Changes in the arch length following premature loss of deciduous molars

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When the normal physiological process of deciduous tooth exfoliation and eruption of its successor is disrupted, a series of changes are observed in the dental arches. The aim of the study was to evaluate the amount of changes in arch length after the premature loss of deciduous molars. The sample consisted of 82 children, 53 without premature loss and 29 with premature loss of either deciduous first or second molar or both, unilaterally. A reduction in arch length was observed both in the maxilla and mandible at the molar region and an increase in arch length at the canine region in the mandible. Reduction in arch length was due to mesial migration of the molar and the increase in arch length was due to the distal migration of canine. It was seen that arch length reduction was more in maxilla as compared to the mandible and that distal drifting of canine was observed only in the mandible.


Key Words : Premature loss, Arch length

Childhood is the mirror in which are reflected the propensities of adulthood. Similarly, irregularities in the deciduous dentition give a premonition to the alert clinician about the unfolding abnormalities in the permanent dentition.

The various functions of the deciduous dentition are to provide mastication as well as to maintain the occlusion and space for permanent teeth. Exfoliation of the deciduous tooth and eruption of its permanent successor is a normal physiological process. When this normal process is disrupted as seen due to premature loss of deciduous tooth/teeth, a series of changes are observed in the dental arches.

Salzman found that the edentulous space of prematurely extracted tooth closed in 67.6% of the children, due to the movement of the adjacent teeth resulting in malocclusion. More and more workers today are of the consensus that irregularities of the primary dentition are often harbinger of disorders of the developing permanent dentition. Therefore the maintenance of arch length during this period is of great significance in the normal development of a functionally well aligned and balanced adult occlusion.

The present study was carried out to determine the amount of reduction in the arch length due to the premature loss of deciduous molars in the mixed dentition.

MATERIAL AND METHODS

The sample studied comprised of 82 children ranging in age between six to ten yrs, belonging to mixed socioeconomic status, selected from children attending the Out Patient Department of Pedodontics and Preventive Dentistry, Dr. R. Ahmed Dental College, Calcutta. They were divided into two groups as follows.

Group 1: Children without premature loss of deciduous molars (n=53).

Group 2: Children with premature loss of deciduous molars (n=29).

Criteria for selection of the samples were as follows:

Group 1 - Had complete set of dentition for a given age.
- Healthy dentition with no extensive caries or malformations.
- Children had no history of orthodontic treatment or space maintenance therapy.

Group 2 - Had unilateral loss of either first / second or both deciduous molars.
- Period of absence of tooth following premature loss was between 6 months to 1 year.
- Except for premature loss, the remaining dentition was

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