

Early Childhood Caries and the Role of Parents in its Primary Prevention: A Report of Three Cases in Nigerian Children

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ABSTRACT

Early childhood caries is a form of rampant caries with distinctive feature of rapidity in progression and the involvement of many teeth at the same time. It is one of the leading causes of early loss of teeth in children and this is associated with functional, aesthetic and negative psychological consequences. This report highlights the management of early childhood caries in 3 Nigerian children

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INTRODUCTION

Early childhood caries (ECC) is a dental caries that affects the children. It is defined as the presence of one or more decayed, non cavitated or cavitated lesions, missing (due to caries) or filled surfaces in any primary tooth in a child that is seventy one month old or younger.^{1,2} ECC is a form of rampant caries with distinctive feature of rapidity in

progression and the involvement of many teeth at the same time. Consequently, the crowns of affected teeth are rapidly destroyed leading to early involvement of pulp tissues and attendant tooth ache. Apart from persistent tooth ache, ECC is one of the leading causes of early loss of teeth in children with deleterious space loss, speech problem and poor oral habits like tongue trusting, inadequate sagittal

Documented treatment modalities for ECC in literature include; fluoride application, restorative procedures with the use of material like composite resin, glass ionomer cements, amalgam alloy, endodontic treatment (with or without post). Other treatment options include; coronal restoration with stainless steel crown "SSC" or resin filled celluloid crown, extraction of unrestorable teeth and prosthetic rehabilitation.^{3,7,11} These treatment modalities come with different challenges because children are generally impatient, anxious and show less tendency for chair side cooperation.

These are reports of cases involving three children from a secondary previously managed at the Dental and Maxillofacial surgery Clinic of a secondary health care facility. The psychological embarrassments in case C were mainly being experienced by the parents. The important findings from history in the three patients are shown in Table 1. A review of clinical history showed that eruption of teeth among these children started between ages 5-7months. All the mothers claimed their children's teeth were initially white but later started getting discolored and mutilated between six months and one year post eruption. They also left their children's carious teeth unattended to until two to three years later. Due to recurrent pains, mothers of child A and B from time to time self-medicated their children with analgesics. History of recurrent jaw swelling was noted with child A and B. A review of nutritional and dietary history among the children showed that they were all exclusively breast fed in their first six months of life. Child A and C were weaned at 18 months while the child B was at 12 months. There was a positive history of indiscriminate and uncontrolled breast feeding among child A, and C. All the children had breast milk supplemented with manufactured baby foods after six months. Certain features were common to the children's dietary chart namely, frequent and unrestricted intake of refined sugar and carbohydrates and noodles, and low consumption of fruits and vegetables. A review of oral hygiene practices among the children showed that at 8 months, the mother of child A adopted salt solution and cotton wool for tooth cleaning. None of the

Patient	Child A		Child B	Child C
Age (years)	4	4		3
Gender	Female	Male		Female
Complain	Functional	Functional		A and P
Sleeping with FB	No	Yes		No
Unrestricted RS	Yes	Yes		Yes
Unsupervised Brushing	Yes	Yes		Yes
Systemic disease	No	No		No
Parents SC	Middle	Middle		Middle
Ever visited DC	No	No		No
Knowledge of OH	No	No		No

Note: Functional = Toothache A and P = Aesthetics and psychological FB = Feeding bottle
 RS = Refined sugar SC = Social class DC = Dental clinic OH = Oral hygiene

children used tooth paste and brush for cleaning their teeth until when they were one year old. Further questioning revealed irregular and inconsistent pattern of oral hygiene practices among these children. All the mothers underwent routine antenatal and postnatal care but none was exposed to oral health talks during the period. The three children that took part in the study are primary school pupils. Child B and C were first born of their respective mothers while child A was the third born and the only girl child in the family.

Clinical examinations

All the children were physically healthy apart from child A, who presented with a diffused, warm, soft and tender swelling on the left side of her face. They all had poor oral hygiene with accumulation of plaque and food debris. With the use of caries probe, multiple teeth were at different stages of decay. Generally, the carious lesion affected all the primary teeth excluding mandibular incisors and consequently the following teeth were affected; 51,52,53,54,55,61,62,63,64,65,73,74,75,83,84,85. In child A, B&D the following teeth were free of caries' 71, 72, 81, 82.

Investigations

Bite-wing, periapical and Orthopantomographic radiograph were taken to assess the extent of carious lesions.

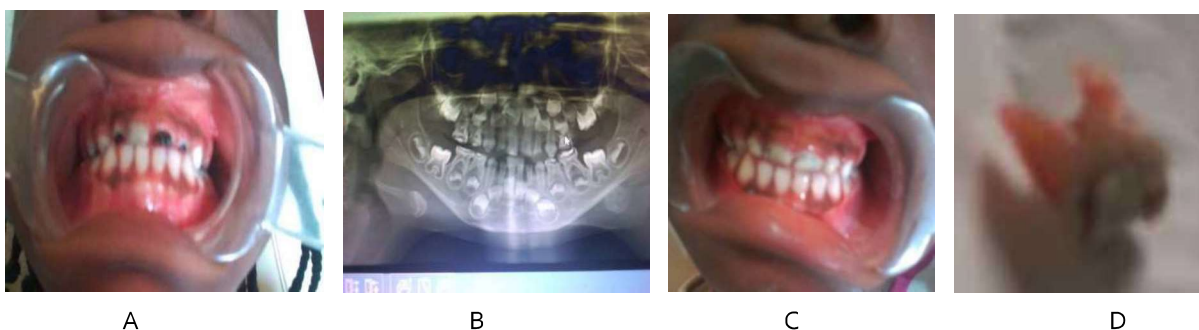


Figure 1: Shows child A (A) pre-operative intra-oral features (B) Orthopanthomogram of dentition(C) extracted non-restorable tooth (D) post-operative picture.

Treatments

Before starting definitive treatment, all the parents were adequately informed about their children's condition. The parents were all motivated after been tutored on ideal oral hygiene practices. In addition, child A and B were placed on appropriate doses of syrup acetaminophen (paracetamol), metronidazole

and Amoxicillin as a result of pains from already established periapical infections. Treatment was structured into three stages:

First stage

Scaling and polishing of the teeth was done for each child. Coronal restoration of carious teeth in each child was done using universal restorative Glass Ionomer Cement-**Glass Ionomer Gold Label by GC Corporation, Tokyo Japan GIC**. The first fluoride therapy was also carried out -**60 second fluoride treatment by Henry Schein INC Melville, NY11747USA**.

Second stage

Endodontic treatment of teeth with pulpal involvement was performed in child A & B. Coronal restorations of other teeth (except those undergoing pulp treatments) were completed. Also, extractions of the un-restorable teeth were performed (Figures 1 & 2).

Third stage

Stainless Steel Crowns -Kids Crown, Stainless Steel Primary Molar Crown, YUANFGANG were used to restore grossly mutilated posterior teeth in child B. Child B also had his maxillary anterior teeth root-filled with endoseal- Root Canal Obturation Cement by Prevest Dent Pro Limited, 1181808, India, and composite strip post inserted with core built up with Almalgomer TM CR BY Advanced Healthcare Ltd, Tonbridge, TN118JU, UK. The teeth were then crowned with composite-RubyCompo Nano by

apical tissue while copious irrigation was done with normal saline. Using spiral filler, the pulp canals were filled with plane Zinc Oxide Eugenol (ZOE) and restoration of coronal pulp chamber was done with Glass Ionomer Cement "GIC" (Fig 1 a, b, c and d).

Child B

Because of pulp involvement, endodontic treatment were performed on teeth 51, 52, 61, 62, 64& 75. Composite resin short-post was cemented after pulp



A



B



C



D

Fig 2. Child B Showing (A) pre-operative intra-oral view (B) Orthopanthogram of dentition (C) extracted tooth (D) post-operative picture

Nano Hybrid Dental Material Kit, 5400 rubydent, Turkiye Istanbul. All remaining coronal restorations were completed.

Child A

Irreversibly damaged Teeth 65 & 74 with severe dent-alveolar infections were extracted while endodontic treatment (non-vital pulp treatment) was performed on teeth 64 and 75. The root canal were located after extirpation of the necrotic pulp. The canals were file to 3mm of the tooth apex to avoid damage to peri-

extirpation of the anterior teeth, core was built with GIC before crowning with resin filled cellulose acetate crown form, while the posterior teeth with extensive coronal destruction were restored with stainless steel crowns. Tooth 85 was extracted (Fig 2 a, b, c and d).

Child C

All the carious teeth were restored with GIC (Fig 3 a and b).



A

B

Figure 3: Child C (A) Pre-operative picture showing carious upper anterior teeth (B) Post-operative picture after treatment.

DISCUSSION

Early childhood caries 'ECC' is a preventable disease. It has been reported that detail parental education, appropriate dietary behavior instructions and changes in oral hygiene practices are among the preventive measures for ECC.³ In the present cases we discovered that mothers of the affected children had poor oral health awareness and poor knowledge of the etiology and prevention of ECC. The poor oral health awareness among the mothers may have translated to the ineffectiveness of oral hygiene practices among these children. Neither the mothers nor the children were aware of the ideal techniques and timing for tooth cleaning. We also found that most of the time, children were left alone to brush their teeth without supervision by their mothers. Therefore, ineffective oral hygiene practices coupled with poor dental visits and late presentations were factors strongly implicated in the occurrence of ECC in these cases. Apart from these factors, low consumption of reparative and cleansing food substances like fruits and vegetables and high consumption of cariogenic foods also contributed to the incidence of ECC among these children. It is believed that incidence of ECC among children will be low if nursing mothers are adequately informed about primary prevention ECC through ideal oral hygiene practices/ control of consumption of refined sugar. Primary prevention of ECC will be far cheaper than secondary and tertiary prevention involving treatments and rehabilitation respectively. Apart from the high cost of treating ECC, rehabilitation of

the affected children may be complex. The pains and psychological trauma that the children and their mother suffer as a result of ECC will be avoided if much priorities are given to primary preventions. Meanwhile, each of the three children have been reviewed periodically two weeks, 4 weeks and three months after completion of their initial treatments and the review have been satisfactory. Recently, child A visited the clinic after six months in line with scheduled appointment. Although review was satisfactory, fluoride therapy was repeated to prevent new caries.

CONCLUSION

Treatment of ECC is very complex. Therefore, children would benefit more from its primary prevention that must include fluoride treatment and periodic dental visit especially among the high risk children and by educating mothers on ideal oral hygiene practices. The awareness of potential and real nursing mothers on the importance of good oral hygiene practices as well as the needs to minimize the consumption of refined sugar among the children will effectively help in the prevention of ECC. Incorporation of oral health awareness in both the ante and post-natal programme for women will contribute significantly to primary prevention of early childhood caries among children. Presently, information on the level of oral health awareness among Nigerian nursing mothers is scanty and requires further research.

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