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Pattern of permanent tooth loss in Nigerian children and their prosthetic replacement

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Summary

The pattern of permanent tooth loss and prosthetic replacement in 76 children were studied. Dental caries and its sequelae were the most frequent cause of tooth loss (64.47%) followed by trauma (21.05%). Molars accounted for 64.20% of tooth type lost due to dental caries and its sequelae while loss of incisors (19.75%) was due to trauma. It was observed that only incisors were replaced (81.25%) due to their conspicuous position in the mouth whereas a large number of molars were lost and none was replaced. The need to periodically assess children after tooth loss for prosthetic replacement was emphasised.

Keywords: *Permanent tooth loss, Children, Prosthetic replacement*

Résumé

Les modes de perte de dents permanente et de replacement prosthetique chez 76 enfants ont été etudies. Les caries dentaires et elurs sequelles ont été les causes les plus frequentes de perte de dents (64, 47%) suivie des traumatismes (21, 05%). Les molaires ont constitutés 64, 20% du genre de dents perdus due aux caries dentaires et a leurs sequelles, alorsque la perte des incisives (19, 75%) avaient été due aux traumatismes. Il a été observé que les incisives ont été remplaceies (81.25%) due a leur positions flagrante dans la bouche. Un grand nombre de molaires perdus n'ont pas été remplacees. Le besoins de d'evaeuer periodiquement les enfants apres les pertes de dents pour des remplacements prosthetique est particulierement souligne.

Introduction

Tooth loss in children may involve one or more teeth and could affect either deciduous or permanent dentition or both. Teeth are often extracted as a result of dental caries, periodontal infection or for orthodontic considerations. Traumatic injuries resulting in tooth fracture have also necessitated extraction while occasionally trauma causes complete avulsion of teeth.

A number of epidemiological studies have been conducted into the causes of tooth morbidity and mortality among Nigerians [1-7]. These studies generally agree that the most common cause of tooth loss is chronic periodontal disease in adults and dental caries in children. Irrespective of the cause, loss of teeth in children may lead to changes in dental arch length, malocclusion, aesthetic disharmony, misarticulation of consonants in speech, development of bad oral habits and psychological trauma. Tooth mortality shows the dental status of the community in which treatment is provided [8].

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Interestingly, some parents believe that new teeth will always erupt to replace extracted or lost teeth in a child. This impression might have led to the late presentation of these children in the clinics for the management of some preventable oral diseases, and never for the management of premature tooth loss and the attendant complications. This attitude has been used as a measure of the awareness of city dwellers to dental care despite the concentration of dental facilities in the cities [8].

To prevent the consequences of premature tooth loss, prosthetic replacements can be used successfully and are well tolerated by children especially removable partial dentures.

This study was undertaken to assess the causes, pattern of permanent tooth loss and prosthetic replacement among Nigerian children.

Materials and methods

Data were obtained from the records of the paedodontic and prosthetic clinics, University College Hospital, Ibadan, between, 1 January 1997 and 30 June 1998. Children aged 5-16 years who attended the clinics within the period of study were included.

The following information were retrieved and analysed: age, sex, reasons for permanent tooth loss, lost permanent teeth and permanent teeth replaced by artificial substitute.

Results

A total of 737 children were seen during the period of study and 76 of them (10.31%) had one or more permanent teeth extracted. Thirty-five were male while forty-one were female with a male to female ratio of 1: 1.17. Table 1 shows that approximately one tooth was lost per child.

Table 1: Number of teeth lost in relation to sex.

Sex	No. of subject	No. of teeth lost	Average loss/individual
Male	35 (46.05)	37 (45.68)	1.06
Female	41 (53.95)	44 (54.32)	1.07
Both sexes	76 (100)	81 (100)	1.16

From Table 2, the 5-8 years old group had the least number of children while the 13-16 years age group had the highest number of children,. Dental caries and its sequelae were the most frequent reason for tooth loss. It accounted for 64.47% and the 13-16 years age group were mostly affected. Trauma to teeth was the next reason for tooth loss while no case of periodontal disease was seen among the children under study. About 14.47% of the children had extraction for orthodontic reasons.

Table 2: Age distribution of children by reason for tooth loss.

Age	No	Caries and sequelae	Trauma	Periodontal diseases	Orthod-ontics
5 - 8	5	1 (1. 32)	2 (2.63)	-	2 (2.63)
9 - 12	35	22 (28. 95)	8 (10. 53)	-	5 (6 58)
13 - 16	36	26 (34.21)	6 (7.89)	-	4 (5.26)
Total	76	49 (64.47)	16 (21.05)	-	11 (14.47)

A total of 81 teeth were lost out of which molars accounted for 64.20% followed by incisors 19.75% (Table 3). The reasons for the loss of each tooth type are as shown in Table 4.

Table 3: Age distribution in relation to type of permanent tooth loss.

Age	Incisors	Canine	Premolars	Molars	Total
5 - 8	2	-	-	3	5
9 - 12	8	3	5	23	39
13 - 16	6	-	5	26	37
Total	16 (19.75)	3 (3.70)	10 (12.35)	52 (64.20)	81

Table 4: Distribution of type of tooth loss in relation to reasons for loss.

Tooth type	Caries and sequelae	Trauma	Periodontal disease	Orthodo-ntics
Incisors	-	16	-	-
Canines	-	-	-	3
Premolars	2	-	-	8
Molars	52	-	-	-
Total	54 (66.67)	16 (19.75)	-	11 (13.58)

Of the 76 children with missing permanent teeth, only 10 (13.16%) came for prosthetic replacement with 8(80%) being male and 2(20%) being female. Seven (70%) of them were in the 13-16 years age group (Table 5). Only 13 (81.25%) of the 16 extracted incisors were replaced.

Table 5: Age and sex distribution of children who had prosthetic replacement.

Age	Sex M	Sex F	No.
5 - 8	1	-	1
9 - 12	2	-	2
13 - 16	5	2	7
Total	8	2	10

Discussion

Eruption of permanent dentition excluding the third molars starts about 6 year of age and is completed by about 14 years. Loss of these teeth in children can be regarded as being premature loss with more deleterious effects in them than adults if the lost teeth are not replaced.

Earlier reports on tooth mortality among Nigerians indicated that the major cause of tooth loss in children was dental caries [1,5,6]. This study agrees with these findings. McGregor [9] reported a high prevalence of dental caries among Africans and attributed this to increased consumption of refined carbohydrates.

In the present study, 64.47% of the children lost teeth due to dental caries and its sequelae. This is comparable to a similar study carried out in the Lagos metropolis in which caries accounted for 92% of children with tooth extracted [6], and to Aderinokun's [8] analysis of the characteristics of children attending the dental clinic U.C.H., Ibadan, which showed that 72% of children had extractions secondary to caries. The higher percentages in these earlier studies is due to the fact that both deciduous and permanent teeth were considered. It is pertinent to note that 13 (81.25%) out of the 16 incisors lost were replaced with prosthesis. This is understandable in light of aesthetic considerations. It is therefore not suprising that all the 13-16 years old had their incisors replaced, as children in this age group are very conscious of their appearances and none replacement could cause some psychological trauma.

Dentures are known to be well tolerated generally by children even those as young as 4 years [10-12]. Teeth extracted for orthodontic reasons do not require replacement as they might have been in an ectopic position, removed to relieve crowding or to create space for subsequent movement of teeth. None replacement of prematurely extracted teeth in children have been known to cause drifting of adjacent teeth with subsequent development of malocclusion, stagnation areas and caries or periodontal disease.

This study shows that a large percentage of the molars were lost (64.20%) and none was replaced. This may be due to the belief by some parents that new teeth will always erupt to replace lost ones regardless of type of tooth lost and also to the inconspicuous position of the molars. This might explain the low percentage of children reporting in prosthetic clinics for the assessment of possible development of consequences of tooth loss and rehabilitation if required.

In view of the foregoing, premature loss of teeth in children should be prevented to avert its attending consequences. In addition, there is a need for periodical assessment of children after tooth loss for possible prosthetic rehabilitation when consequences of such loss are eminent.

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