PREPUBERTAL PERIODONTITIS

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ABSTRACT

Prepubertal periodontitis is a rare form of periodontitis which occurs in young children during or after the eruption of primary teeth. The disease can be localized or generalized. The patient suffering from prepubertal periodontitis may have some underlying systemic disorder. Case report of a child aged 5½ years is presented. No systemic disorder could be detected in the patient. The child was treated with tab Ofloxacin, alongwith the root-curettage and improvement in oral hygiene. Follow-up after approx 02 years revealed arrest of the disease process to a certain extent with the eruption of healthy permanent teeth.

Key words: Prepubertal periodontitis, features, management, case report.

INTRODUCTION

It is generally agreed that the forms of early onset periodontitis observed in children and young adults differ in many aspects from those commonly seen in older adults1. Inspite of this, considerable controversy has occurred about the nature of these diseases in children and the terminology used to describe them.

Based on the information available, periodontitis had been generally classified into seven distinct entities. These include-

1 Prepubertal Periodontitis (Early – onset Periodontitis—)
2 Juvenile Periodontitis
3 Adult Periodontitis
4 Rapidly ProgPeriodontitis
5 Refractory Periodontitis
6 Necrotizing Ulcerative Periodontitis
7 HIV Associated Periodontitis

PREPUBERTAL PERIODONTITIS is a rare form of aggressive periodontitis with onset during or immediately following the eruption of primary teeth. The disease may occur in children as young as 2 or 3 years of age2. The disease occurs in generalized and localized form, which differ in their features and progression.

a. FEATURES OF GENERALIZED FORM

Severe acute inflammation of the gingiva is present with clefting of the marginal gingiva. All teeth are affected. There is a rapid destruction of the gingiva and alveolar bone. Extra-vascular neutrophils are absent from the gingival tissue. Functional defects of the peripheral blood neutrophils and monocytes are seen. Skin, upper respiratory tract infections and otitis media are frequently seen. All primary teeth are affected, but the permanent dentition may or may not be affected. The disease is usually not amenable to treatment by antibiotics.

b. FEATURES OF LOCALIZED FORM

Few teeth are affected. There is little inflammation of the gingival tissue. Destruction of the gingiva and alveolar bone is not as rapid as in the generalized form. Functional defects in either the neutrophils or monocytes are present. Usually there is no history of frequent infections. The disease is amenable to the treatment by root-curettage and antibiotic therapy.

The presence of prepubertal periodontitis may or may not affect the permanent dentition. On the basis of studies so far, it appears that prepubertal periodontitis may be followed by a completely normal dentition, by periodontitis of few permanent teeth or by a generalized severe periodontitis of the permanent teeth. At
present enough data is not available to predict which course this disease will take.

Existing evidence show that prepubertal periodontitis tends to occur in families. In some patients, a clear history of recurrent infections, early loss of primary teeth can be traced through previous generations. In children with the disease of generalized form, a genetic defect has been demonstrated.

In view of Baer,3 periodontitis per se does not occur in young children but when present it can be a manifestation of some systemic disease like hypophosphatasia or agranulocytosis. Fourel,4 believes that the disease is always associated with skin lesions of the type seen in Papillon-lefevre syndrome.

In other studies however, there was no reported history of skin lesions, although patients has recurrent, sometime life threatening infections. Cases of generalized as well localized prepubertal periodontitis have been described in otherwise clinically normal children but these children may have had probably some undetected systemic disease. Clinically, prepubertal periodontitis can occur in otherwise completely healthy children.

FUNCTIONAL DEFECTS IN NEUTROPHILS AND MONOCYTES

In the patients studies by Page, et al.5, profound abnormalities in chemotaxis of both neutrophils and monocytes were found and these patients had severe destructive periodontitis, resulting in tooth loss alongwith recurrent, sometimes life-threatening infections. On the other hand, other patients who had less profound abnormalities in one but not both cell types, showed localized periodontitis of only moderate severity and no history of other disease.6 Leukocyte adherence deficiency (LAD) has been found in patients with prepubertal periodontitis.

MICROBIOLOGY

The bacteria which have been found at the diseased sites in prepubertal periodontitis include Actinobacillus actinomycetemcomitans, Capnocytophaga, Bacteroides and Eikenella Corrodens.

The data so far available indicates that localized form of prepubertal periodontitis is probably an infectious disease, associated with bacteria generally regarded as periodontal pathogens. Microbiology of generalized form of prepubertal periodontitis is presently not fully known but affected sites harbour elevated percentage of putative periodontal pathogens e.g. A.a, Bacteroides, Capnocytophaga.

METHODS OF TREATMENT

Methods for treating the prepubertal periodontitis have not been well established. However, the disease has been treated successfully to some extent by using following antimicrobials alongwith periodic scaling and root planing and improvement in the oral hygiene measures:-

a. Augmentin 1 G/day for 10 days every 06 months.

b. Tetracycline 250 mg qid/day for 01 month.

c. Minocycline 200 mg/day for 02 week

d. Ofloxacin 400 mg/day for 01 month.

The dose of antibiotic should be calculated according to the age of patient. Administration of antibiotics is sometime relatively ineffective due to the reason that patients with prepubertal periodontitis have already used numerous antibiotics to control recurrent infections, which had made the oral flora resistant to most of the antibiotics. Teeth with severe bone loss and hopeless prognosis should be extracted. Extraction of some or all teeth may have to be undertaken in generalized form of prepubertal periodontitis to save the unerupted permanent teeth.

CASE REPORT

A five and a half year old boy reported to the Periodontology Department of AFID with complaints of mobility and early exfoliation of all upper and many lower deciduous teeth. Few deciduous teeth were present in the lower arch. There was a history of recurrent upper respiratory tract infection for which he was frequently treated with different antibiotics. The boy had one elder sister (age 12 years) and one elder brother (age 10 years). The patient’s, brother and sister were healthy and had no history of similar disease.

The child was within the normal limits of height and weight. The primary teeth erupted within normal chronological time. At the age of three years, the gums around the teeth were red, swollen and sore. The teeth developed mobility and during a period of one year, he lost all his upper and many of lower primary teeth. Intra-oral examination showed (Fig.1) presence of teeth number 73, 74 and 85. Permanent upper first molars were erupting. The gingiva around the primary teeth was severely inflammed, swollen and tender. Pus could be discharged from the sulcus area with slight pres-
Fig. 1. Intra-oral photograph of Case No. 1 at the age of 5½ years, showing presence of remaining primary teeth with severe periodontal destruction.

Fig. 2. Intra-oral photograph of the patient at the age of 7½ years. Teeth present are lower incisors and first permanent molars.

sure. The oral mucosa was normal in colour and consistency.

All laboratory investigations including blood and urine analysis were within normal limits. Dermatological examination showed no hyperkeratosis of skin of palms and soles. Patient was also referred to a medical specialist but no systemic disease could be detected.

OPG showed advanced bone loss of remaining primary teeth and the first permanent molars were in the eruption stage. Unerupted permanent teeth could be seen in bony crypts in the radiograph. On the basis of history, clinical, laboratory and radiological findings, a diagnosis of "Prepubertal Periodontitis" was made. Bacterial culture of sample from periodontal pockets of teeth showed high percentage of possible periodontal pathogens. Susceptibility to several antibiotics was assessed and Ofloxacin was found to be most effective, Tab Ofloxacin 300 mg/day for 04 weeks were given intra-orally to eliminate the periodontal pathogens. Scaling and root planing of teeth was done and the patient was instructed to improve his oral hygiene. This resulted in the reduction of gingival inflammation and mobility of teeth. The patient again reported after approx two years. All the primary teeth had exfoliated. The lower incisors and first permanent molars had erupted (Fig.2), which were with healthy periodontium and disease free. The patient was advised to observe strict plaque control and to get six monthly check-up.

CONCLUSION

Prepubertal periodontitis is a rare form of periodontitis, which occurs in young children during or immediately after eruption of primary teeth. The generalized form is very often a rapidly progressive disorder. The permanent dentition may or may not be affected. Localized form affects some teeth and the destruction is not rapid. Children suffering from prepubertal periodontitis may have some underlying systemic disorder and functional defects of neutrophils or monocytes. Some or all cases may have genetic basis.

Although exact treatment of this disease is presently unknown, an improvement can possibly be achieved by using a suitable broad spectrum antibiotic, periodic root-curettage and maintenance of a meticulous oral hygiene.

REFERENCES