

DEPARTMENT OF PEDODONTICS

EARLY CHILDHOOD CARIES

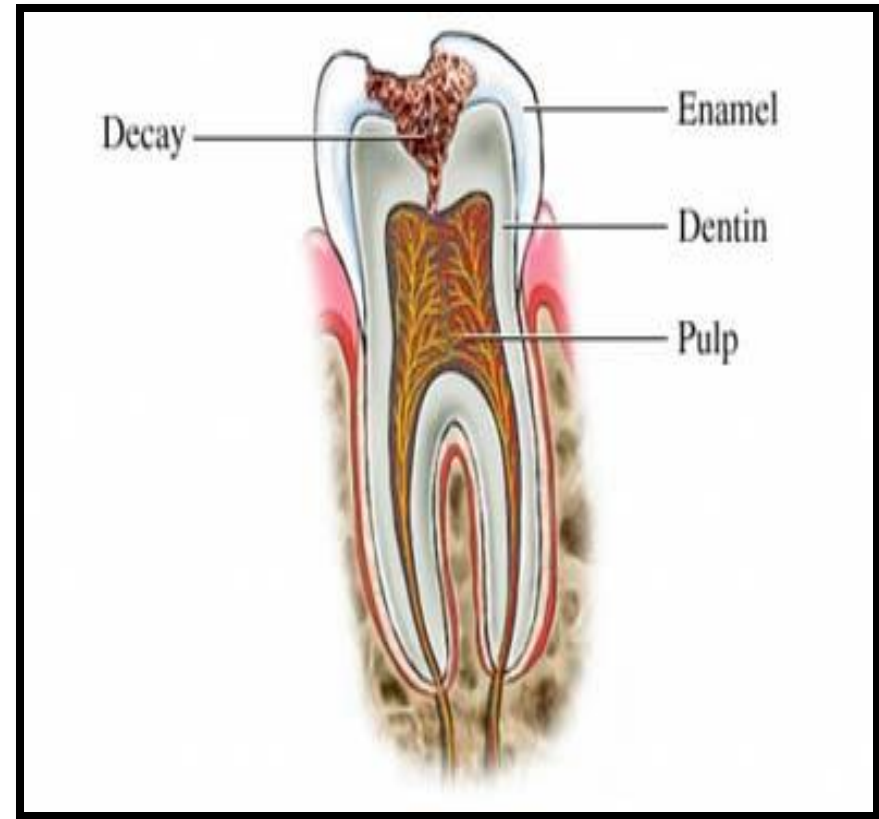


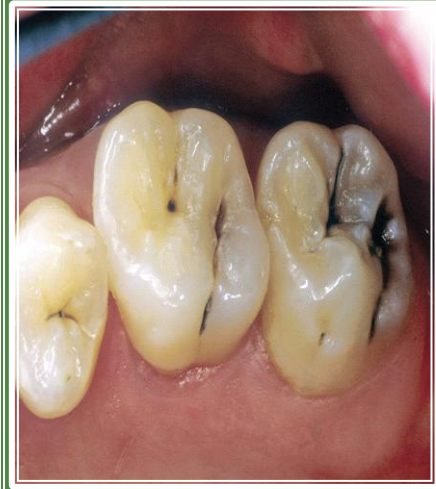
CONTENTS

- Introduction
- Early childhood caries
 - Classification
- Nursing caries
 - Etiological agents in nursing bottle caries
 - Clinical features
 - Progression of the lesion
 - Implications
 - Management
 - Prevention
- Nursing vs rampant caries
- Reference

INTRODUCTION

- DEFINITION (SHAFER)
- Dental caries is an irreversible microbial disease of calcified tissues of the teeth, characterized by demineralization of inorganic portion and destruction of organic substance of tooth, which often leads to cavitation.





BASED ON ANATOMIC SITE

- Occlusal caries
- Smooth surface caries
- Root caries



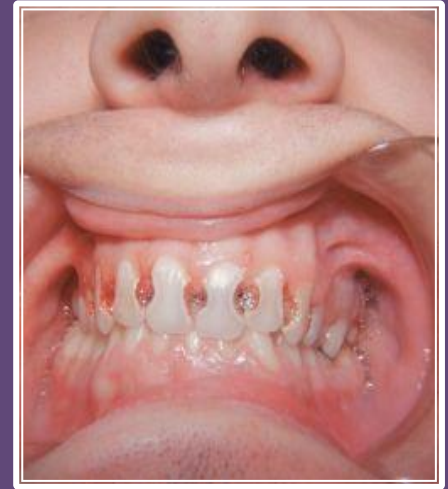
BASED ON SEVERITY

- Incipient caries
- Occult caries
- Cavitation



BASED ON PROGRESSI ON

- Arrested caries
- Recurrent/secondary caries
- Radiation caries



BASED ON CHRONOLOGY

- Early childhood caries
- Teenage caries
- Adult caries

CLASSIFICATION (SHOBHA TANDON)

REASONS FOR DECLINE OF CARIES

FLUORIDE

- In water
- Toothpaste
- Varnish gels
- In foods
- In school

DIET

- Improved nutrition
- Decreased amount of sugar
- Decrease frequency of sugar
- Antimicrobial additives

PLAQUE CONTROL

- Better home care
- Better professional care
- Chemical control
- Antibiotics
- Changes in micro flora

SALIVA

- Changes in properties
- Secretion rate
- Buffer capacity
- Immunoglobulin content
- Agglutinins volume

DENTIST/DENTAL MATERIALS

- Better dentists
- Better dental materials
- Fissure sealants

EARLY CHILDHOOD CARRIES



- DEFINITION: DAVIES, 1988
- A complex disease involving maxillary primary incisors within a month after eruption and spread rapidly to involve other primary teeth.

CLASSIFICATION

TYPE 1 ECC (mild to moderate)

- Carious lesions involving the molars and incisors
- Seen in 2-5 years of age
- Cause is usually a combination of cariogenic semisolid or solid food and lack of oral hygiene
- Number of affected teeth usually increases as the cariogenic challenge persists

TYPE 2 ECC (moderate to severe)

- Labiolingual carious lesion affecting the maxillary incisors with or without molar caries
- Seen soon after 1st tooth erupt
- Cause is inappropriate use of feeding bottle, at-will breast feeding or combination, poor oral hygiene

TYPE 3 ECC (severe)

- Carious lesions involve all the teeth, including mandibular incisors.
- Usually seen in 3-5 years of age
- Cause is combination of factors and poor oral hygiene
- Rampant in nature and involves immune tooth surfaces.

NURSING CARRIES

- *Winter et al, 1966*
- A unique pattern of dental decay in young children due to prolonged and improper nursing/feeding habit.



Etiological agents in nursing bottle caries

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graph TD; A[Etiological agents in nursing bottle caries] --> B[Pathogenic microorganisms]; A --> C[Substrate (fermentable carbohydrates)]; A --> D[Host]; A --> E[Time]; A --> F[Other predisposing factors];
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Pathogenic microorganisms

Substrate
(fermentable carbohydrates)

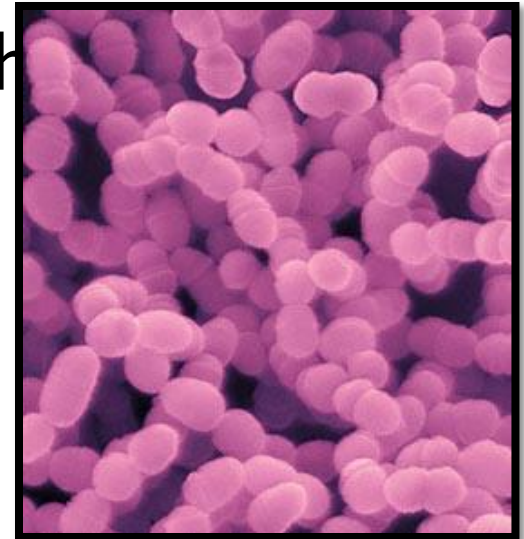
Host

Time

Other predisposing factors

PATHOGENIC MICROORGANISM

- ***Streptococcus mutans***- main microbe that colonizes teeth after it erupts into oral cavity.
- It is transmitted to infant's mouth through mother.
- It is more virulent because:-
- It colonizes the teeth
- It produces large amount of acid
- It produces large amount of extracellular polysaccharides that favor plaque formation.



SUBSTRATE

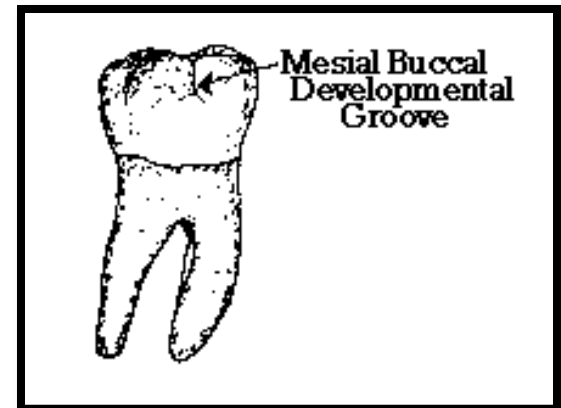
(fermentable carbohydrate)

- Carbohydrate
 - In infant
 - Bovine
 - Human
 - Fruit juice
 - Sweet
 - Pacifier
 - Chocolates or other sweets
- dextrans by
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- ions
- solution



HOST

- Teeth act as host for microorganisms
- Hypomineralisation or hypoplasia of teeth increases the susceptibility of child to caries
- Thin enamel in primary teeth is one of the reasons for early spread of lesions
- Developmental grooves also may act as plaque retentive areas



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OTHER PREDISPOSING FACTORS

- Overindulgence of parents
- Crowded homes
- Child who has less sleep
- Malnutrition
- Iron deficiency & excess lead exposure-salivary gland function impaired
- Low weight infants (<2500 gms)

CLINICAL FEATURES

- The intraoral decay pattern is characteristic & pathognomonic of this condition.

Maxillary central incisors: facial, lingual, mesial, distal surfaces



Maxillary lateral incisors: facial, lingual, mesial, distal surfaces



Maxillary 1st molars: facial, lingual, occlusal, proximal surfaces

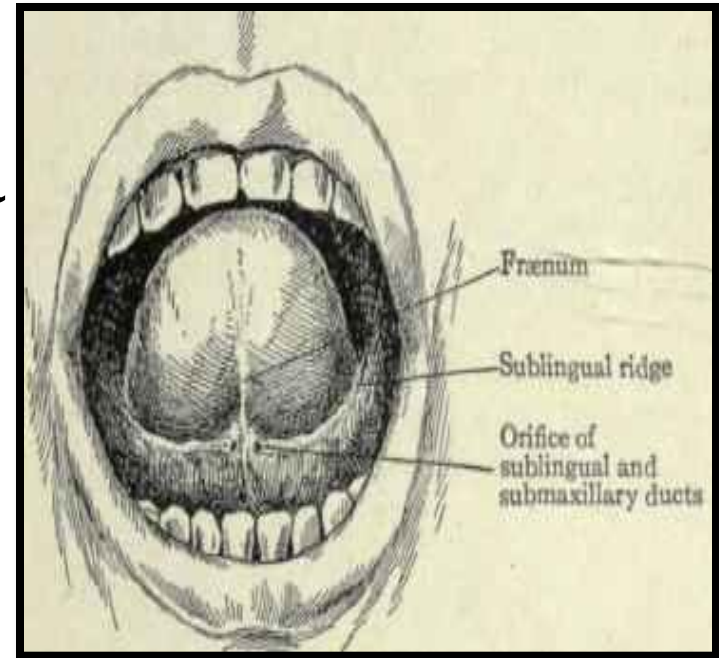


Maxillary canines & 2nd molars: facial, lingual, proximal surfaces



Mandibular molars: at later stage

- Mandibular anterior teeth are usually spared because of:
 - I. Protection by tongue
 - II. Cleansing action of saliva due to presence of the orifice of the duct of sublingual glands very close to lower incisors.



PROGRESSION OF THE LESION

Initially, a demineralization dull, white area is seen along the gum line on labial aspect of maxillary incisors.



These white lesions become cavities which involve the neck of the tooth in a ring like fashion



Finally, the whole crown of the incisors is destroyed leaving behind brown-black root stumps.



IMPLICATIONS

- The child who has nursing caries has an increased risk of developing caries even in permanent dentition.
- The child with caries is also susceptible to other health hazards.
- The treatment of nursing caries may prove to be financial burden for some parents.

MANAGEMENT

- Aims:

- I. Management of existing emergency
- II. Arrest & control of the carious process
- III. Institution of preventive procedure
- IV. Restoration & rehabilitation

- Factors affecting management:

- I. Extent of the lesion
- II. Age of the patient
- III. Behavioral problems due to young age of the child

TREATMENT : 1ST VISIT

- ✓ All lesions should be excavated and restored
- ✓ Indirect pulp capping or pulp therapy procedures can be evaluated by further investigation

- ✓ If the abscess is not draining



- ✓ X-Rays are used to determine the condition of the succedaneous dentin and to determine the extent of the lesion
- ✓ Also, apply

be treated by

the condition of
of saliva for
& viscosity
pically.

PARENT COUNCELLING

- ✓ Parent should be questioned about the child's feeding habits, nocturnal bottles, demand for breast-feeding, pacifiers.
- ✓ Parents should be asked to try weaning the child from using the bottle as pacifier while in bed.
- ✓ In case of emotional dependence on the bottle, suggest use of plain or fluoridated water.
- ✓ The parents should be instructed to clean the child's teeth after every feed.
- ✓ Parents are advised to maintain a diet record of the child for 1 week that includes the time, amount of food given to the child, the type of the food & the number of sugar exposures.

2nd VISIT

Should be scheduled 1 week after 1st week.

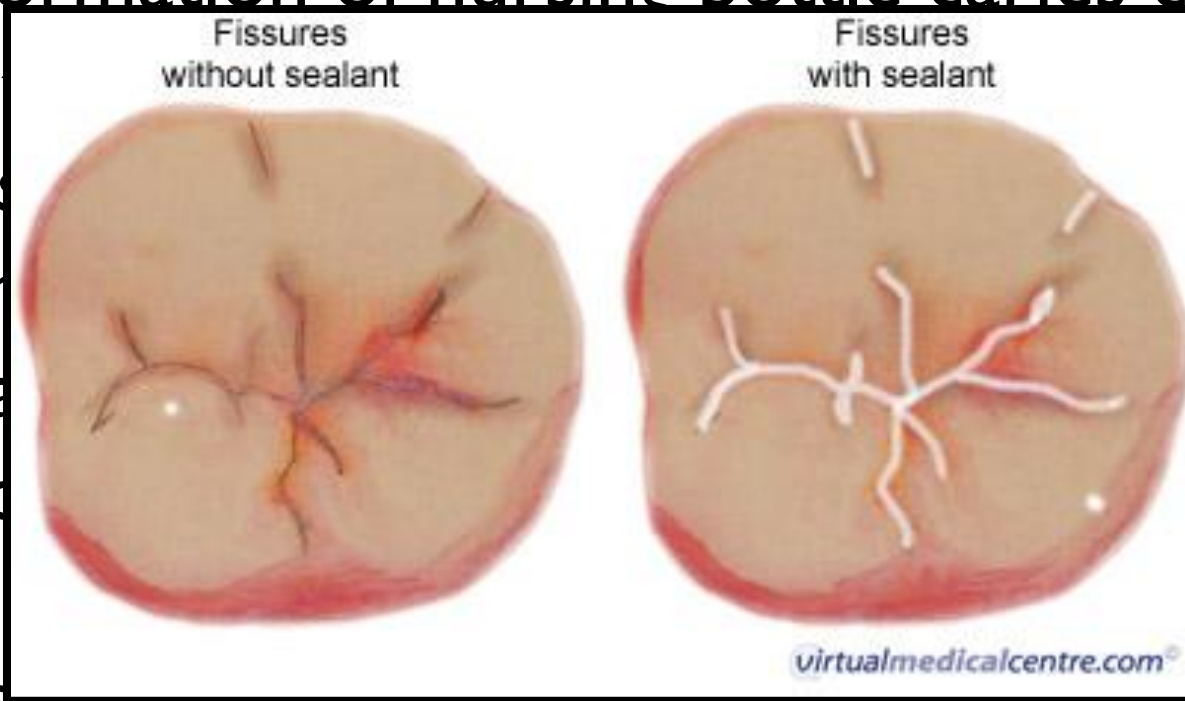
- ✓ Analysis of diet chart & explanation of disease process of child's teeth
- ✓ Isolate the sugar factors from diet chart & control sugar exposure
- ✓ Reassess the restoration and redo if needed
- ✓ Caries activity tests can be started & repeated at monthly interval to monitor the success of treatment

3rd & SUBSEQUENT VISITS

- Restoring all grossly decayed teeth
- Endodontic treatment
- In case of unrestorable teeth, extraction followed by space maintainer
- Crowns given for grossly decayed & endodontically treated teeth
- Review & recall after every 3 months

PREVENTION

- Information of nursing bottle caries can be

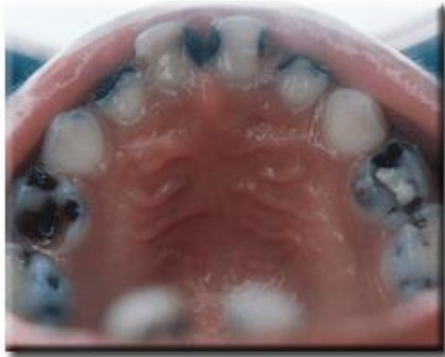


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NURSING VS RAMPANT CARRIES

A case of Rampant caries (Nursing bottle caries)



NURSING CARIES

RAMPANT CARIES

Specific form of rampant caries.

Age of occurrence

In infants & toddlers

Dentition involved

Affects the primary dentition

Characteristic feature

Specific pattern is seen

Mandibular molars are not involved

Acute, widespread caries with early pulpal involvement of teeth which are usually immune to decay.

Age of occurrence

Seen at all ages

Dentition involved

Both primary & permanent dentition

Characteristic feature

Surfaces considered immune to decay are involved. Thus, mandibular incisors are affected

NURSING CARIES

RAMPANT CARIES

Etiology

Bottle feeding before sleep

Pacifiers dipped in honey

Prolonged at-will breast-feeding

Treatment

In early stage- topical fluoride application & education

Directed toward maintenance of the teeth till the transition occurs

Prevention

Education of the parents

Etiology

More multifactorial with all the essential factors involved are not just feeding practices

Frequent snacks, excessive sticky refined carbohydrates

Decreased salivary flow

Genetic background

Treatment

Require pulp therapy

Long term treatment

Prevention

Dental Health Education at a mass level involving people of all ages

REFERENCE

- **SHOBHA TONDON (FOR PEDIATRICS DENTISTRY) 2nd EDITION.**

Thank You!

