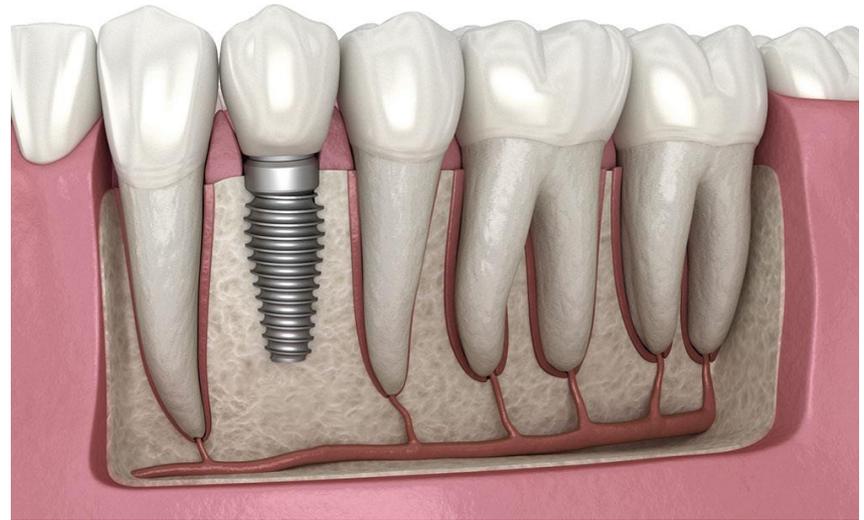




# Perforation

## The importance of the issue

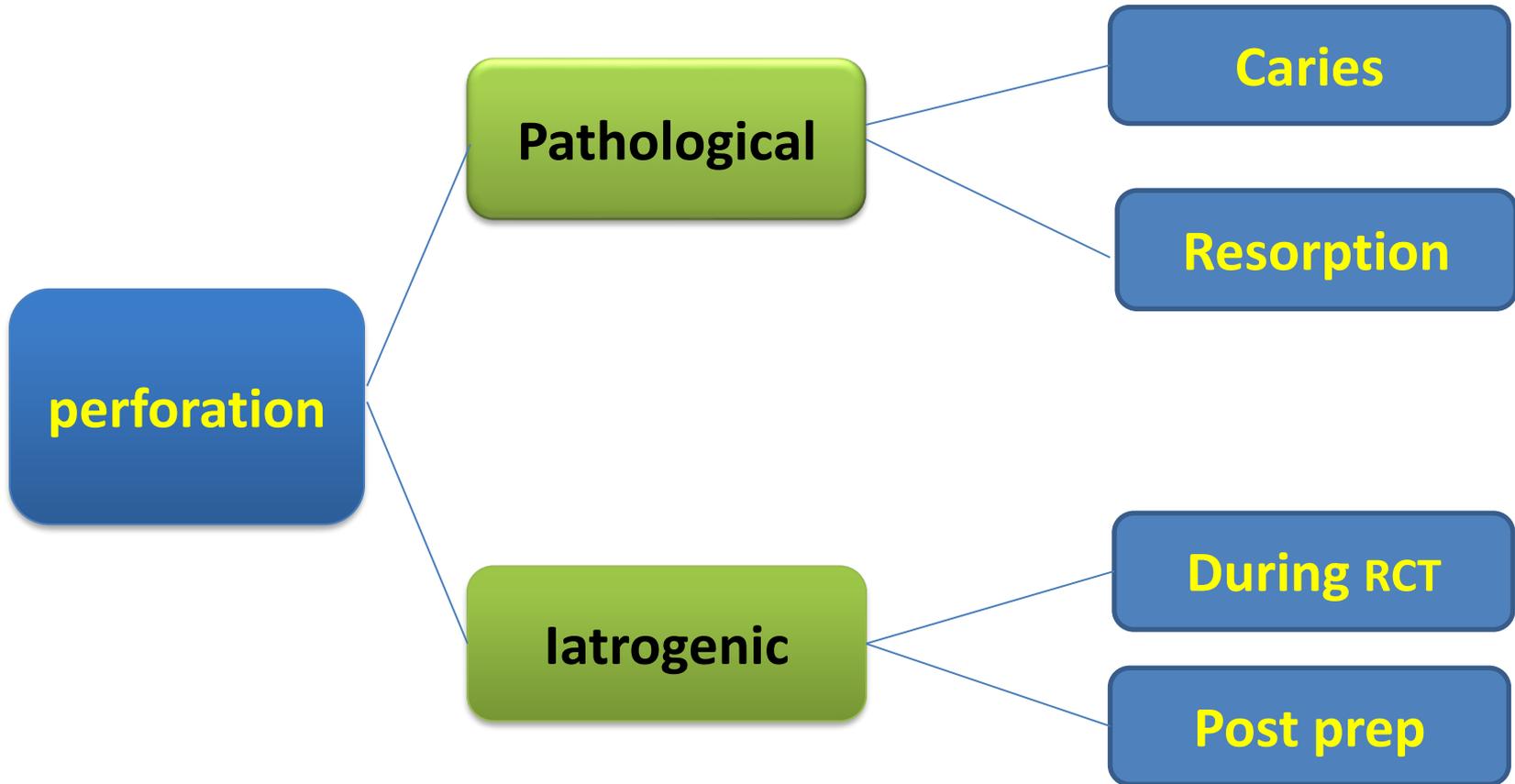


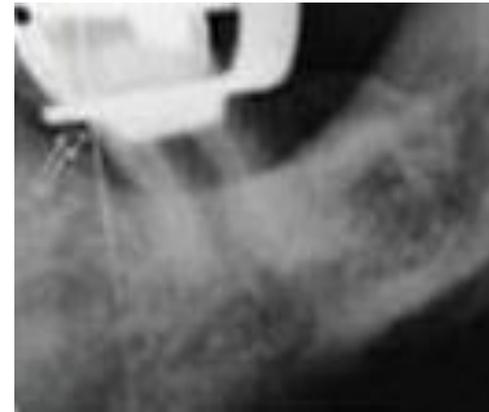
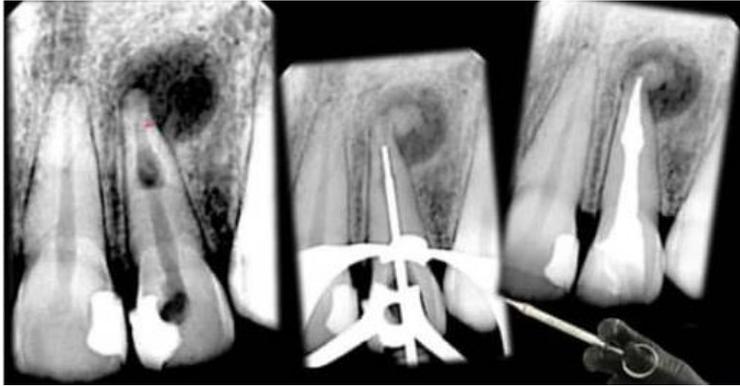
# Perforation definition

**A root perforation is a mechanical or pathologic communication formed between the supporting periodontal apparatus of the tooth and the root canal system (AAE)**



# Perforation classification





# Perforation classification

- Size
- Time
- Location

✓ Ability to seal the perforation  
✓ Accessibility to main canal

# Perforation prognosis

Small perforation

Fresh Perforation



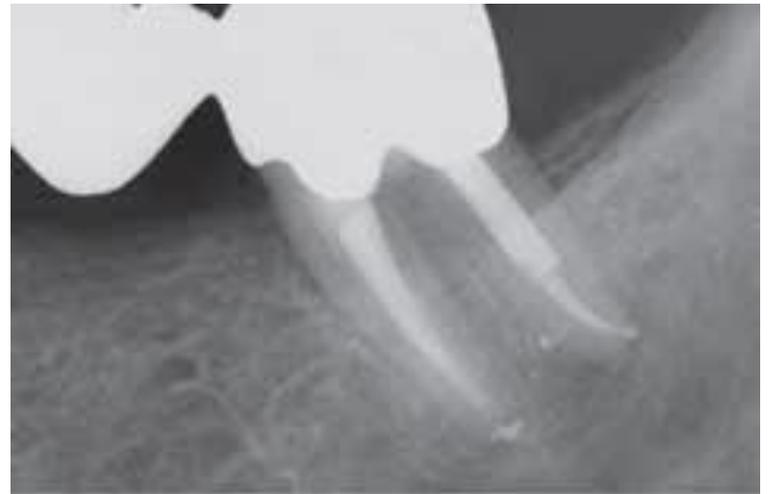
good prognosis

Large perforation

Old Perforation



questionable prognosis



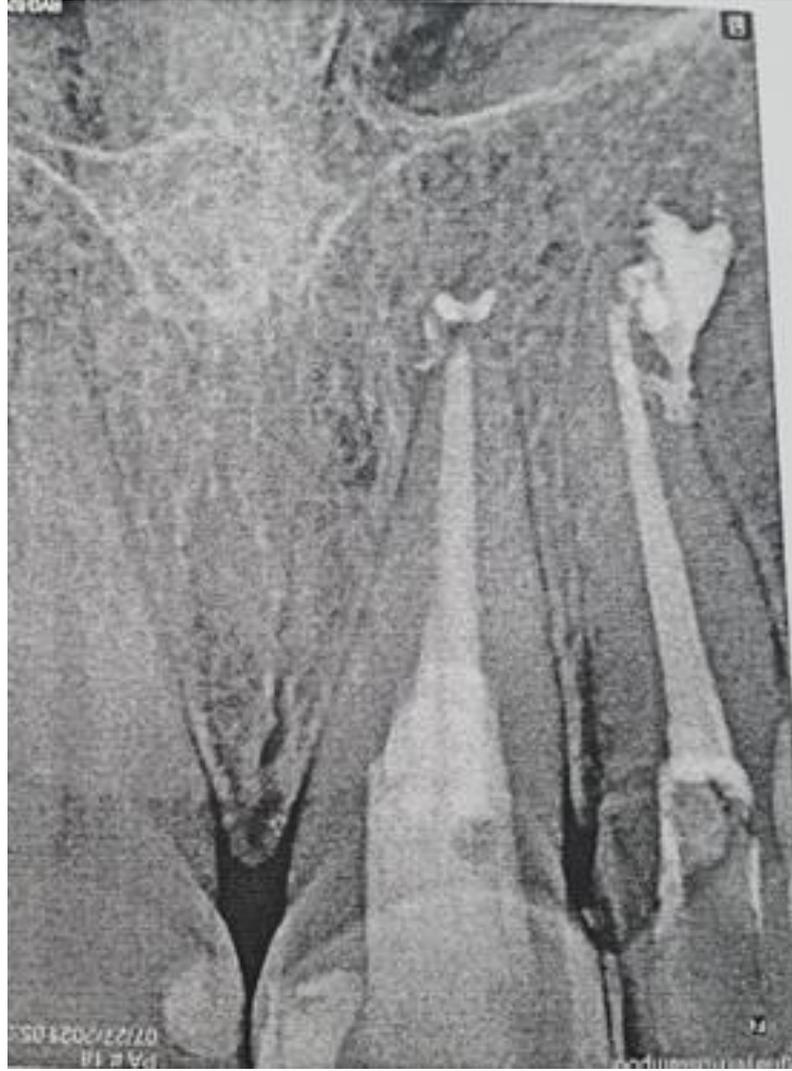


@dr\_robabfarhang



@dr\_robabfarhang





# Perforation prognosis

**therefore, the classic negative prognostic factors for perforation repair might NOT BE applicable if a bioactive material is used for repair**

# Perforation prognosis

- Coronal Perforation

**Good**

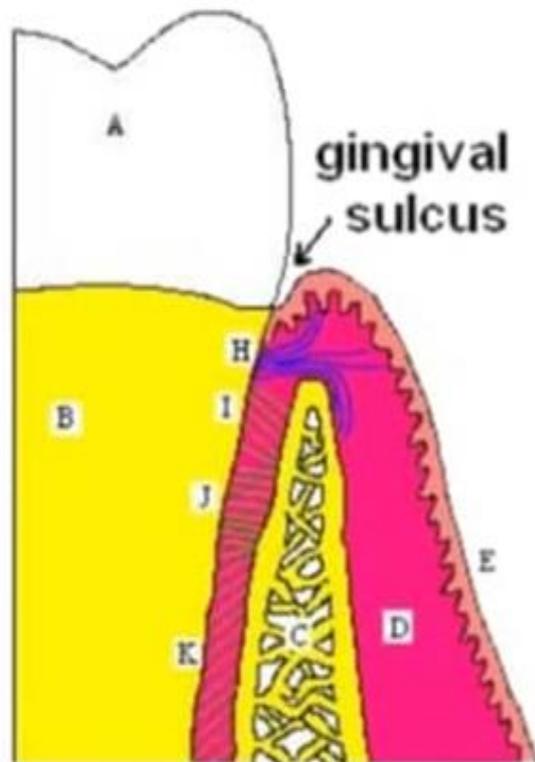
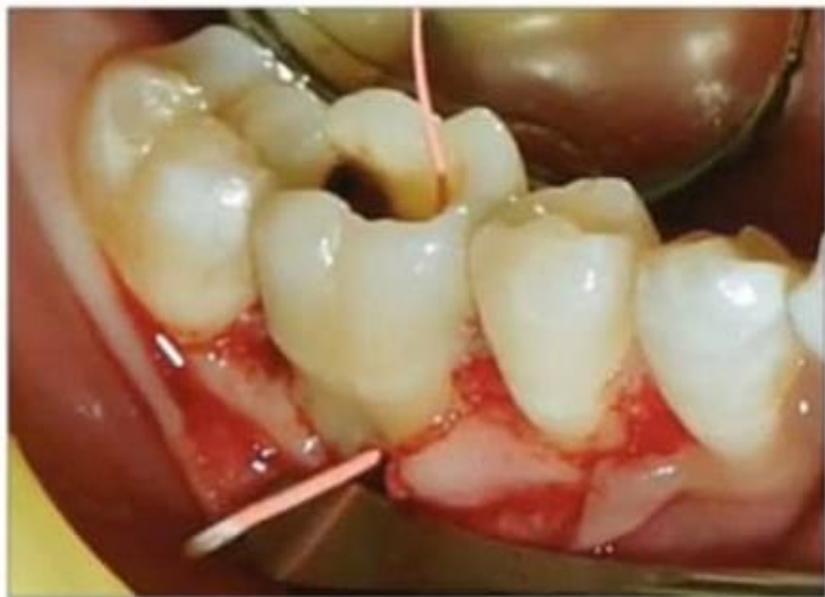
- Crestal Perforation

**questionable**

- Apical Perforation

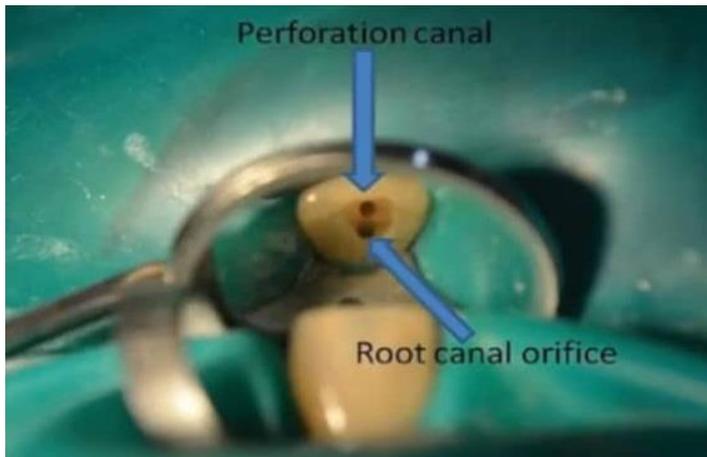
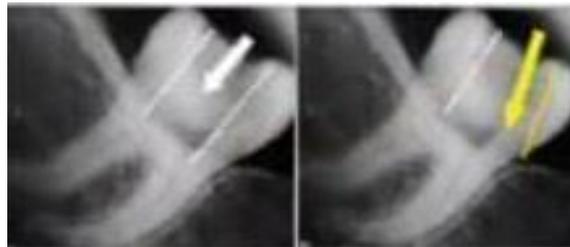
**Good**

**Prognosis : periodontal status**



# Access preparation perforation







calcified

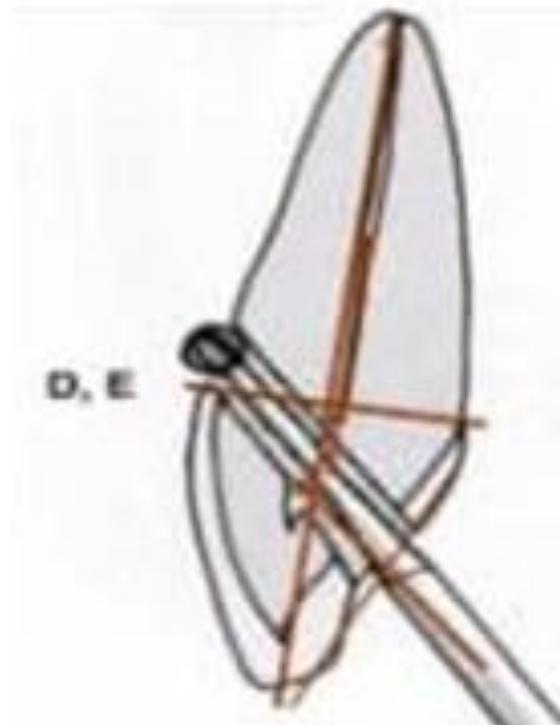
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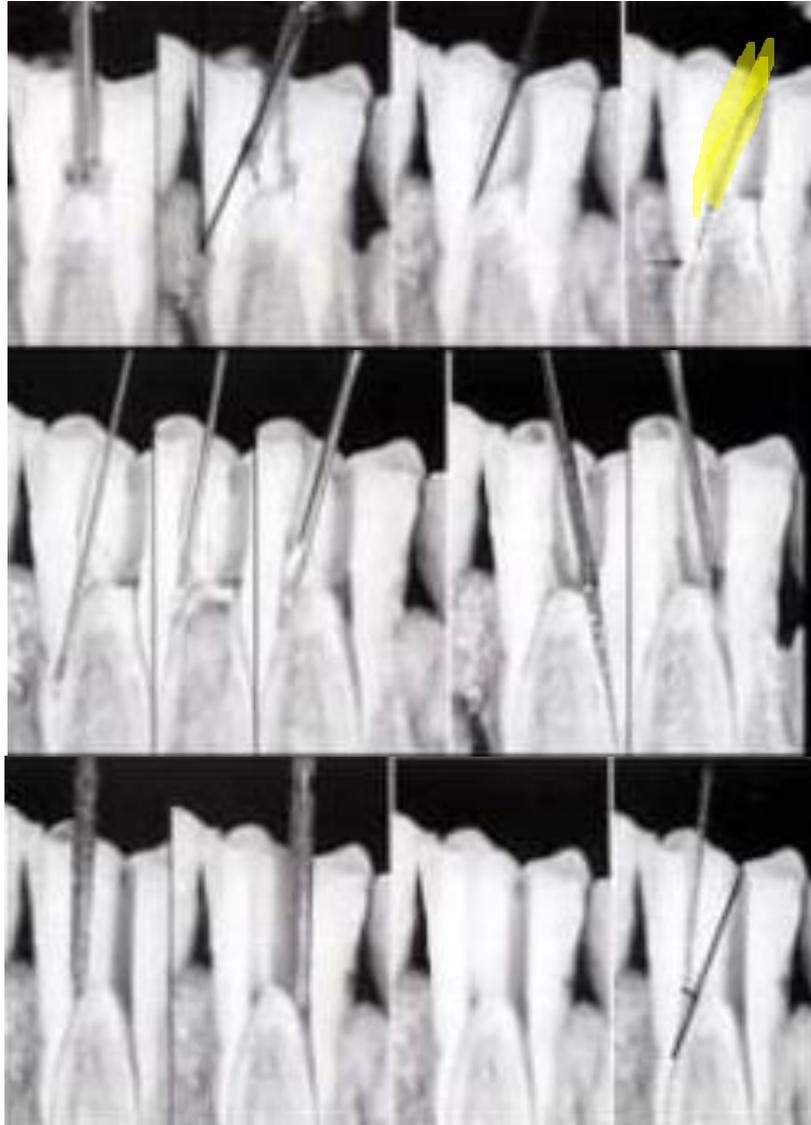
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PA # 11  
04/09/2022 01:34:41

PA # 11  
04/09/2022 02:39:17 PM









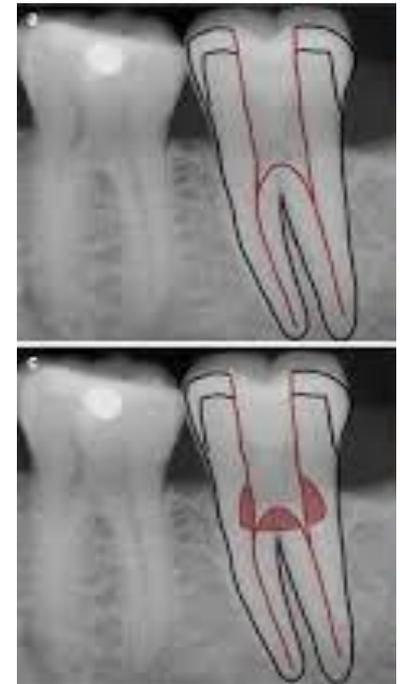


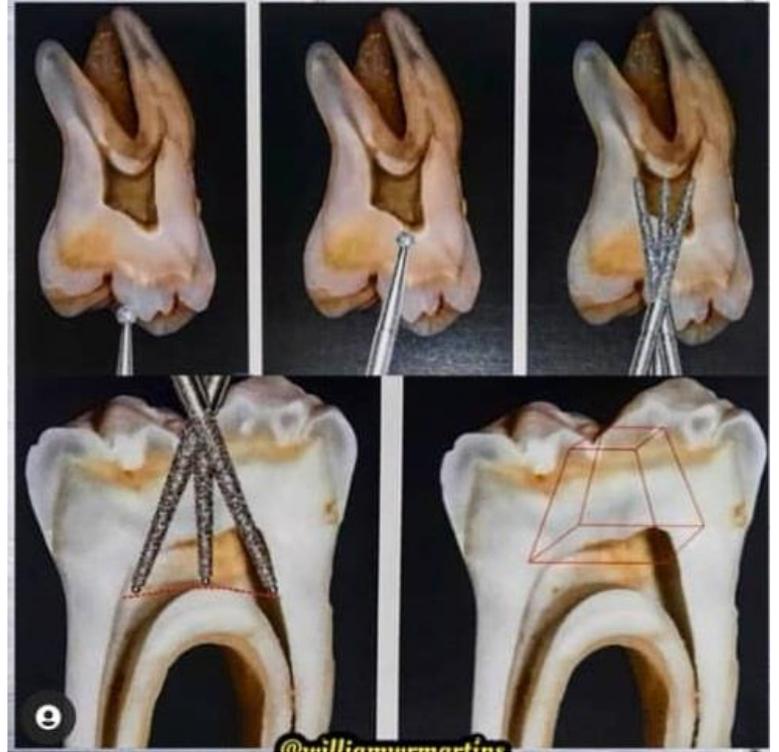
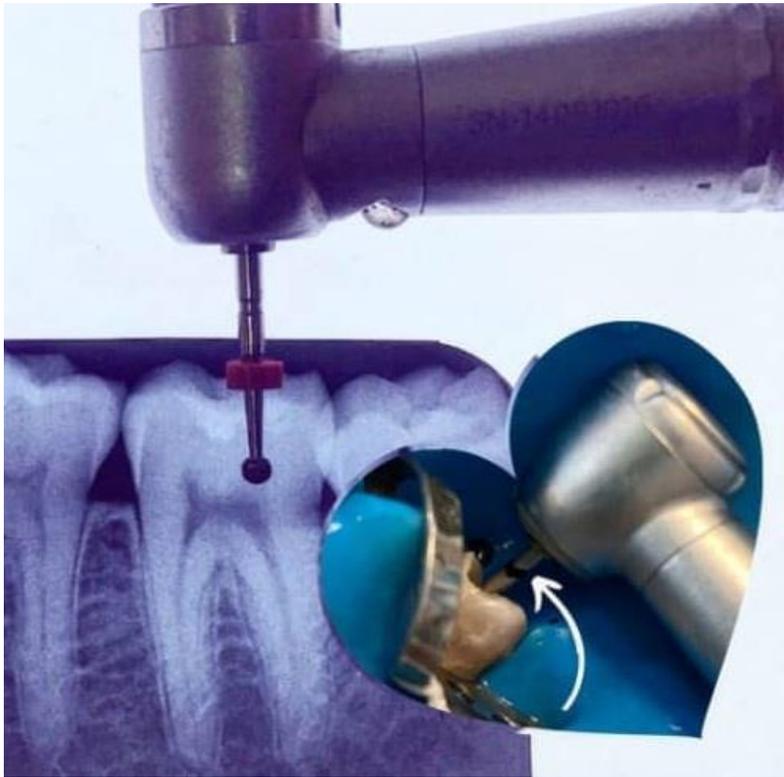
# Recognition

- sudden pain
- Sudden hemorrhage
- Radiography
- Apex locator
- Taste of irrigant during irrigation

# Access preparation perforation

- Prevention:
  - Knowledge of tooth morphology and outlines of the access cavities
  - Parallel , Bitewing radiographs:
    - Measured depth and size of pulp chamber*
  - Radiograph from different angles
  - Check the long axis
  - Note degree of calcification







# Cervical root canal perforation

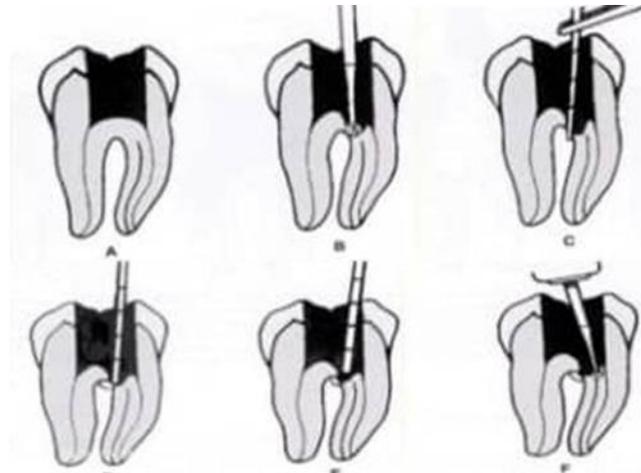
## ➤ Etiology :

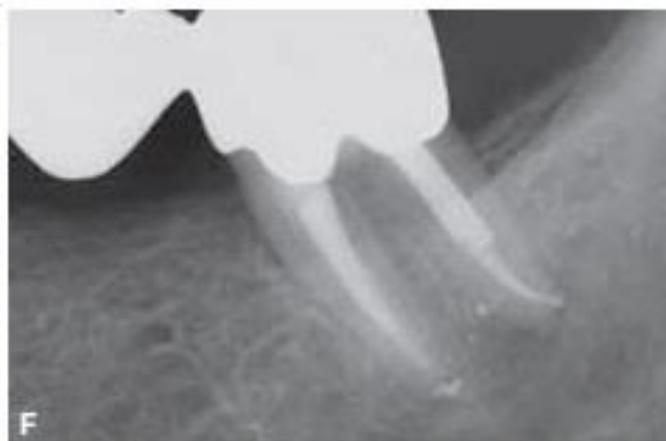
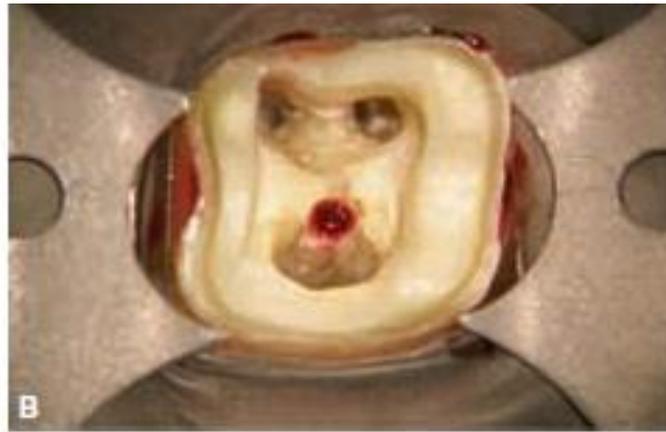
- *Locating orifice*
- *Widening orifice*
- *G.G bur*



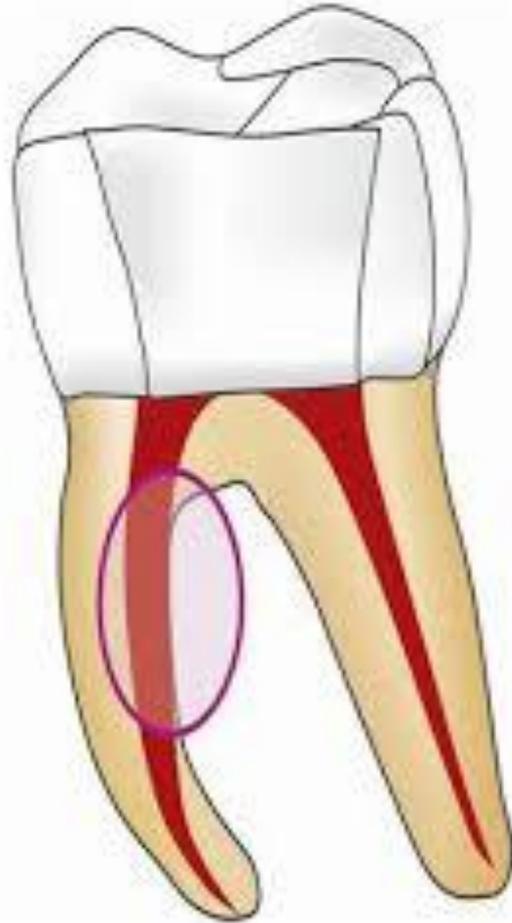
## ➤ Recognition :

- *Blood*
- *direct visualization*
- *Magnification*
- *Radiography*
- *Apex locator*





# Midroot perforation



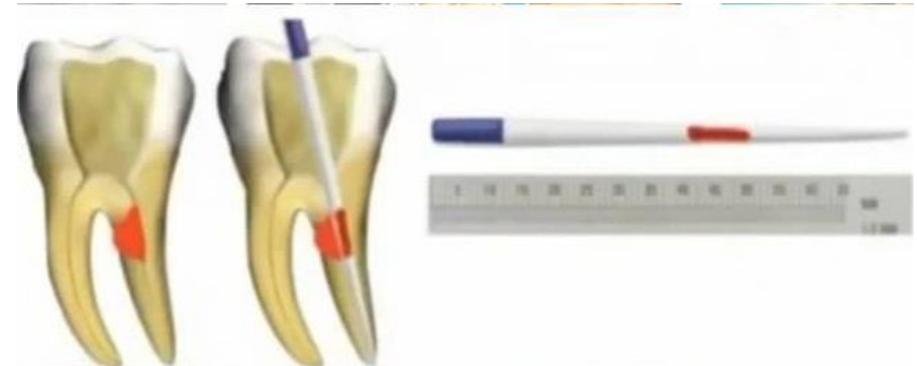
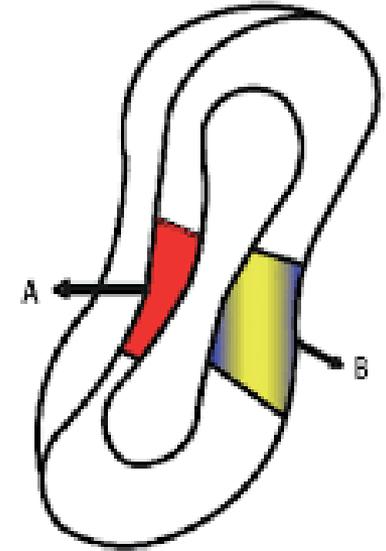
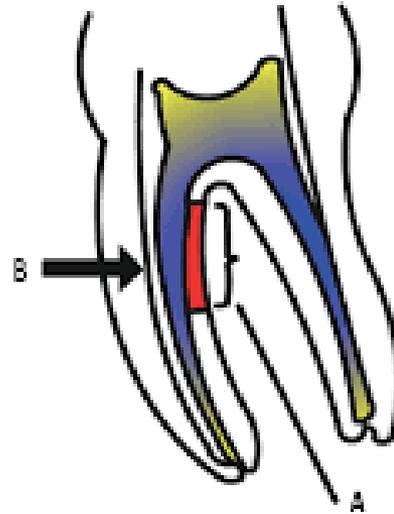
# Midroot perforation

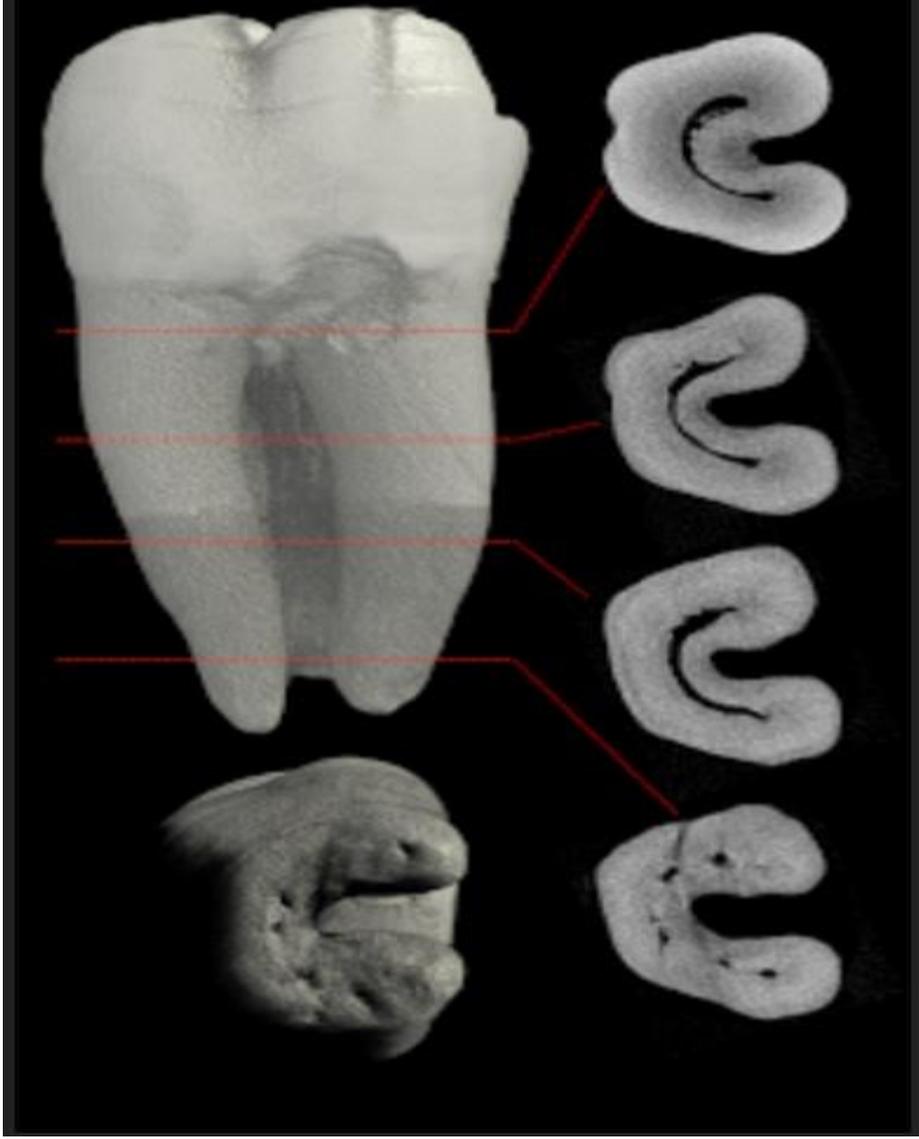
## ➤ Etiology:

- In curved canal:
  - In continuation of ledge
  - Straighten out lead to strip perforation

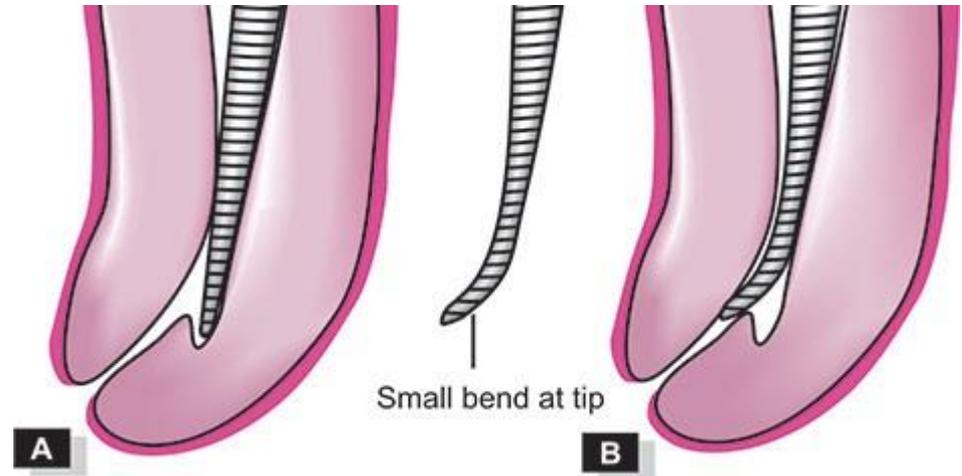
# Midroot perforation

- Prevent over instrumentation
- Use anticurvature tech





# Midroot perforation

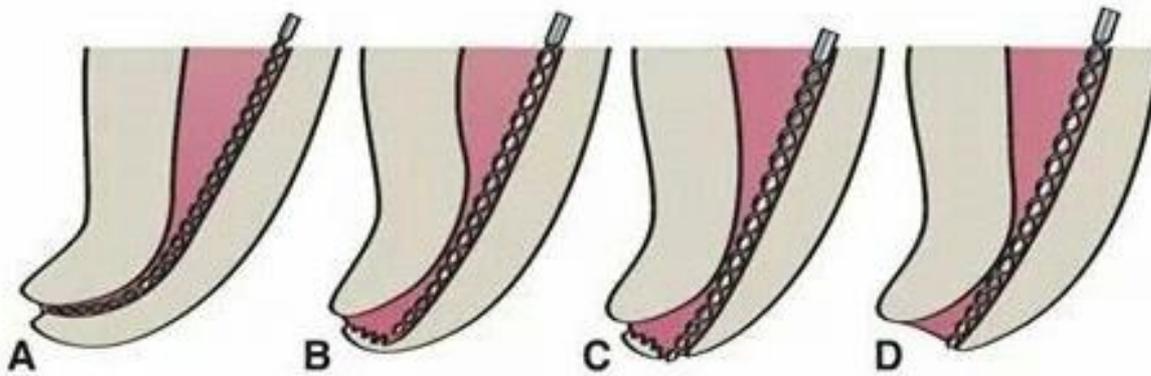
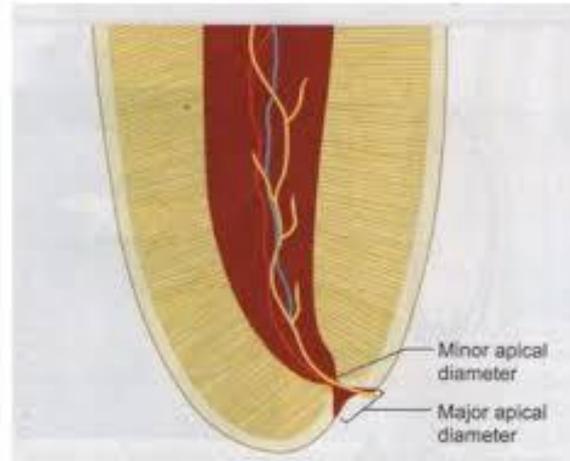


## ***Prevention of ledge formation :***

- Correct WL determination
- Stay on the correct length with patency & recap
- Not forcing instrument
- Work sequentially without jumping to large instruments
- Not packing debris



# Apical perforation



# materials

## ➤ Hemostatics

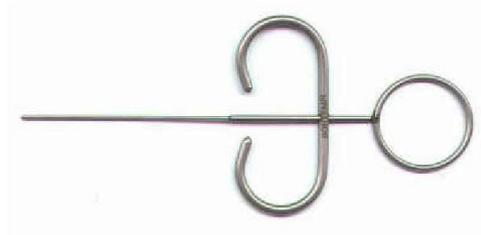
- *Calcium hydroxide, Collagen, Calcium sulfate, MTA*

## ➤ Barriers

- Resorbable :Collagen , calcium sulfate
- Nonresorbable :Biodentine , MTA

## ➤ Restorations

- GI, MTA, other calcium sulfate cements

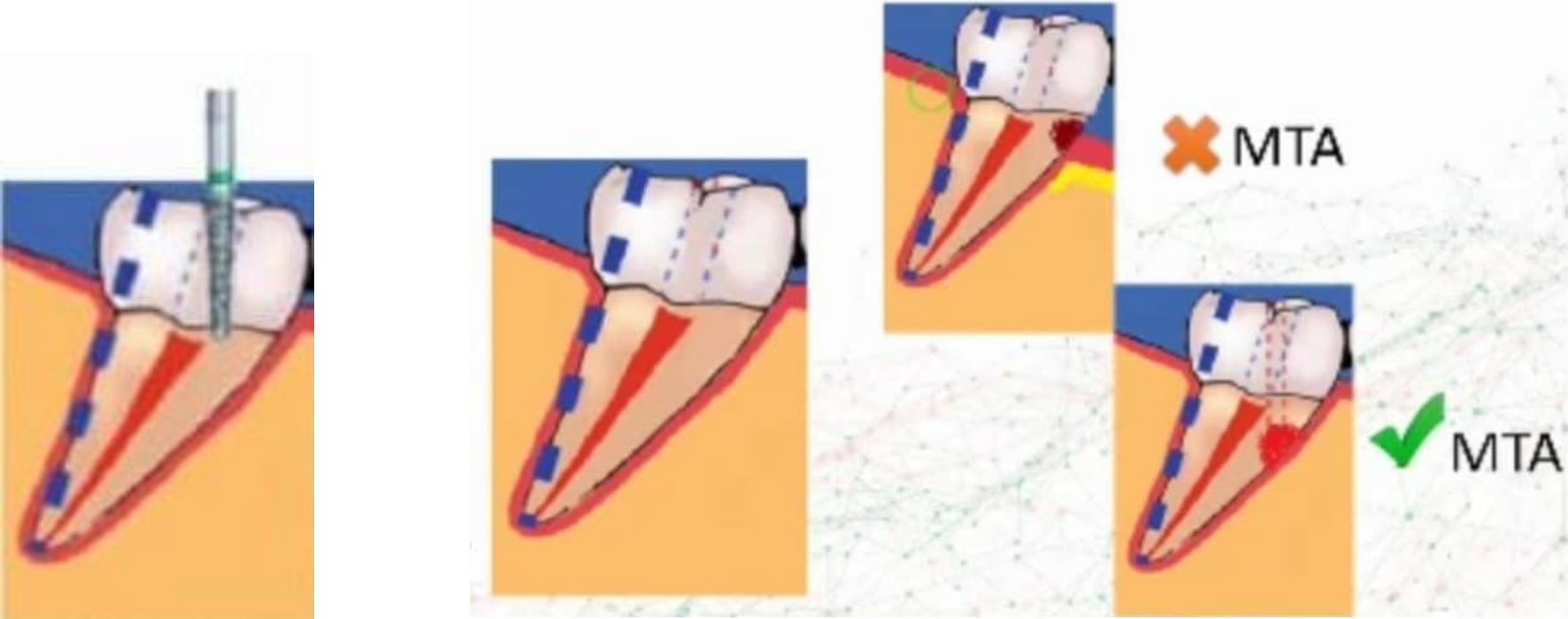


## Mixing

- Powder mixed with Water, Saline or Local anesthesia
- Powder: Water = 3:1
- Mixed on glass slab with plastic or metal instrument
- Setting Time ( **Old 2 hours** )



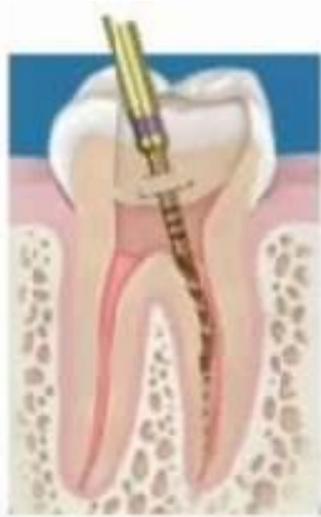
# Management of access preparation perforation



# Management of coronal one-third and furcal perforations



# Management of perforations in the middle one-third



# Management of perforations in the apical one-third



# ممنون از حسن توجه شما

