

Oral Manifestations in HIV Positive Children

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Abstract

Oral manifestations are common in children infected by HIV and are associated with serious immunosuppression and AIDS. They are considered to be indicators for the infection with a predictive value of its progression. The present study was conducted among 40 HIV positive children. Most children were found to have acquired HIV through vertical transmission [72.5%]. Enamel hypoplasia (60%) was found to be the most common oral manifestation followed by angular cheilitis (27.5). A good knowledge of oral manifestations of HIV will help in diagnosing and improving the lives of children with HIV.

Keywords: Aids, Children, Enamel Hypoplasia, Hiv, Oral Manifestations.

1. Introduction

The human immunodeficiency virus (HIV) infects human immunological cell, leading the host vulnerable to diverse types of antigens. Over 45 million people have been found to be affected by HIV all over the world [1]. In India alone, 2.3 million people have been affected by in India alone in which 805,000 are children below 15 years [2]. The cause of the symptoms is to be found in the destructive effect of the HIV virus on T-helper lymphocytes, in which the virus completes its replication cycle.

HIV was detected in 1982 for the first time and continues to afflict children in the developing countries. The immune system of pediatric patients is immature. Hence children infected with HIV are exposed to severe conditions, such as multi-systemic disease affection and faster disease development [3].

Oral mucosal lesions are common in children and considered to be the first manifestations of HIV-infection in pediatric patients and are considered to be prognostic markers. Poor oral health often results in poor quality of life, leading to difficult psychosocial and nutritional conditions and complicating the treatment of the systemic diseases [4].

HIV infection progression is faster and more severe in children, due to the immaturity of the immune system. Its clinical course can be described with a bimodal curve, where approximately 25% of infected children develop AIDS in their first year of life, with a rapid progression of the disease. The remaining 75% develop the disease later and slowly [3,4]

Literature on oral manifestations in HIV is scarce, though it was well known that the HIV progresses rapidly in children with more serious outcome [3]. Our team has extensive knowledge and research experience that has translated into high quality publications [1–15]. Hence this study was undertaken to understand oral manifestations in children who are HIV positive.

2. Methods

The present study was approved by the Institutional Ethical Review Committee of Saveetha Dental College and Hospitals (IHEC/SDC/FACULTY/22/PEDO/431). 40 HIV positive children aged 3 to 14 years old, receiving routine dental care at the Department of Pediatric and Preventive Dentistry were examined. Data obtained from medical past history and clinical examination. All the children had a confirmatory diagnosis by ELISA and/or Western blot.

Physical examination included also palpating submandibular and retroarticular cervical areas, palpating parotid glands, and observing dermatological alterations. We considered as oral manifestations those lesions diagnosed during the appointments. Previous manifestations reported by the patient were not considered. Diagnoses of these manifestations were performed by direct clinical examination, and by complementary exams, such as biopsies, cytological examinations, culture, and radiography, according to each case.

The oral lesions were diagnosed based on the EC Clearing House diagnostic criteria for paediatric

patients [5]. General examination was carried out by qualified physicians and the findings recorded. Preliminary identification of *Candida albicans* in cases of clinical oral candidiasis was done by the germ tube technique following swab inoculation and culture on Sabouraud's dextrose agar. Results were statistically analysed using SPSS version 23

3. Results

The present study included 40 HIV positive children, consisting of 20 boys and 20 girls, all whom were below 12 years of age. In boys, majority were above 7 years of age and had become positive through vertical transmission (70%). Girls had equal distribution below 6 years (50%) and above 7 years (50%). Table 1 shows the demographic details of the children.

Table 1: Demographic Details of HIV positive children

Variable	Male n=20	Female n=20
Age 2-6 7-12	8 (40%) 12 (60%)	10 (50%) 10 (50%)
Route of Transmission Vertical Blood Transfusion Unknown	14(70%) 2(10%) 4 (20%)	15(75%) 1(5%) 4(20%)

In the present study, the most common lesion was found to be enamel hypoplasia (60%) followed by

angular cheilitis (27.5%). Hairy Leukoplakia(2.5%) and Herpes Simplex(2.5%) were the least seen oral manifestations.

Table 2: Oral Manifestations seen in HIV positive children

Oral Lesion	Number	percentage
Candidiasis	2	5%
Angular Cheilitis	11	27.5%
Enamel Hypoplasia	24	60%
Parotid Enlargement	3	7.5%
Gingivitis	6	15%
Herpes Simplex	1	2.5%
Recurrent Aphthous Ulcer	3	7.5%
Hairy Leukoplakia	1	2.5%

4. Discussion

AIDS was detected in children for the first time in children in 1982. Since then, various articles have been published illustrating various symptoms and manifestations in infected pediatric patients. Only very few articles have focussed on oral manifestations of children with AIDS [3,5].

The spectrum of clinical manifestations in HIV-infected children differs in important ways compared to their adult counterparts, mostly due to differences in the viral-induced immunopathologic changes in these two different age groups [6]. Knowledge of HIV infection manifestations in children is still evolving and few data from longitudinal studies have been published. Oral lesions are common among HIV-infected patients, often being the first manifestations of disease progression in these individuals. The introduction of HAART (highly active antiretroviral therapy), both the mortality and morbidity of HIV patients has reduced, and the rate of HIV-related oral manifestations has decreased [2,7].

Candidiasis was seen in 2 patients (5%). Most studies have reported candidiasis to be the most common oral manifestation on HIV positive children [3,4,6]. Clinically, candidiasis in HIV infected child may present as creamy white pseudomembranous plaques, erythematous patches, angular cheilitis, non-scrapable hyperplastic plaques or as combination of these [6]. The present study contradicts these findings. Patients were subjected to microbiological testing to confirm the presence of candidiasis.

Angular cheilitis was seen in 11 patients (27.5%). This is in accordance to previously published studies [3,4,6,8]. Some studies have considered angular cheilitis as candidiasis as antifungal therapy resulted in resolution of the infection [6]. In the present study, Sabouraud's dextrose agar was used to identify patients with candidiasis.

Parotid enlargement has been commonly reported with HIV. In the present study, only 7.5% children had parotid enlargement. Studies have usually reported higher frequencies in the past [3,4,9]. All cases observed were bilateral, asymptomatic, and disfiguring. Although no patients related it, we observed clinically a low salivary flow in all children affected 3, [6,10]. This data suggests a relation between parotid enlargement and decreasing salivary flow. However more studies are necessary with more patients to confirm the findings.

A unique finding in our study was the high prevalence of enamel hypoplasia. There could be possible relation between the occurrence of enamel hypoplasia and HIV infection, or therapies adopted by the mother and the child during odontogenesis could have resulted in this defect. Oyodegi et al [8] reported a prevalence of 44.1% for enamel hypoplasia. They hypothesised that HIV might inhibit enamel formation. The presence of enamel hypoplasia has been reported previously [11-14]

Gingivitis was seen in only 15% of the patients. Most studies have reported high prevalence of gingivitis [3,6,8,11-14]. The lower prevalence of gingivitis in the present study can be attributed to repeated oral hygiene reminders given to children by caregivers who were trained in a oral health education camp by

another group before the study was initiated. Hairy leukoplakia is a rare oral finding in HIV positive children [4]. We were able to diagnose one case (2.5%) in the present study population. A white corrugated surface along the lateral borders of the tongue. Other findings in our study included herpes simplex (2.5%) and recurrent aphthous (7.5%) Our study had few limitations. Only 40 children were present, hence the results from the small sample size cannot be used to generalize the oral manifestations of HIV positive children. Secondly, caregivers had undergone an oral health education program which allowed them to take care of the oral hygiene of the children effectively. These children are at high risk for oral mucosal disorders due to their defective immune systems.

5. Conclusion

Within the limitations of our study, it was seen that children with HIV had high prevalence of enamel hypoplasia (60%) and angular cheilitis (27.5%). Oral manifestations in HIV positive children are considered to be the first markers of the disease. Hence it is important to identify and diagnose the oral manifestations at the earliest to provide children with good quality of life

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