
ORIGINAL ARTICLE

Diseases of the Teeth of Children Attending
the Outpatient Department in the
Dr. Pirngadi General Hospital Medan

by

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Abstract

Two surveys were conducted on children attending the Child Outpatient Department in the Dr Pirngadi General Hospital Medan, to know about the spectrum and prevalence of the diseases of the teeth, and also the comparison of carious teeth formation between breastfed with bottlefed infant and children.

The first survey was done in 1971 — 1973 on 18720 children, where 3000 (16.03%) of them had various dental diseases and abnormalities. We found that dental decay is prevailing at the age group of 3 — 8 years.

The second survey was done in December 1977 on 100 children under five years of age, of whom 54 had caries while 46 of them had caries resembling bottle-feeding caries. No dental caries were found on children who got breastfeeding until the age of 41 months; bottlefeeding in infancy influences carious teeth formation.

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Introduction

Most people think that primary teeth did not need any attention or treatment, because primary teeth will be replaced by permanent teeth. They are unaware that the change from primary teeth into permanent teeth occurs at a certain age, and that early destruction or loss of primary teeth will affect the growth and development of a child, especially of the teeth and jaw.

The condition of the oral cavity is important to physical and psychological health and sense of well-being. The recognition and treatment of oral abnormalities and diseases, particularly in infancy and childhood require cooperative effort between physicians especially pediatricians and dentists. Initially the physicians' role is predominant, afterwards it is the dentist.

It is also important to notice, that any dental destruction or decay can be a focal of infection.

The principal consideration of the oral health of children is the establishment of an intact, balanced, self-maintaining permanent dentition. Dental examination at 2½ to 3 years of age permits careful evaluation of oral health, including the pattern of eruption and completeness of dentition, tooth to tooth and arch to arch relations, facial growth and condition of the enamel dentin.

Needed restoration may be at this time, as well as plans for the treatment of other abnormalities. Regular perio-

dic surveillance is necessary throughout childhood to ensure that teeth are not lost through caries and that malocclusions receive timely correction. Most periodontal disease of adults is often traceable to caries or malocclusions untreated during childhood.

Being aware of the importance of oral health of children, two surveys were made in order to know about the spectrum and prevalence of dental diseases of children. Comparison of dental caries was made in breastfed with bottlefed during infancy of children, who were attending the OPD (outpatient department) at the Dr. Pirngadi General Hospital, Medan, North Sumatera. Both surveys were done in collaboration with the Dental Clinic of the same hospital.

Material and Method

The first survey was done in 1971 — 1973 and the second in 1977. During the first survey in 1971 — 1973, there were 18720 children attending the OPD; gross tooth examination was done on every child. If there was any destruction or abnormalities, they were directly sent to the Dental Clinic for further examination and treatment or restoration.

The second survey was conducted on 100 children under five years of age at their first attending in December 1977, as a comparative study of caries formation in breastfed and bottlefed children. Those 100 children were examined at the Dental Clinic.

During the dental examination at the Dental Clinic, reflection mirror was used

for the orientation of the oral cavity. A probe was used for examining the depth of the destruction and for checking the interproximal area, while fuchsin 4% solution was used as a discolouring solution so that one could know the dental lesions or destruction. The solution was rubbed on the surface of each tooth, and when there was debris which covered the enamel lesions or dentin destruction, so we can see it by the reddish colour of the matter.

Those carious teeth influenced by bottlefed attacked specific tooth according to the following formula :

| | |
|-----------|-----------|
| d b a | a b d |
| d c | c d |

- | | |
|--------------------|----------------|
| a. central incisor | c. cuspid |
| b. lateral incisor | d. first molar |

According to Mc Donald (1974), children, who still have bottlefeeding while they must have already had solid foods,

have a great possibility of getting specific caries in the interproximal area, as well as prolonged contact of milk or sweetened liquids with the teeth, called bottle caries.

Results

From those 18720 children attending the OPD in 1971 — 1973, 3000 children (16.03%) suffered from various dental abnormalities or diseases. The spectrum and prevalence of dental abnormalities found in those children, namely chronic caries (2020 children), gangrenous pulpae (1542 children), persistency (1266 children), radices (895 children), abscess (682 children), pulpitis (213 children), hyperemic pulpae (139 children) and irritated pulpae (55 children). Chronic caries and gangrenous pulpae was prevailing in dental destruction since the age of 3 years until the age of 8 years. Persistency takes the third place in dental problems (see Table 1).

TABLE 1: *Spectrum and prevalence of tooth diseases in the various age group from 3000 children in the first survey*

| Types of teeth diseases | Cases | — 2 years cases | 3 — 5 years cases | 6 — 8 years cases | 9 — 13 years cases |
|-------------------------|-------|-----------------|-------------------|-------------------|--------------------|
| Chronic caries | 2020 | 162 | 979 | 683 | 193 |
| Gangrenous pulpae | 1542 | 73 | 701 | 584 | 184 |
| Persistency | 1266 | — | — | 997 | 269 |
| Radices | 895 | 45 | 376 | 410 | 64 |
| Abscess | 682 | 46 | 323 | 224 | 89 |
| Pulpitis | 213 | 10 | 77 | 57 | 69 |
| Hyperemic pulpae | 139 | 7 | 59 | 44 | 29 |
| Irritated pulpae | 55 | 8 | 18 | 19 | 10 |

We also noticed that one child can have more than one diseased tooth, some had either more than four diseased tooth (see Table 2).

TABLE 2 : Number of destructed teeth on patient in the first survey.

| Number of destructed teeth | 1 | 4 | > 4 |
|----------------------------|------|-----|------|
| T o t a l | 825 | 258 | 32 |
| % | 27,5 | 8,6 | 1,41 |

On the second survey in December 1977 we examined 100 children under five years old to look for the relationship of caries formation in breastfed children compared to bottlefed children. From those 100 children we found 32 who got breastfeeding, 15 bottlefeeding and 53 breastfeeding respectively besides bottlefeeding. From those 100 children, 54 had dental caries whereas 46 were

free from caries. From these 54 carious children, 48 had caries resembling bottlefeeding caries, and the other 6 children suffering from caries that differed from bottle caries.

From those 46 children being free from caries, 26 got breastfed and 20 got bottlefed or bottlefed beside breastfed (see Table 3).

TABLE 3 : Prevalence of caries with different types of feeding in the second survey

| Type of feeding | Caries | | | | Number of cases | |
|-----------------------|--------|----|----|----|-----------------|-----|
| | + | % | - | % | Total | % |
| A. Breast | 6 | 13 | 26 | 2 | 32 | 15 |
| B. Bottle | 13 | 35 | 2 | 18 | 15 | 53 |
| C. Breast + Bottle | 35 | 54 | 18 | 46 | 53 | 100 |
| T o t a l | 54 | 6 | 46 | 26 | 100 | 32 |

On further examination it came out that of the 48 bottle carious children, 35 (72.92%) got bottle-feeding beside breastfeeding, whereas 13 (27.08%) got

only bottle-feeding. We found no dental caries on children who got only breast-feeding until the age of 41 months (see Table 4).

Statistically it had been proved, that caries formation in breastfed children is significantly different compared to bottle-fed children ($p < 0,01$) and also significantly different to bottle-fed beside breast-fed ($p < 0,01$).

But there is no difference in caries formation between bottle-fed compared to breast-fed beside bottle-fed children.

Table 4 showed the age distribution and type of feeding of these children who were suffering from bottle caries, where carious teeth formation was found under the age of one year until the age of five years, while caries formation in breastfed children begins at the age of 42 months.

TABLE 4 : Age distribution and type of feeding in 54 children under five years old with caries in the second survey.

| Age (in months) | Type of feeding during infancy | | | Number of cases |
|-----------------|--------------------------------|-----------------|--------|-----------------|
| | Breast | Breast + Bottle | Bottle | |
| 6 — 11 | — | 1 | 1 | 2 |
| 12 — 17 | — | 3 | 2 | 5 |
| 18 — 23 | — | 5 | 1 | 6 |
| 24 — 29 | — | 5 | 2 | 7 |
| 30 — 35 | — | 4 | 2 | 6 |
| 36 — 41 | — | 1 | — | 1 |
| 42 — 47 | 2 | 5 | 1 | 8 |
| 48 — 53 | 2 | 7 | 2 | 11 |
| 54 — 60 | 2 | 4 | 2 | 8 |
| T o t a l | 6 | 35 | 13 | 54 |

Discussion

Tooth decay is one of the commonest problems of civilization, and children are its first victims. It is a progressive destructive lesion of the calcified dental tissue. Untreated, it is eventually resulting in total destruction of the involved teeth.

Caries may destroy both deciduous and permanent teeth. In this survey we

found, that 3000 (16.03%) children suffered from various teeth diseases, where chronic caries were prevailing at the age of 3 — 8 years followed by gangrenous pulpae.

Among preschool age children in Indonesia the prevalence of Dental Caries is about 60 - 70% as stated by Rizali Noor in 1978, while in our survey with gross examination we found 16.03% that suffered from various dental disea-

ses. Persistency is also a dental problem among those children.

We found that one child can have more than one diseased tooth, and some of them have more than 4 diseased tooth. To be compared to figure 1, we can see

that by the age of 2 years the average child had 2 carious lesions; it increased according to the older the age, and the periods of greatest activity are 4 to 8 years in the primary dentition and at 12 to 18 years in the permanent dentition.

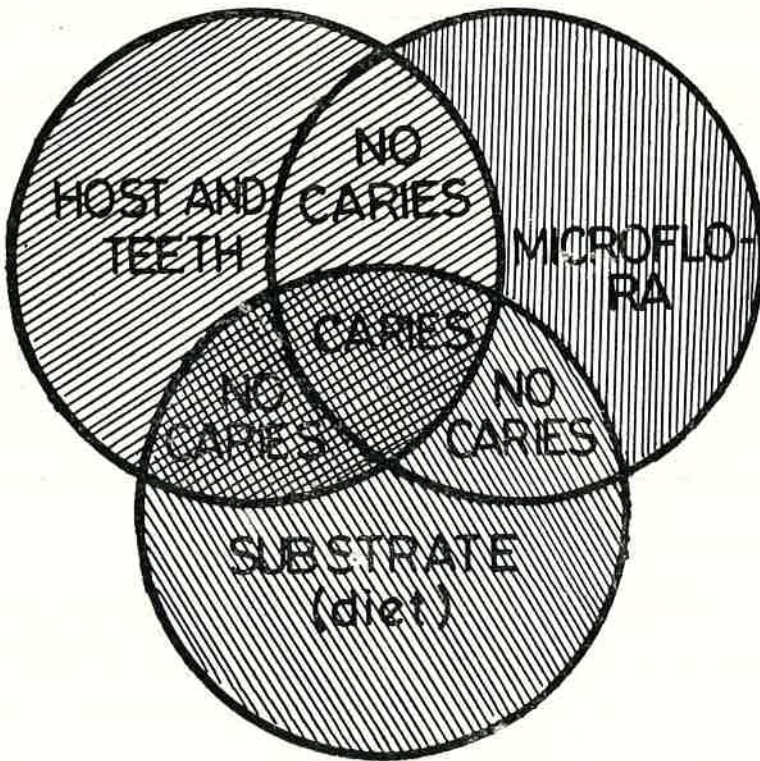


FIG. 1. Average number of various surfaces different age periods, (J.C. Brauer et al.: *Dentistry for Children*. 4th ed. New York, The Blakiston Division, McGraw-Hill Book Company, 1959).

Eruption of deciduous or primary teeth is complete by the age of 2½ or 3 years. In relevance to this, one should start preventing tooth diseases, especially tooth decay at early age.

There are many factors that influence the formation of carious teeth, but the main factors influencing its susceptibility are microflora (especially streptococ-

cus mutans), substrate of ingested food carbohydrate and the teeth. Fermentable carbohydrate, chiefly sucrose are the main substrate for production of metabolic acids by adherent bacteria. Those acids decalcify the enamel organ and by the time lesions occur and followed by the destruction of the matrix of the teeth (see Fig. 2).

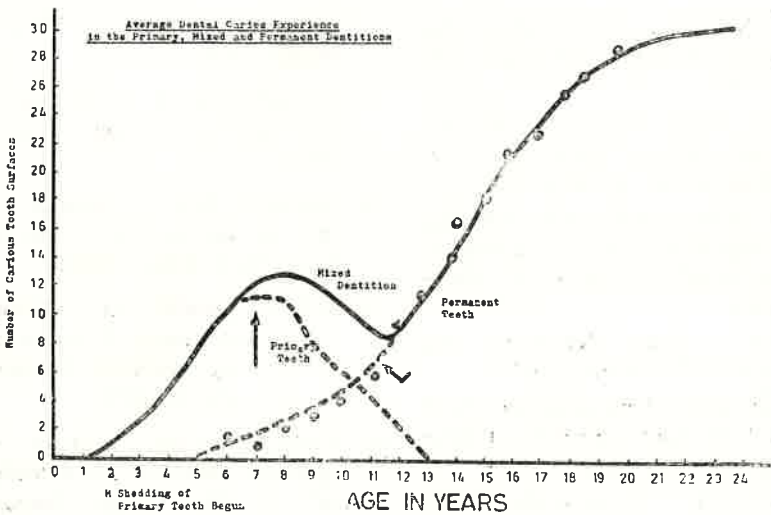


FIG. 2 : Factors involved in causation of dental caries. All factors must be operative before caries will develop (Keyes: Etiologic factors of dental caries. Med. Ann. D.C. 34 : 463-7, 1968).

The habit of putting a baby to sleep with a bottle of milk (bedtime bottle) or sweetened liquids in its mouth may be a factor in causing erosion of the enamel organ of the teeth. Ingestion food between meals containing sucrose—particularly in forms that cling such as lollypop—impacts between the teeth. This habit of ingestion sucrose containing food between meals should be avoided.

The acids produced by bacterial action on the milk substrate or sweetened liquids may be the cause of early caries.

Rinsing and cleaning the mouth and teeth of infants and children soon after food ingestion is important, and therefore get accustomed to brushing the teeth of children at an early age.

Since dental diseases, especially dental caries is still a public health problem according to its high prevalence, more attention should be given by physicians, particularly pediatricians.

Last but not least, when caries are detected, the child should immediately be referred to for dental treatment or restoration.

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