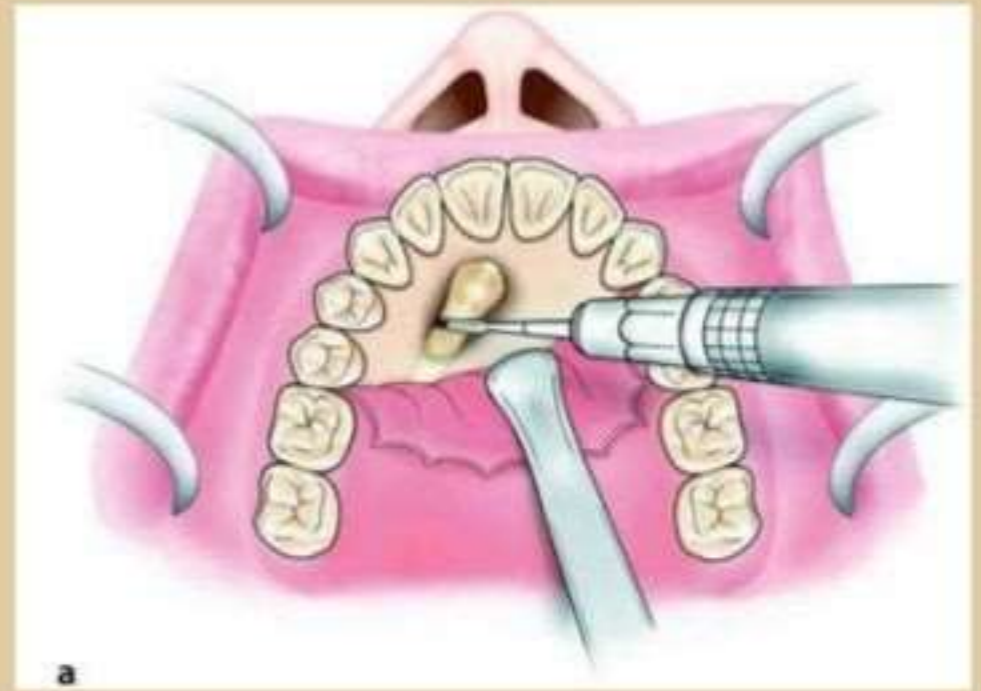
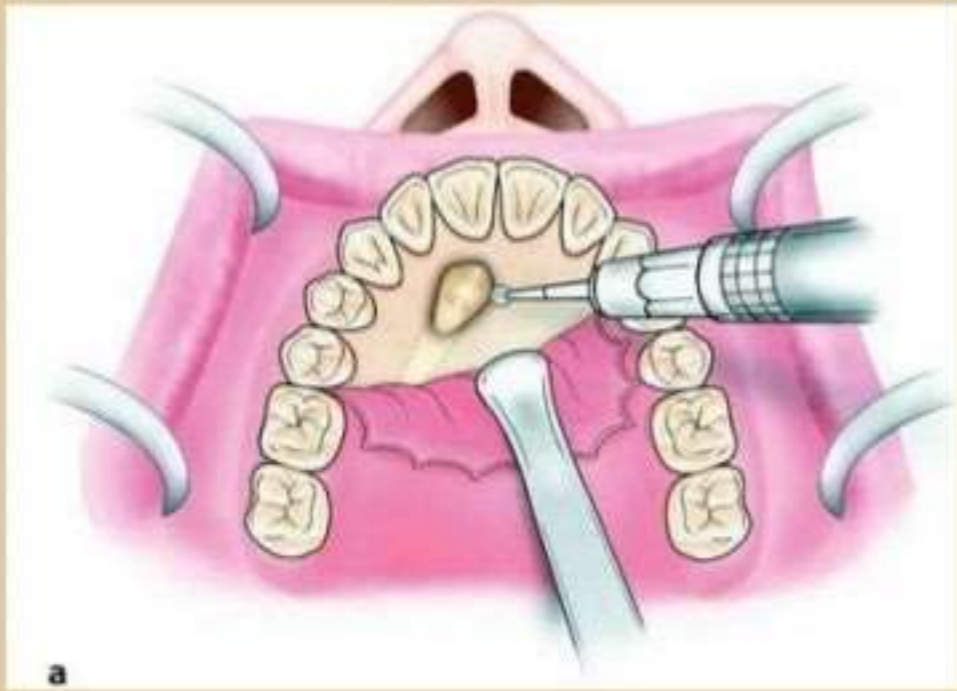
Extraction Using Palatal Approach

- *Make a bilateral palatal flap from the first or second ipsilateral premolar to the first premolar on the contralateral side.*

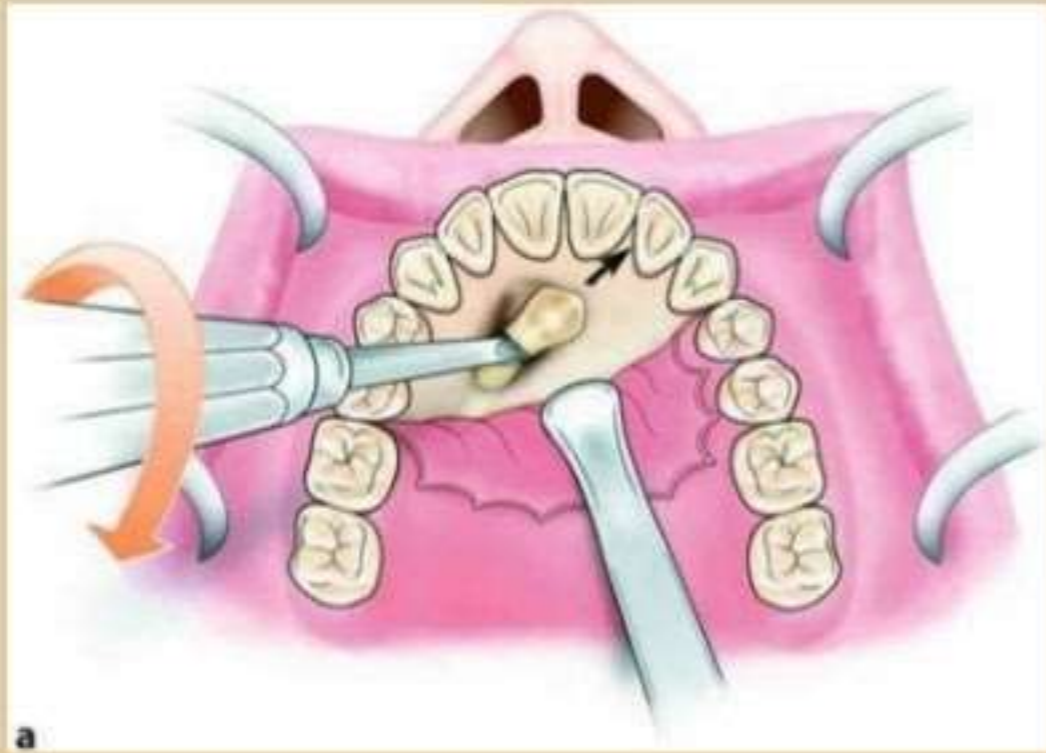


Extraction Using Palatal Approach

- Bone is removed until crown of the tooth is completely exposed.
- Sectioning of impacted tooth at the cervical line using a fissure bur and separation of the crown from the root.
- The crown is then removed and the root is elevated from its bed.

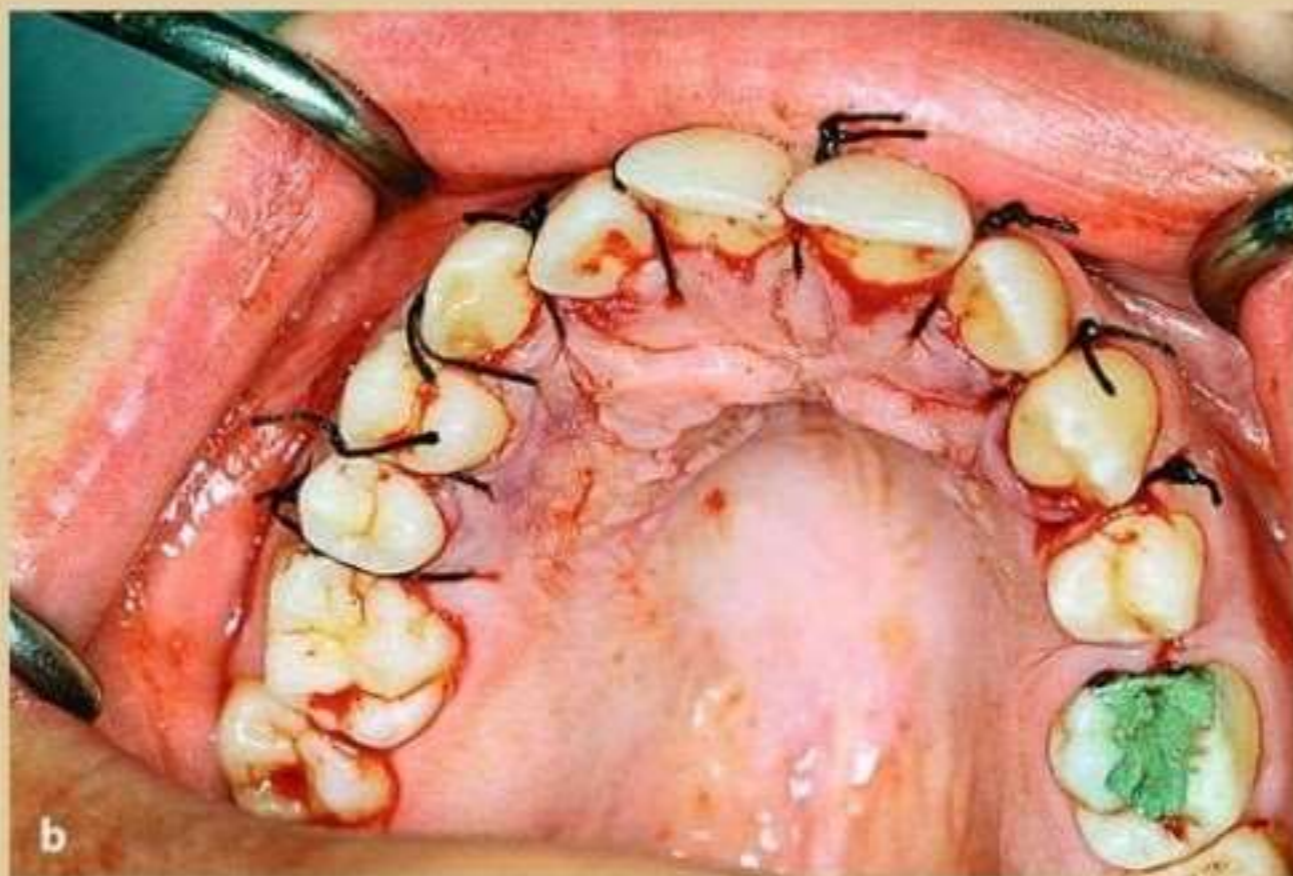


Extraction Using Palatal Approach



Extraction Using Palatal Approach

- *Smoothing the bone + irrigated with saline solution + wound is sutured.*





THANK YOU