



Prevention and Management of Common Oral Hard Tissue Conditions

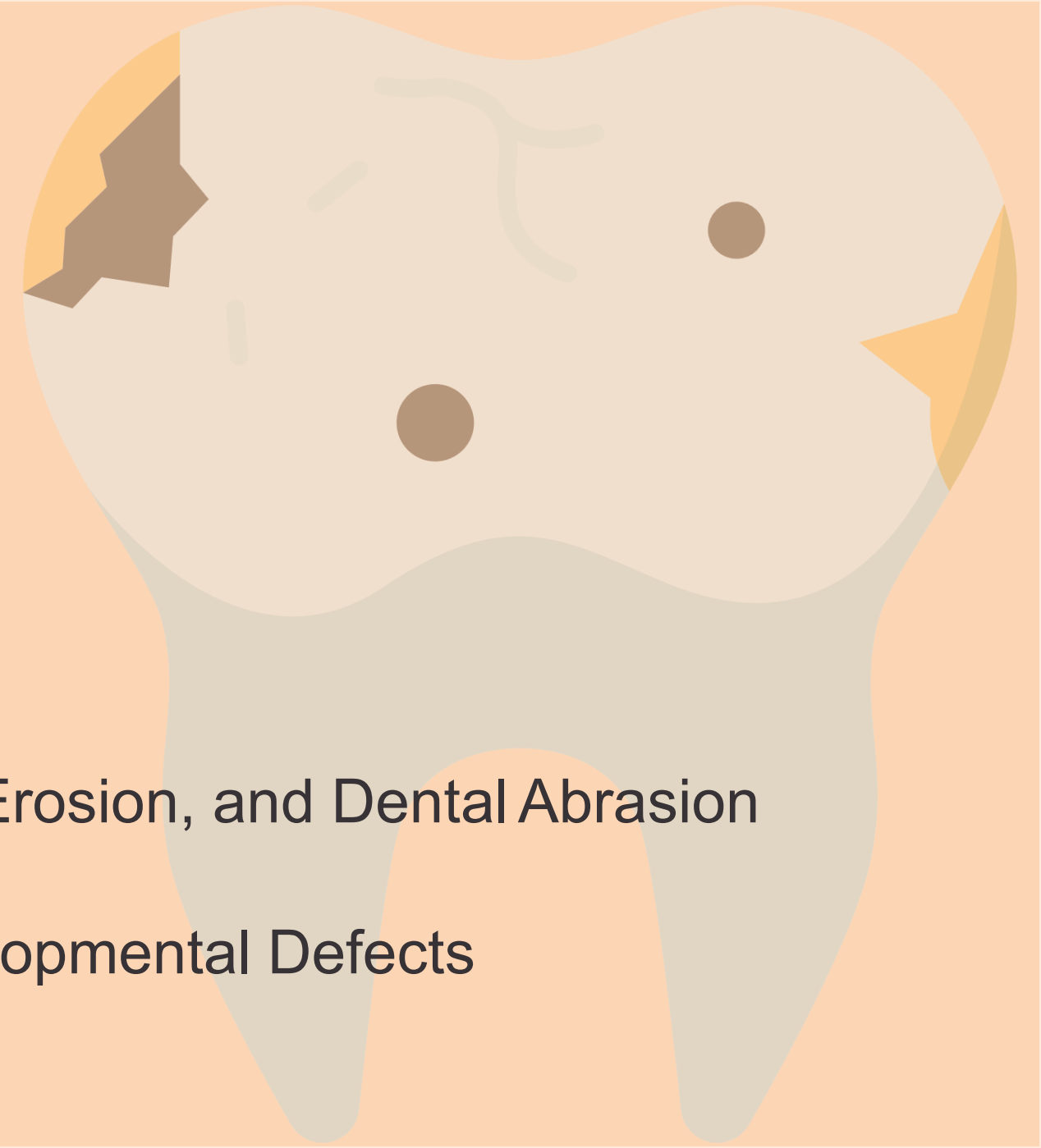
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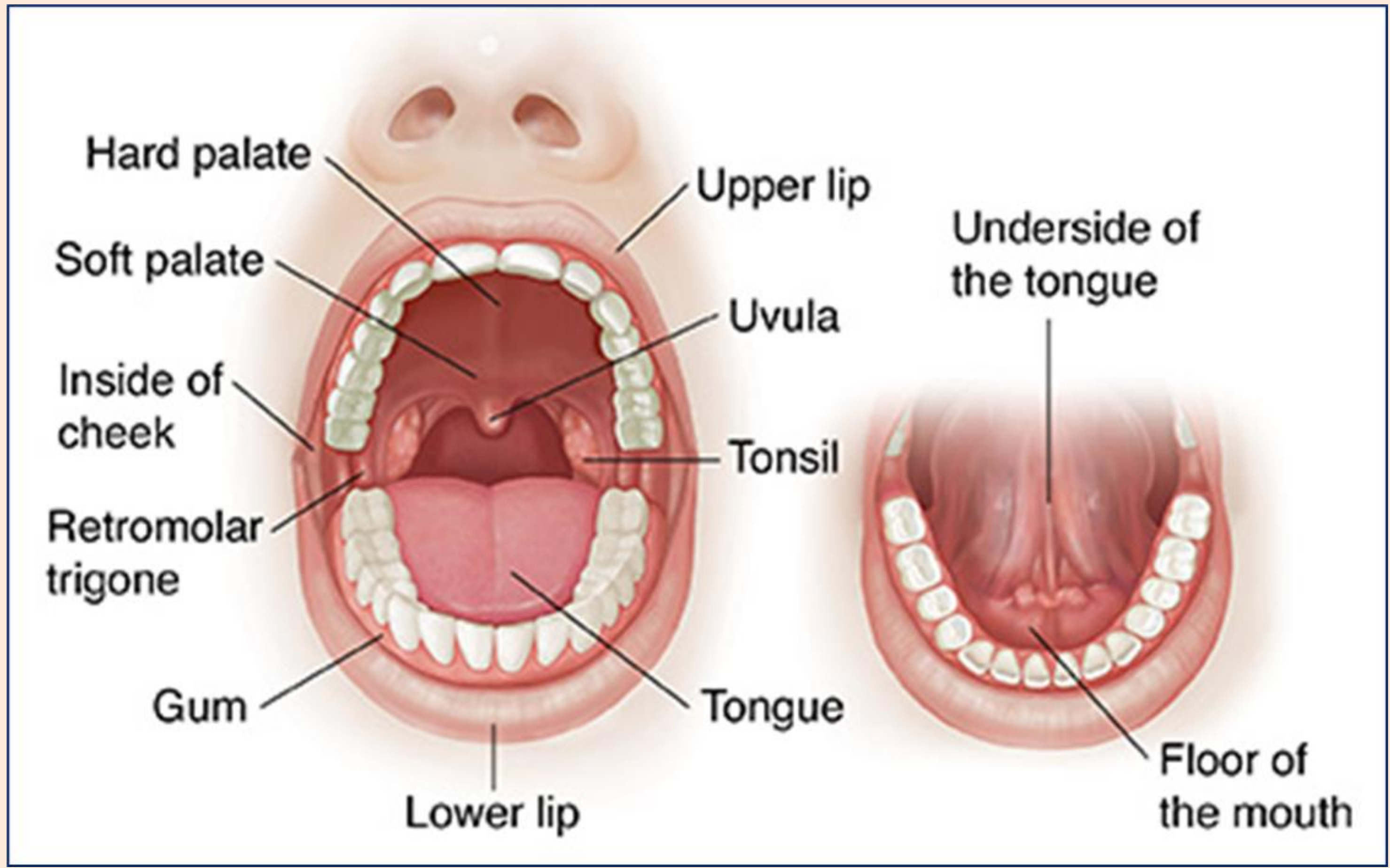
CONTENT OUTLINE

- Hard Tissues of the Oral Cavity
- Common Dental Diseases affecting Dental Hard Tissues
 - Dental Caries
 - Dental Fluorosis
 - Regressive Alteration of teeth: Dental Attrition, Dental Erosion, and Dental Abrasion
 - Other Dental Hard Tissue Conditions and Dental Developmental Defects



CONTENT OUTLINE

HARD TISSUES OF ORAL CAVITY

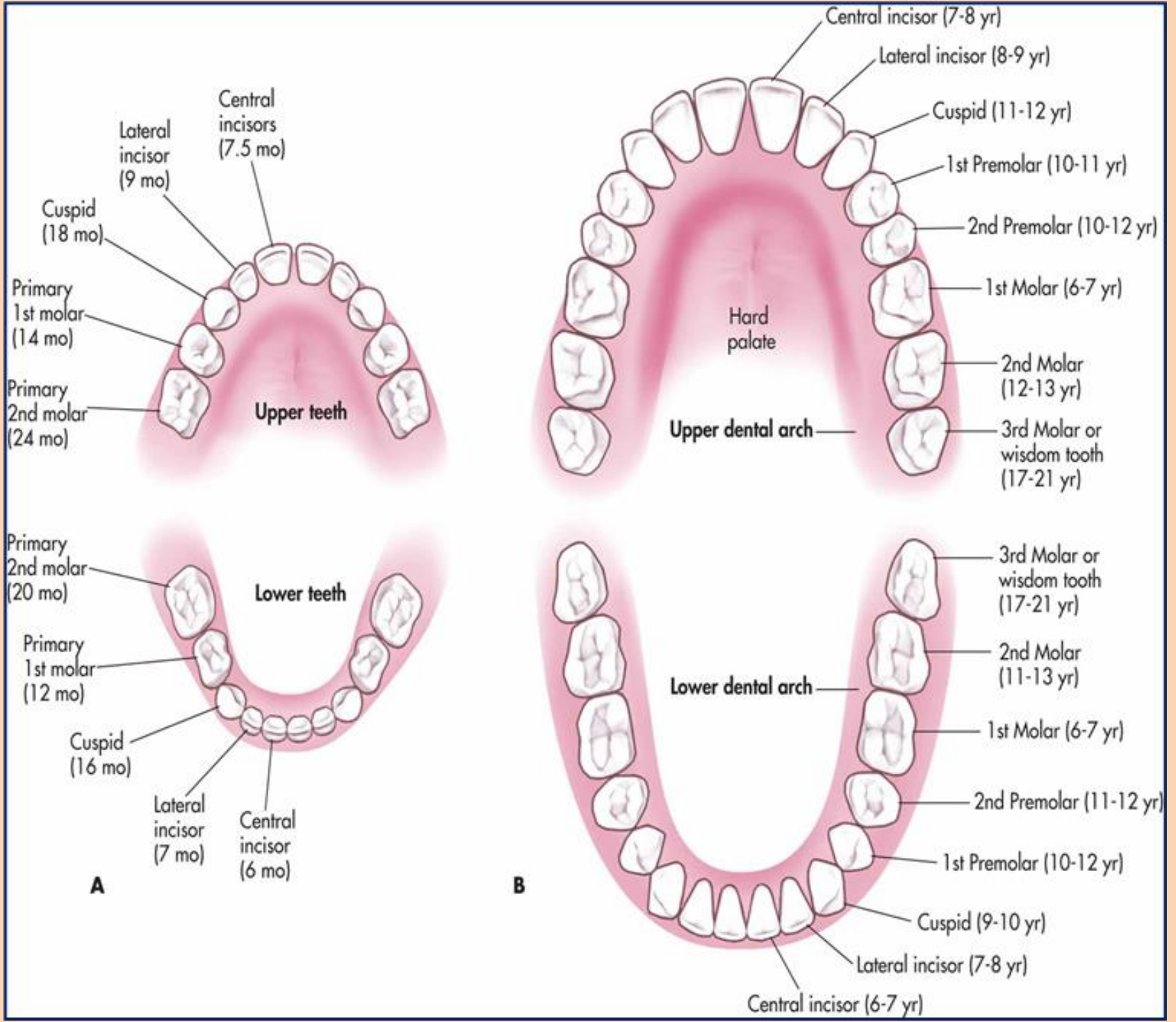


TEETH



Humans have 2 sets of teeth:

- Milk/baby/ primary teeth
- Permanent/ adult teeth
- Total of 32 permanent teeth (In adults):
 - 8 incisors,
 - 4 canines,
 - 8 premolars and
 - 12 molars in both upper and lower arches.





PARTS OF TEETH



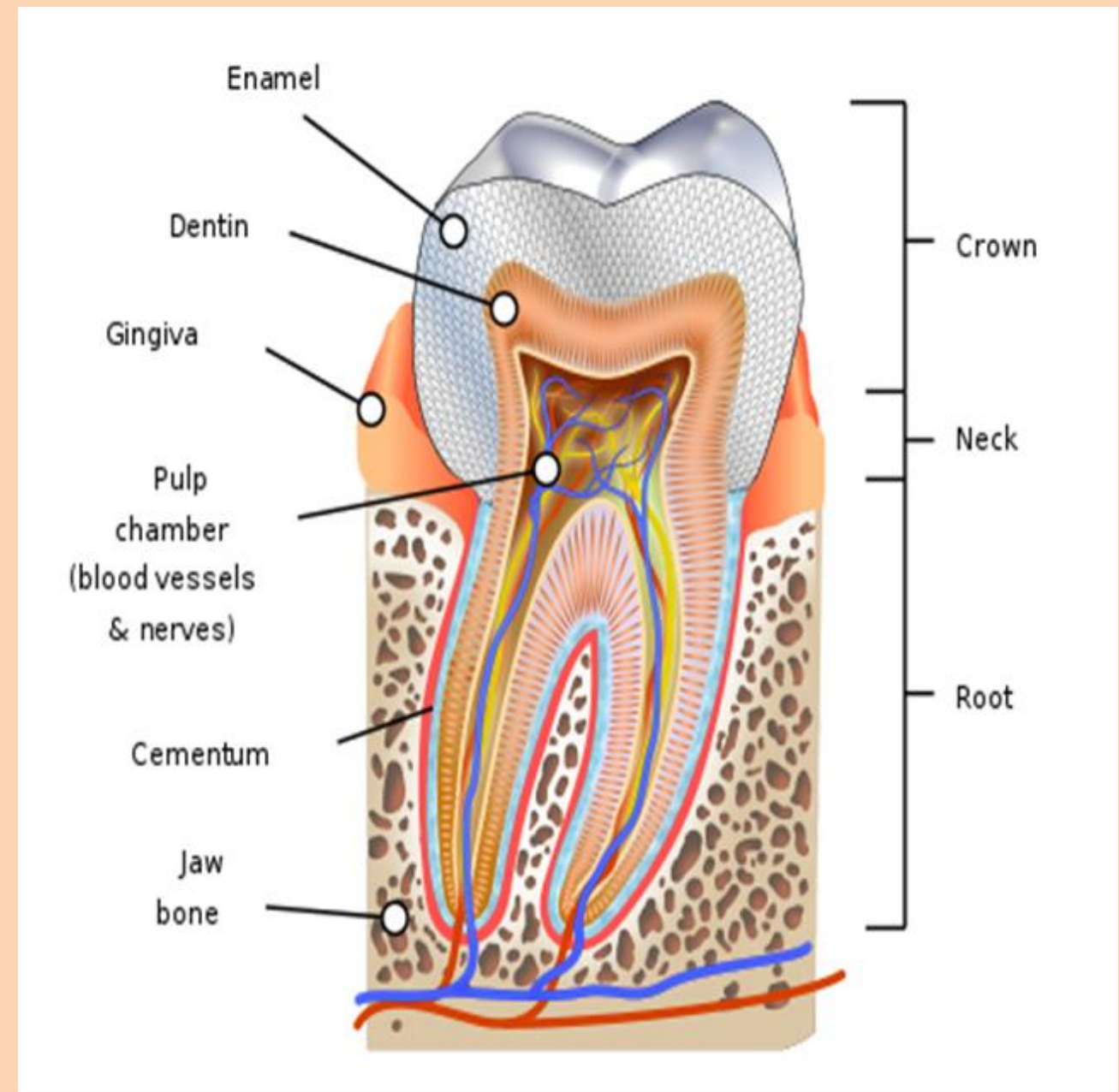
Crown- White visible part of the tooth.

Root- portion inside gums and bone.

Outermost hardest white cover- **Enamel**.

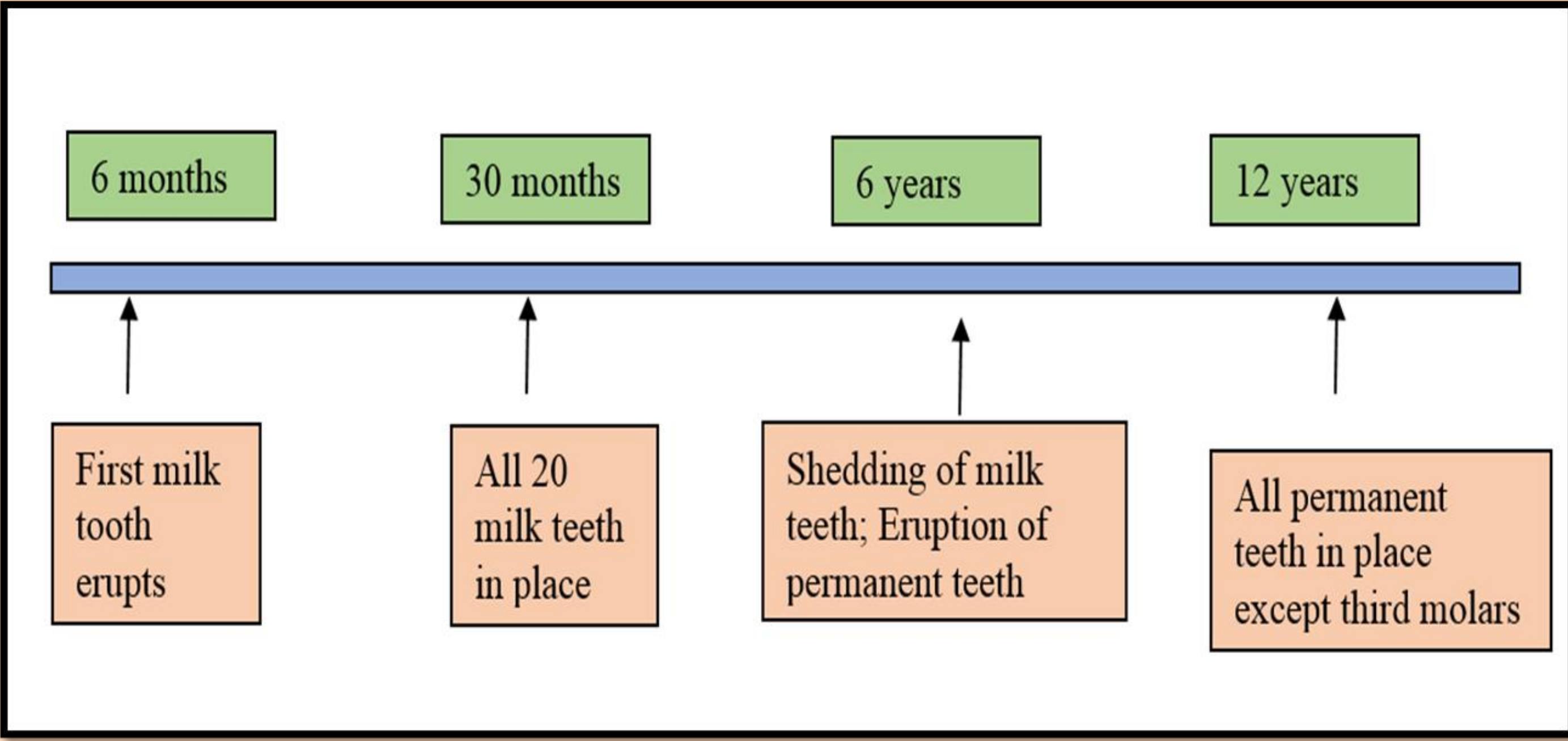
The inner less hard part and slight yellow in color- **Dentin**.

It surrounds the **Pulp-** blood vessels and nerves of the tooth.





TEETH ERUPTION TIMELINE





UNDERSTANDING DISEASES AFFECTING DENTAL HARD TISSUES



- Definition and Burden of Dental Diseases in India
- Aetiology
- Clinical Features
- Management of Dental Diseases-Hard Tissues
 - Treatment, Referral, and Preventive Strategies
- Role of Medical Officer in Dental Disease Prevention and Management
- Take Home Message



DENTAL CARIES (TOOTH DECAY)

- Dental caries is defined as the progressive, microbial disease of multifactorial nature affecting the calcified tissues of the teeth characterized by the demineralization of the inorganic portion and destruction of the organic portion of the tooth.



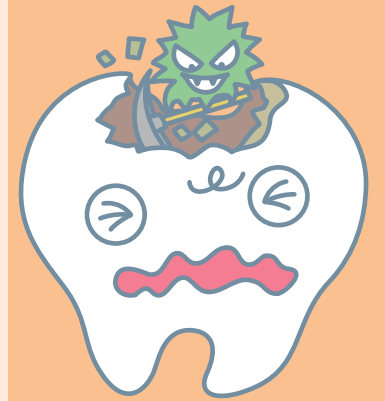
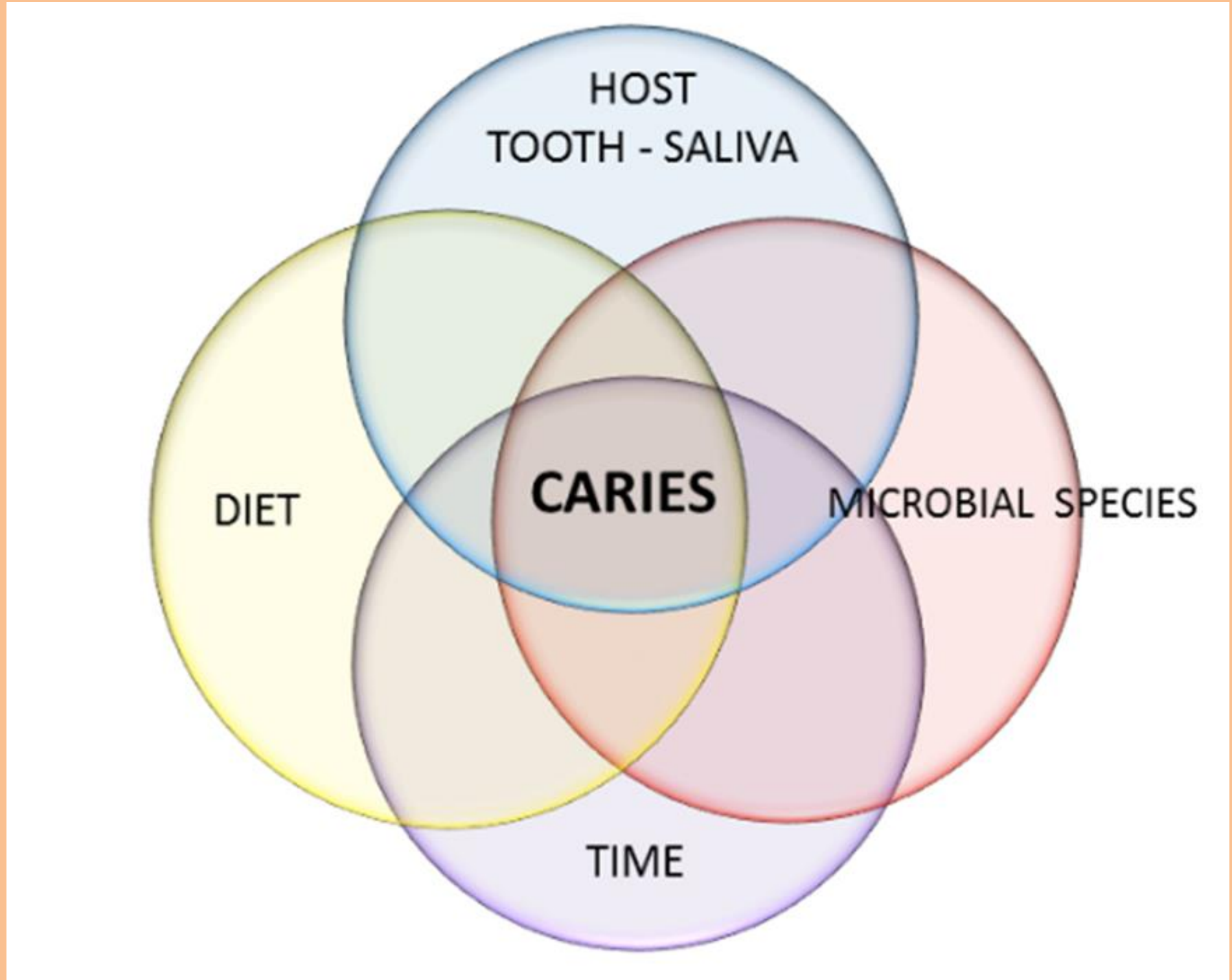
Burden of Dental Caries:

- 12-year- old's ranged: 23.0 % to 71.5 %
- Adults aged 35-45 years 48.1% to 86.4%.
- Elderly in 65-74 years : 51.6 % to 95.1 %.

Source: Multi-centric Oral Health Survey, Ministry of Health -WHO India- 2006-07



DENTAL CARIES (TOOTH DECAY)





DENTAL CARRIES- DYNAMIC DISEASE PROCESS

The Caries Balance

Pathological Factors

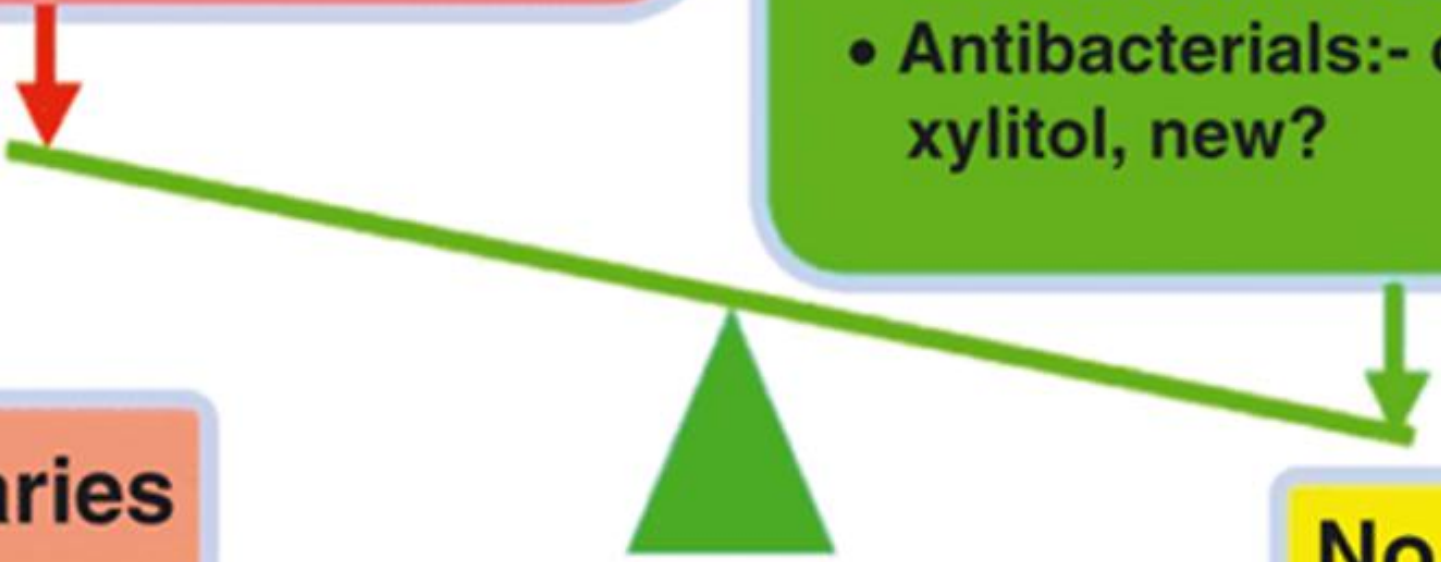
- Acid-producing bacteria
- Frequent eating/drinking of fermentable carbohydrates
- Sub-normal saliva flow and function

Protective Factors

- Saliva flow and components
- Fluoride - remineralization, with calcium and phosphate
- Antibacterials:- chlorhexidine, xylitol, new?

Caries

No Caries





WHAT TO LOOK FOR

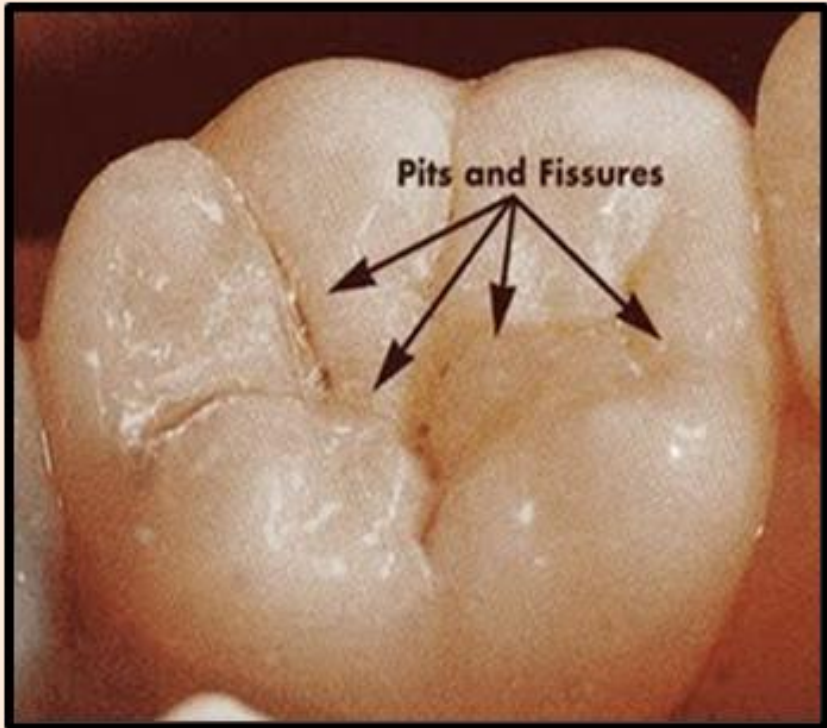
Tooth Decay

Missing teeth

Deep Pits and Fissures

Brown/black discoloration on teeth

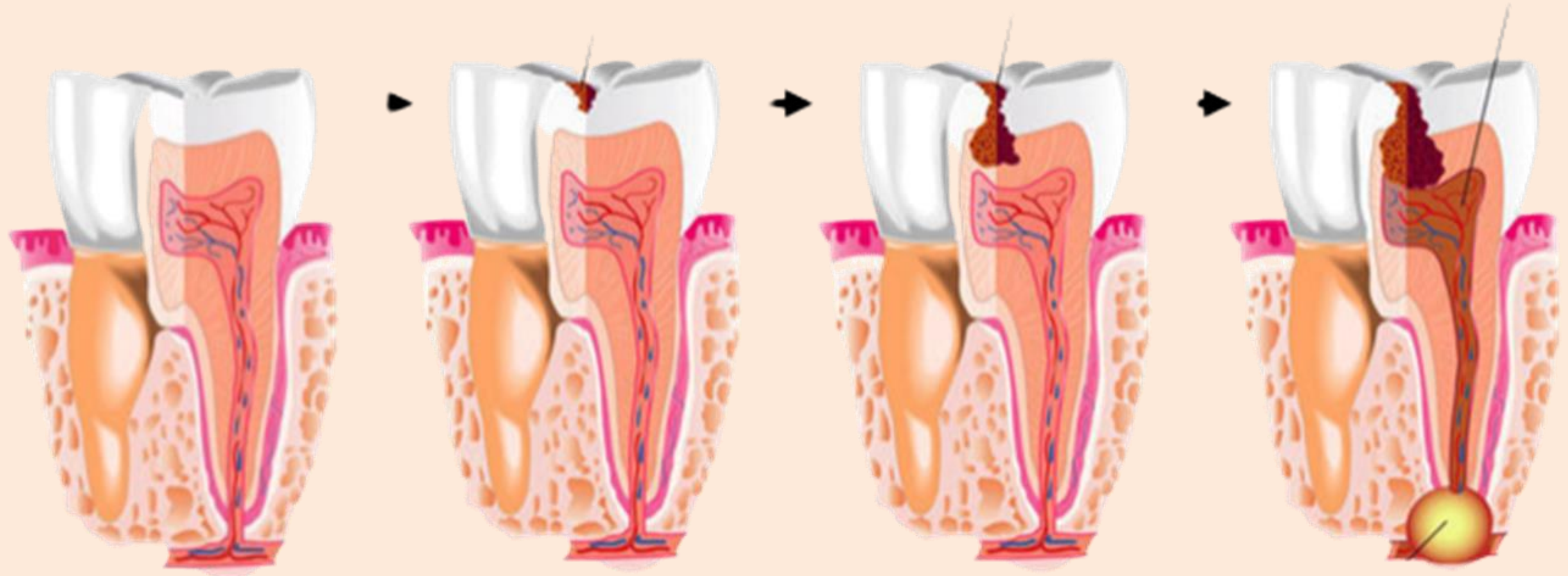
Cavities on the tooth/between teeth



WHAT TO LOOK FOR



DENTAL CARRIES PROGRESSION



Sound
Tooth

Dentin
Caries

Enamel
Caries

Infected
Pulp

DENTAL CARRIES PROGRESSION



CLINICAL PRESENTATIONS



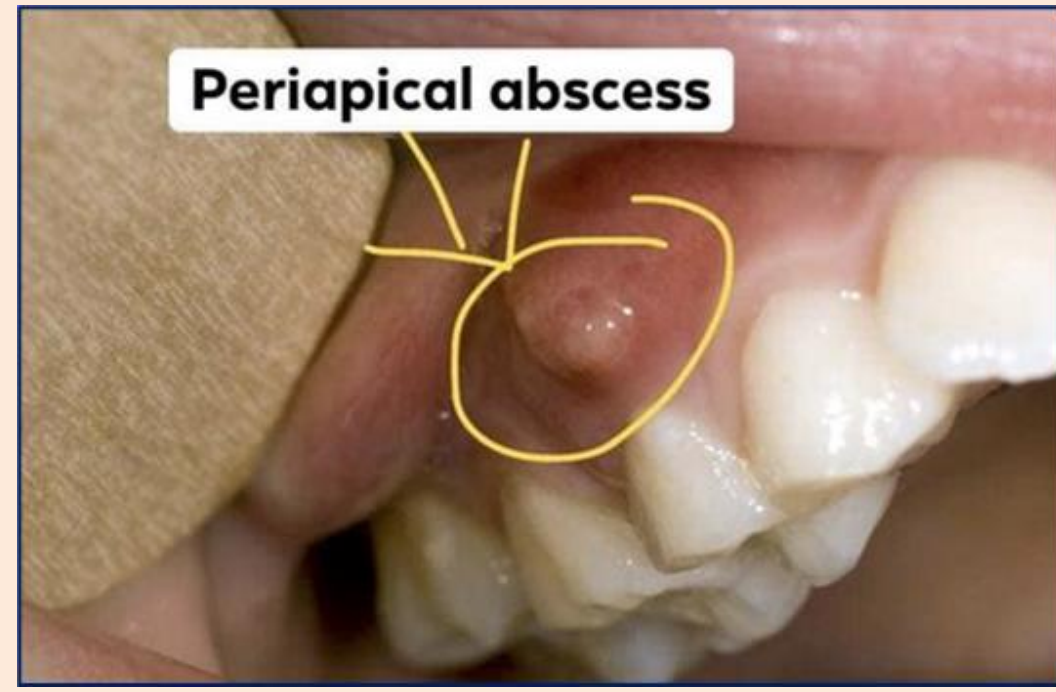
Caries in Enamel



Caries in Dentine



Caries in Involving Pulp

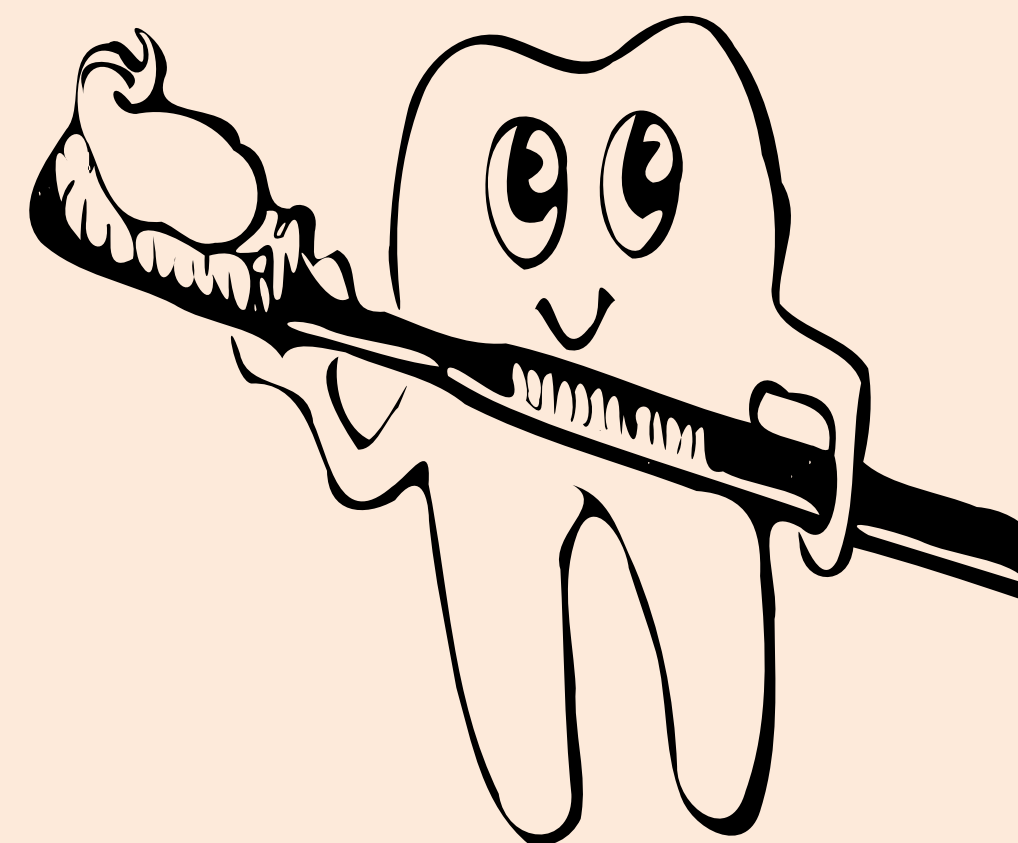


Periapical Abscess



MANAGEMENT OF DENTAL CARIES

- Objectives of Dental Caries Management
 - Early caries detection and diagnosis
 - Caries risk assessment and reduction of bacteria
 - Use of fluorides and reduction of bacteria- Mouthrinsing
 - Arresting active lesions and Repairing existing restorations
 - Appropriate Referral Strategy



EARLY CHILDHOOD CARIES (ECC)

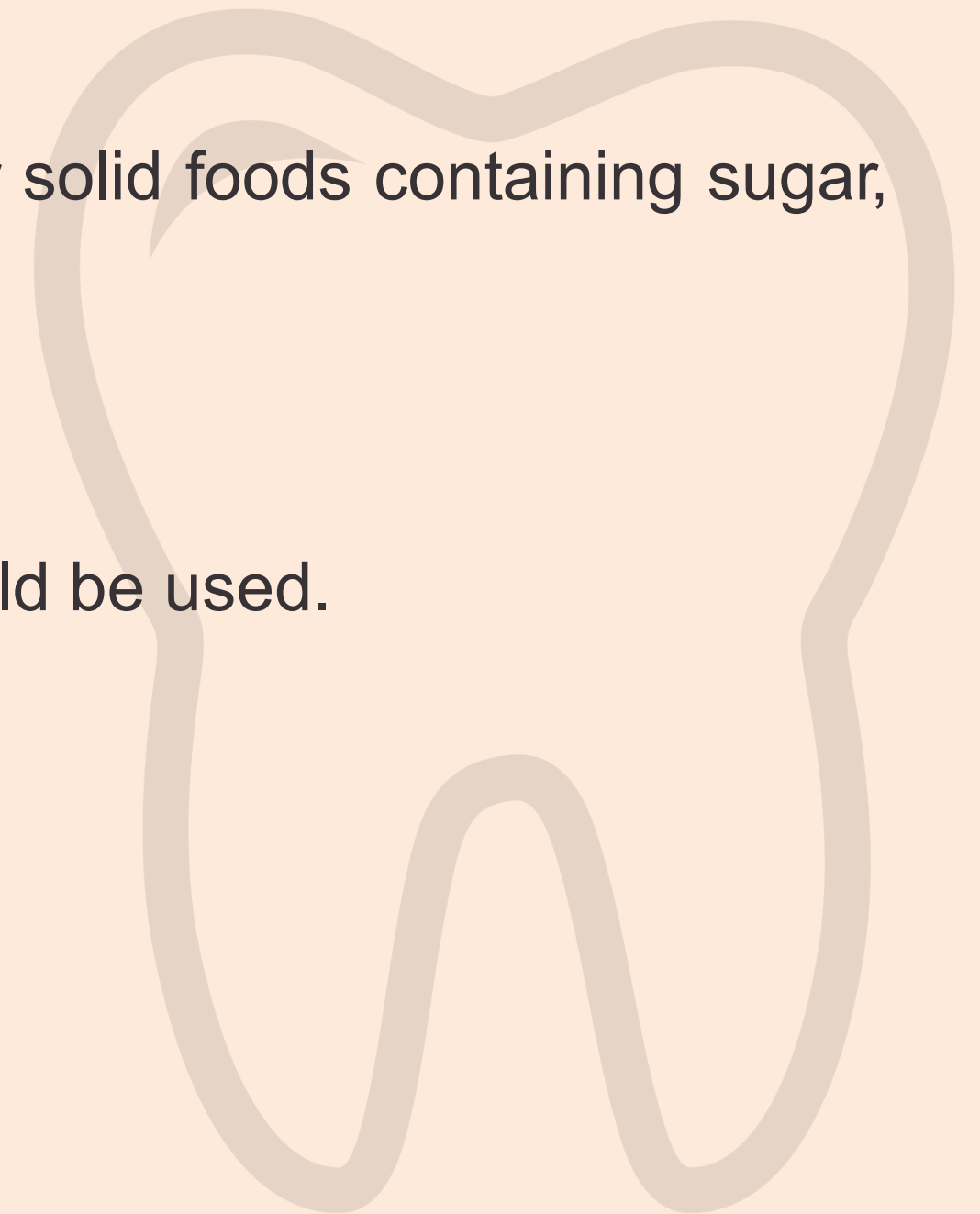
- ECC is defined as the presence of one or more decayed, missing (due to caries), or filled tooth surfaces in any primary/deciduous tooth in a preschool-age child between birth and 71 months of age/ < 6 yrs.





PREVENTION AND MANAGEMENT OF ECC

- The first visit to the dentist must occur between 6 months and 1 year of age with the purpose of preventing the risk factors for caries promoting family education
- Avoiding frequent consumption of sugar-sweetened liquids and/or solid foods containing sugar, (e.g., juices)
- Ad libitum breast-feeding after 1st primary tooth begins to erupt
- < 3 yrs: smear or rice-sized amount of fluoridated toothpaste should be used.
- Age- 3-6 yrs: the pea-sized amount of fluoridated toothpaste
- Professionally-applied fluoride varnish for children at risk
- Referral of Child to nearest specialist centres





ROOT CARIES

- Increasing life expectancy-
Accumulation of dental diseases
- Prevalence of root caries increasing.
- Lesion shape can vary from a broad shallow saucer shape to a deeper defined cavity
- Affects quality of life; functional ability

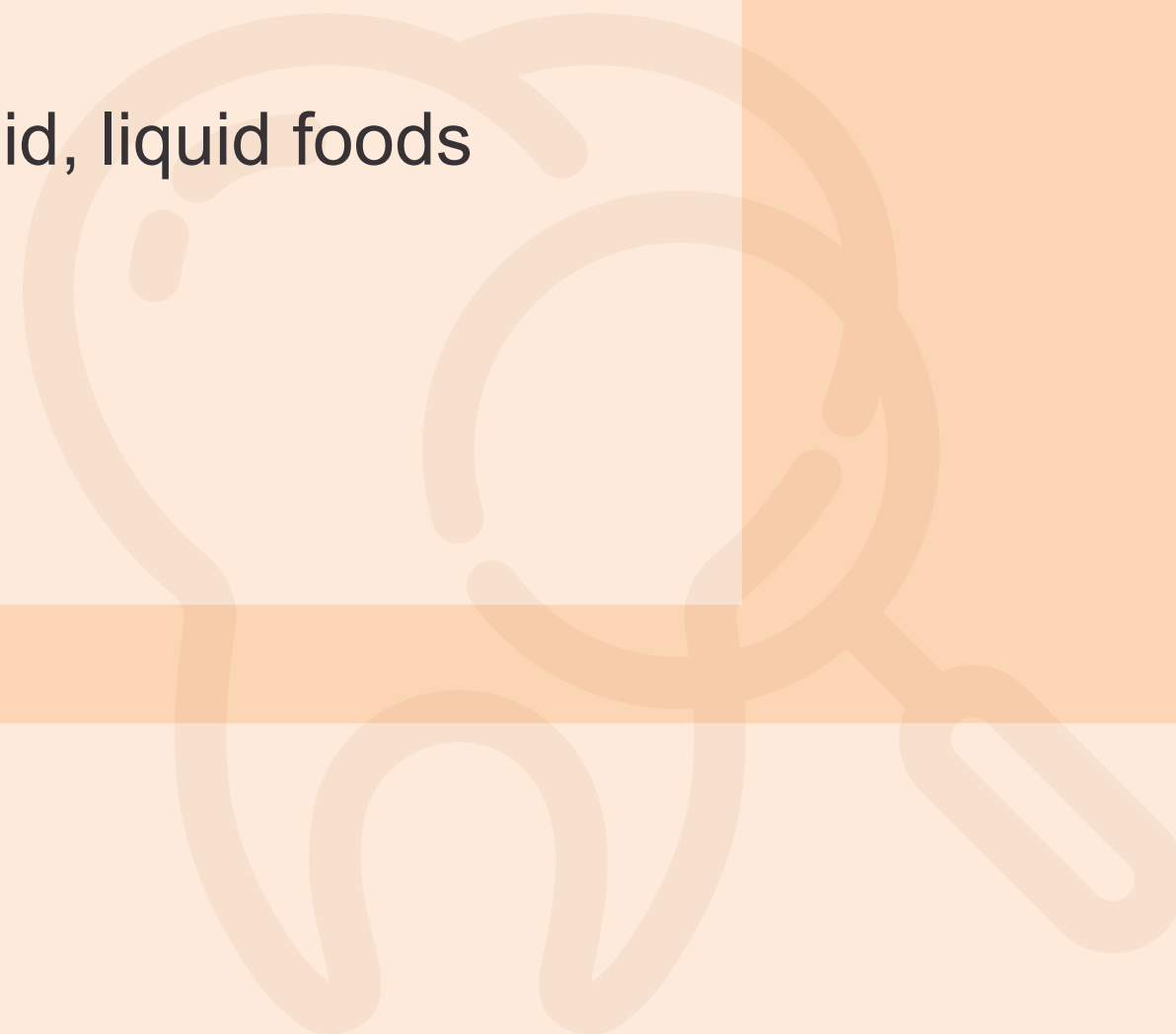


ROOT CARIES



PREVENTION AND MANAGEMENT OF ROOT CARIES

- Effectively cleaned in conjunction with a high fluoride content toothpaste: should be the treatment of choice
- Avoiding frequent consumption of sugar and/or solid, liquid foods containing sugar
- Referral to the nearest dental facility



MANAGEMENT OF DENTAL CARIES

- Primary Prevention-
 - Dietary & Lifestyle Modification
 - Oral Hygiene Instructions
 - Sugar Substitutes
 - Mouth Rinse (Chlorhexidine & Fluoride)
- Secondary Prevention- Early Diagnosis/ Prompt Treatment (Atraumatic Restorative Treatment at Health and Wellness Center only with the help of a Dentist)
- Tertiary Prevention- Strong Referral channel to Dental Facility

MANAGEMENT OF DENTAL CARIES





REGRESSIVE ALTERATIONS OF TEETH



REGRESSIVE ALTERATIONS OF TEETH



- **Dental Erosion:** Progressive loss of hard dental tissue by chemical processes not involving bacterial action
- **Dental Attrition:** Loss by wear of the surface of tooth or restoration or restoration caused by tooth to tooth contact during chewing or parafunction
- **Dental Abrasion:** Loss of wear of dental hard tissue caused by the abrasive action of foreign substances like a toothbrush



DENTAL EROSION

- **Aetiology:** “Extrinsic” and “Intrinsic” factors
- **Extrinsic factors:** Any of the acidic products we eat and drink, Occupational-related erosion
- **Intrinsic factors:** Patients suffering from eating disorders and gastroesophageal reflux disease (GERD), vomiting, and regurgitation
- Acid sources are of gastric origin and enter the mouth from the stomach





CLINICAL FEATURES OF DENTAL EROSION

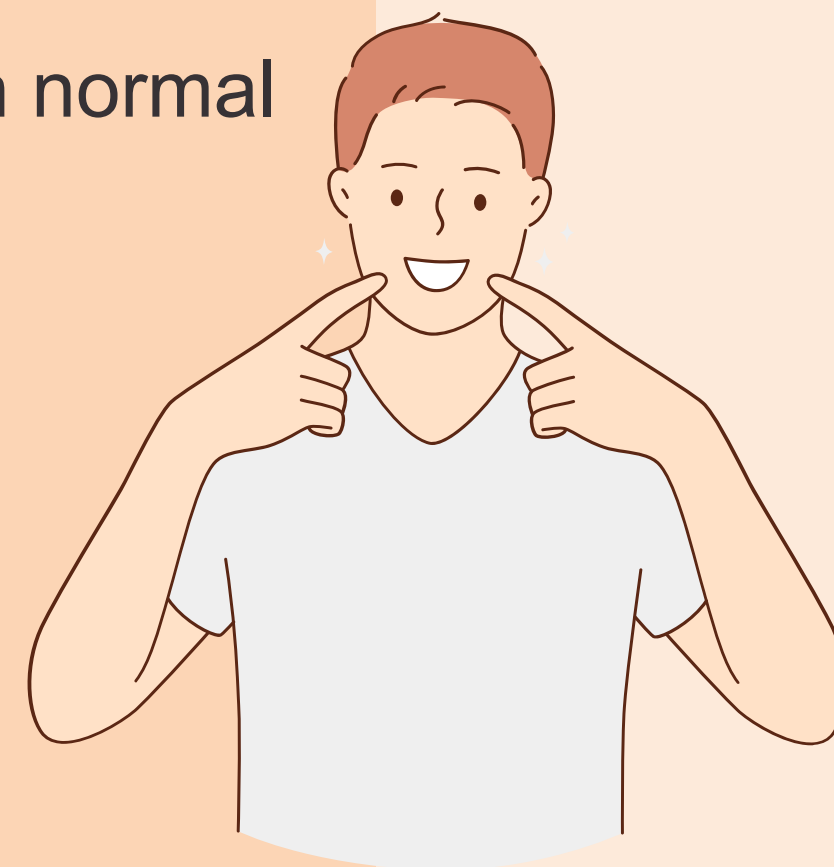
- Early enamel erosion causes no clinical discoloration or softening of the tooth surface
- Common palatally on maxillary anterior teeth and on occlusal surfaces of lower first molars
- The erosive lesions can be uneven and produce small concavities.
- Surface is slightly rounded or flat and sometimes it gives the impression of having “melted”





MANAGEMENT OF DENTAL EROSION

- Effectively eliminate or reducing the acidic effect on teeth is clearly of far greater value than, for example, recommending treatment with different fluoride products
- Use of neutralizing products such as antacid drugs, baking soda with normal water increases intraoral pH
- Avoid tooth brushing up to 30 mins following acid exposure
- Medical Assessment and intervention important
- Referral for dental restoration after assessment by Dentist



MANAGEMENT OF DENTAL EROSION

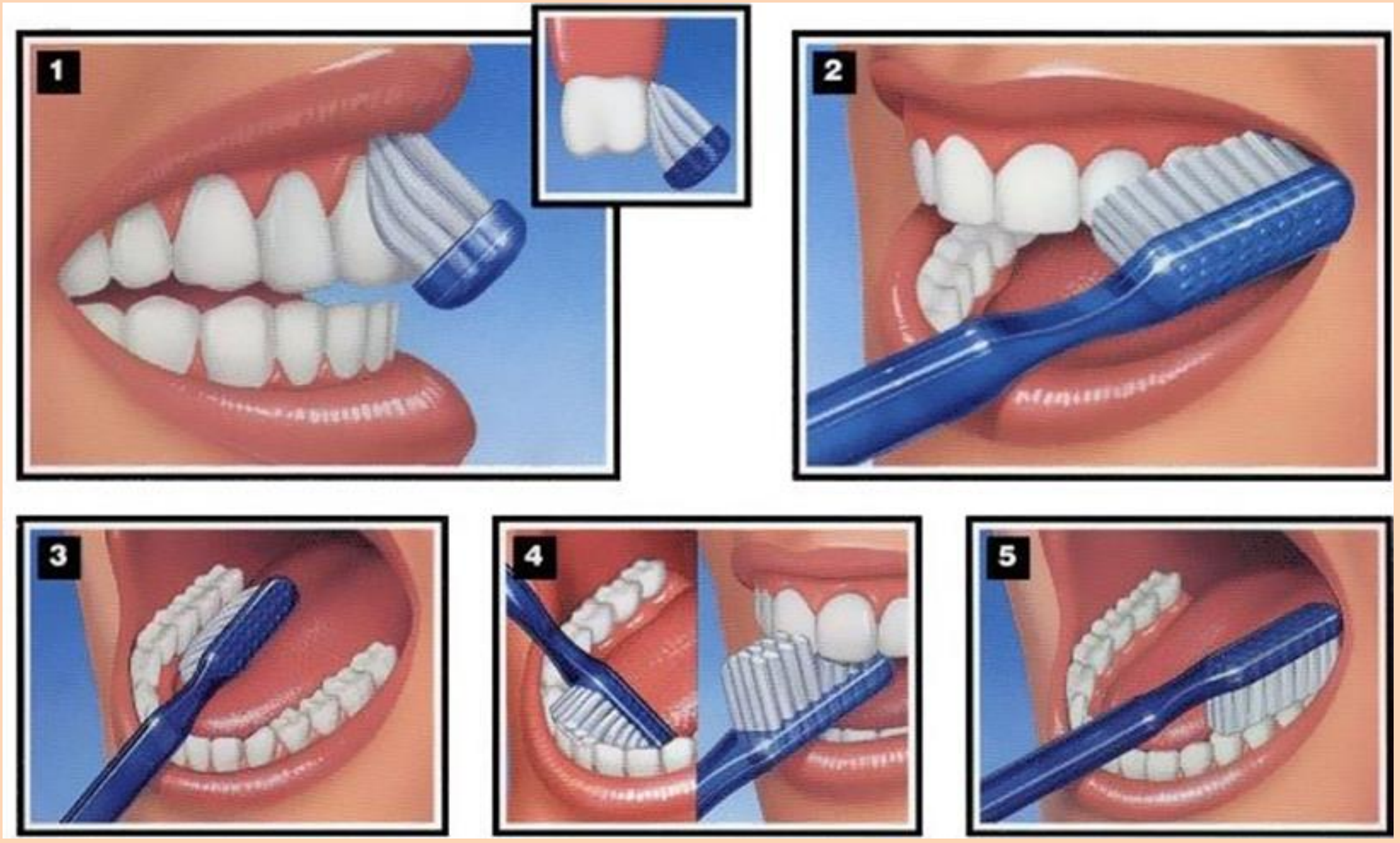
DENTAL ABRASION



- **Abrasion is the pathological wearing away of tooth substance, through an abnormal mechanical process.**
- **Location:** Facial surface of the crown and exposed root surface of teeth.
- **Etiology:** Abrasive Dentifrice or Improper tooth brushing/ Improper use of dental floss and toothpicks.
- **Clinical Feature:**
 - V-Shaped or Wedge Shaped ditch
 - Underlying exposed dentin appears highly polished.

MANAGEMENT

- Cause of abrasion is usually due to habitual behavior, discontinuation and change of habit is critical in prevention of further tooth loss.
- Correct brushing technique with soft bristle brush.





DENTAL ATTRITION



Physiological wearing away of a tooth surface as a result of tooth to tooth contact as in mastication

Etiology

- Tooth to tooth contact- Physiological in nature
- Parafunctional habits such as bruxism or clenching, developmental defects, hard or rough-textured diet, and absence of posterior teeth support
- Tobacco use
- Dietary Factors

CLINICAL FEATURES OF DENTAL ATTRITION

- **Tooth discoloration:** Yellow appearance of the tooth surface
- Altered occlusion due to decreasing vertical height, or occlusal vertical dimension.
- Loss of tooth anatomy
- Sensitivity or Pain





MANAGEMENT OF DENTAL ATTRITION



Tobacco cessation advice



Dietary Advice



Demonstrate of correct tooth brushing technique



Prevention of tooth wear-
with splints refer to a dentist



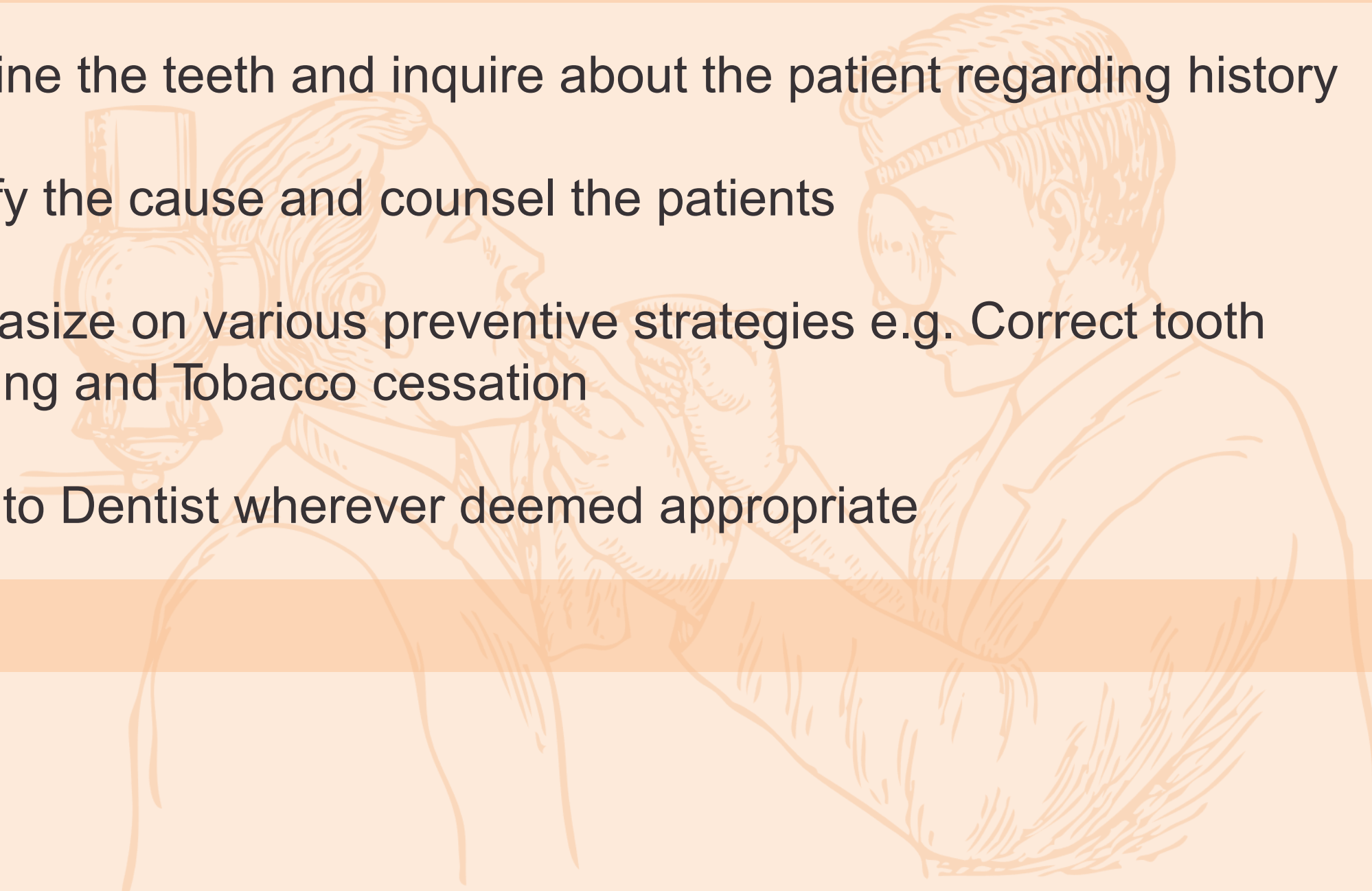
Restoring the teeth
appropriately





SUMMARY OF REGRESSIVE ALTERATIONS OF DENTAL HARD TISSUES

- Examine the teeth and inquire about the patient regarding history
- Identify the cause and counsel the patients
- Emphasize on various preventive strategies e.g. Correct tooth brushing and Tobacco cessation
- Refer to Dentist wherever deemed appropriate





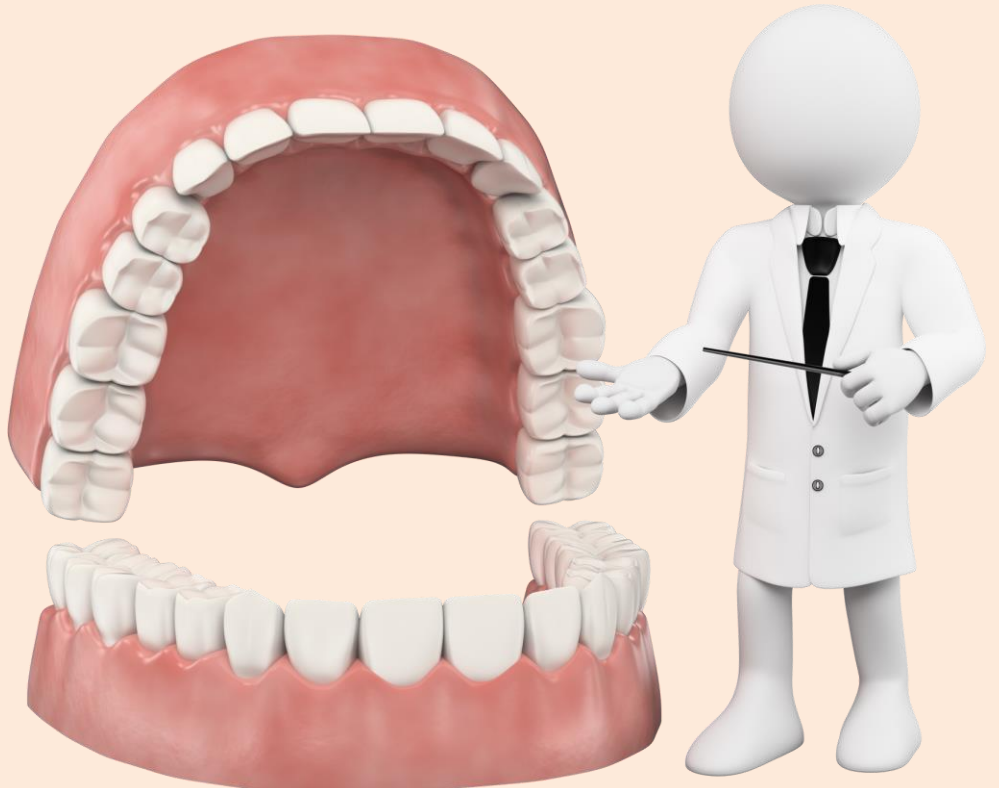
DENTAL FLUOROSIS



DENTAL FLUOROSIS



- Enamel Hypoplasia is defined as an incomplete defective formation of organic enamel matrix of teeth.
- Occurs during the tooth development (Formative stage).
- It can be caused by either Hereditary or Environmental factors.
- Fluorosis is a form of Environmental form Enamel Hypoplasia
- Fluorosis is endemic in almost two thirds states in India.
- About 62 million people at risk of developing fluorosis from drinking high fluoride ion water in India.
- Dental fluorosis is endemic in 150,000 villages in India.



DENTAL FLUOROSIS



- Dental Fluorosis is a hypoplasia or hypo-mineralization of tooth enamel or dentine produced by chronic ingestion of excessive amounts of fluoride during the period when teeth are developing.



HOW TO SCREEN DENTAL FLUOROSIS

- Dental Fluorosis is visible in natural light.
- More commonly involves cusp tips and incisal edges.
- Teeth commonly affected: Canines, Pre molars, 2nd and 3rd Molars.
- White flecking or spotting of enamel.
- White opaque or chalky white areas.
- Brownish staining or Pitting of tooth surface.

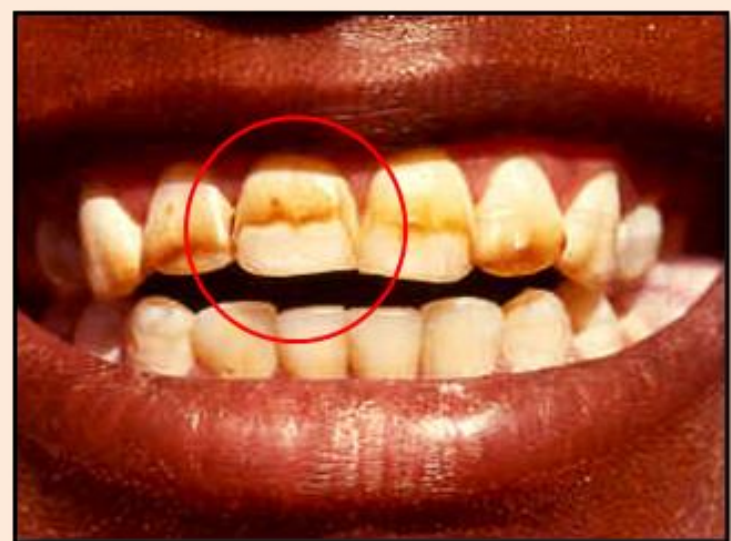


White flecks

MILD



Chalky white areas



Brown staining

MODERATE



Pitting

SEVERE



MANAGEMENT OF DENTAL FLUOROSIS

- Mild Fluorosis may not affect the Quality of Life, but Severe Fluorosis may require Rehabilitation.
- Refer the patient to the nearest Dentist.
- **At Public Health Level:**
 - Inform Local Authorities to educate the general public about Fluorosis.
 - Collaborate with the National Program for the prevention of Fluorosis.
- **ADVISE:**
 - Advice use of pea-size toothpaste while brushing.
 - Advice use of an alternative sources of water for drinking in fluoride endemic areas.



MANAGEMENT OF DENTAL FLUOROSIS

DEVELOPMENTAL DISORDERS OF DENTAL HARD TISSUES



Microdontia

TOOTH SIZE



Macrodontia



Supernumerary teeth (Paramolar)

TOOTH NUMBER



Supernumerary teeth (Mesiodens)

DEVELOPMENTAL DISTURBANCES OF TEETH



Gemination

SHAPE/FORM



Talons Cusp

Defects of Enamel & Dentin



Amelogenesis Imperfecta

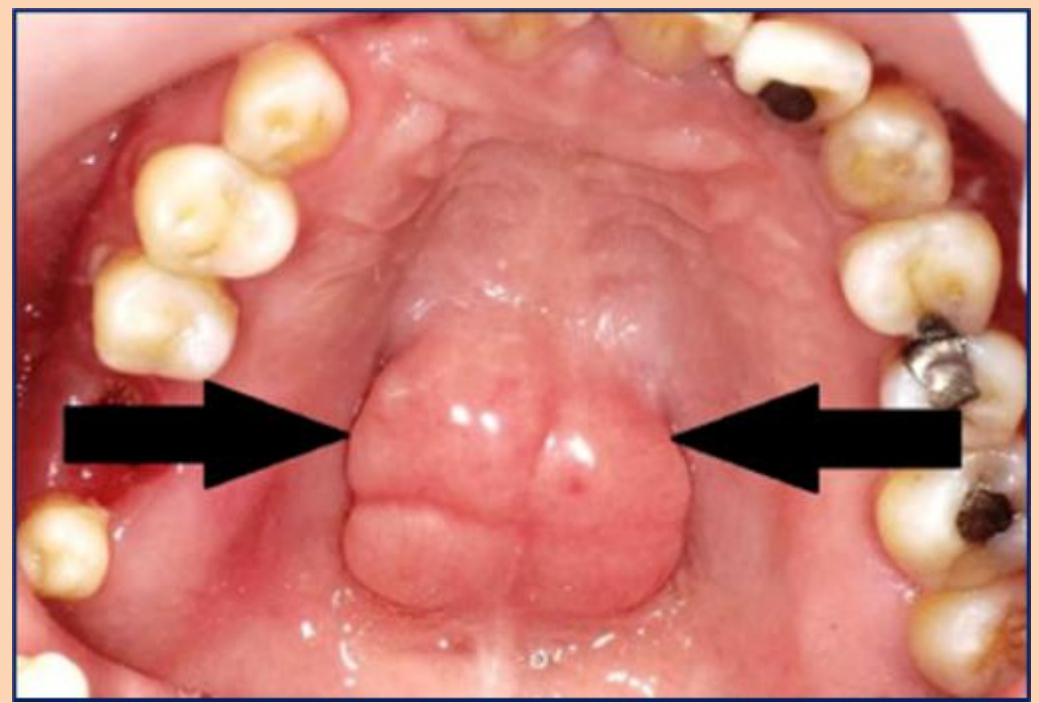


Dentinogenesis Imperfecta

OTHER DENTAL HARD TISSUE PROBLEMS

EXAMINATION OF HARD TISSUE SWELLING

- History of Swelling
- Increase or Decrease of size of swelling over time
- Associated symptoms like pain, difficulty in chewing, discharge etc
- Palpation check for size, location, margins, tenderness, temperature.
- Refer to higher Dental Centre without delay
- Follow up with patients



Torus Palatinus



Torus Mandibularis



IMPORTANT POINTS FOR ROUTINE DENTAL PRACTICE AT CWC

- Patients and Healthcare Teams should adhere to COVID Appropriate Behavior
- Comply with all infection control protocols at all times
- Explain to patients about the Dental Examination and Essential Dental Care
- Instruments- sterilized after each time they are used
- Refer patients to the nearest dental facility
- Render Oral hygiene instructions to different High-risk groups



KEY ROLES OF THE MEDICAL OFFICER IN DENTAL HARD TISSUES DISEASE MANAGEMENT

Clinical Role

- Screening and early diagnosis
- Basic oral care
- Referral to appropriate higher facility
- Follow up of referred cases
- Counseling individual patient & caregiver

Managerial Role

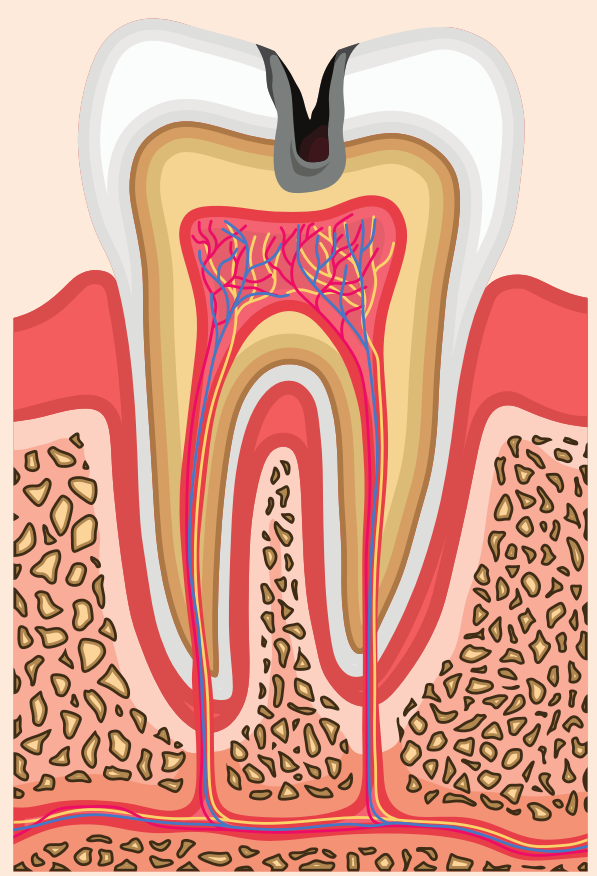
- Capacity building of the PHC-HWC team
- Monitoring and supervision
- Maintaining records and reports
- Inventory control and logistics management

Public health Role

- Health promotion on healthy oral habits
- Awareness generation on oral diseases and early care-seeking
- Patient support groups
- Disease surveillance where required



TAKE HOME MESSAGES



- Dental Caries most common disease- look for early signs
- Reinforce Oral Hygiene Instructions through different methods- Display of IEC, Group sessions and training of ASHAs
- Educate and Counsel Mothers with risk factors during contact sessions
- Demonstrate Tooth brushing whenever possible





TAKE HOME MESSAGES



- Dietary modifications like avoidance of frequent sugar sweetened beverages, and acidic beverages
- Address any taboos and local practices with regard to oral health and diseases
- Associated Medical conditions need to identified and managed.
- Diseases related to Dental hard Tissues are a part of the life course of individuals, families and communities



LEARNING OBJECTIVES

- At the end of the session, the participants will be able to:
 - Understand various parts of Dental hard tissues
 - Enumerate the various dental diseases affecting hard tissues
 - Strategies of Management and Prevention of Dental diseases affecting hard tissues of the oral cavity
 - Enhance Knowledge and skills of MOs with regard to Diseases affecting Dental hard tissues.



LEARNING OBJECTIVE



सत्यमेव जयते



Thank You

