

Early Loss of Deciduous Teeth and Occlusion

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Abstract: This study was designed to observe the percentage of early loss deciduous canines, first and second molars and its effect on the occlusion among children (3-6 years of age) that were examined from urban and rural areas of Baghdad province, the result showed that premature loss of deciduous teeth was more in urban than rural samples and it was more in posterior than anterior regions as well as malocclusion was increased with premature loss of primary teeth.

Keywords: Early loss, deciduous teeth, occlusion (Iraqi Orthod J 2005; 1(2): 36-39)

The effect of premature loss of deciduous teeth on the development of the dentition is a matter of great interest. The chief problem is the extent to which such loss is responsible for malocclusion. Results of earlier investigations in this field have been somewhat variable. A premature loss of deciduous teeth was reported to cause an earlier eruption of permanent successors¹ and interfere with the harmony of adult dentition resulting in crowding caused by shifting and / or drifting of teeth toward the extraction space.²⁻⁵ Additionally it considered as a predisposing factor for phoniatric alterations, especially the deciduous maxillary incisors⁶ with the delay eruption of permanent premolars, mesial movement of permanent first molar and accelerated eruption of permanent second molar following a premature loss of primary molars.⁷ Various effects on the dental arch length, on the occlusion and the eruption of first permanent molars can be noticed following a premature loss of primary second molar^{8,9} causing vertical changes in unopposed maxillary molars without intercuspitation with drifting toward the extraction space.¹⁰ Reduction in the extraction space (especially first and second primary molars space) due to distal movement of the primary canine, without changes in arch length, width and perimeter.¹¹⁻¹² Moreover, psychological, morphological and functional problems may result from premature loss of primary teeth.¹³

In general, the premature loss of deciduous teeth affect the occlusion, however other studies are required to relate this early loss of primary teeth with the type of malocclusion. Furthermore, no previous Iraqi study was able to be found relating these two variables. This study was aimed to give the percentage of early loss of deciduous teeth and their possible effects on the occlusion (anteroposterior skeletal relationship).

MATERIALS AND METHOD

The sample consisted of 106 children at age range of 3-6 years. Males and females were randomly selected, within a period of two weeks, from Al-Buoetha village (situated 9 Km South of Baghdad).

A similar number matching with age and sex were randomly selected from kindergartens in different areas of Baghdad city.

Healthy children (no systemic disease, no cleft lip and/or palate) were examined in a standard conditions by seating the child in an upright position, the anteroposterior occlusal relationship was obtained simply by palpation method (palpating the anterior surface of the basal part of the upper and lower jaws, with the teeth in occlusion),¹⁴ by placing the tip of index finger on the anterior surface of the maxilla extraorally and the tip of the middle finger on the anterior surface of the mandible extraorally.

This method can give a reasonable clinical impression of the anteroposterior skeletal relationship, accordingly, if the tips of both fingers touch the upper and lower jaws at the same time so it was considered as class I (normal) anteroposterior relationship, but if only the tip of index finger touched the upper jaw it was considered as class II anteroposterior relationship and if only the tip of middle finger touched the lower jaw so it was considered as class III anteroposterior relationship.

The teeth were then examined carefully and if the canine and/or first and/or second primary molar was missing they had been considered as premature lost teeth.

Chi-square, ANOVA and F-tests were used for statistical analyses of data.

RESULTS

The distribution of sample with full dentition and those with early loss are seen in figure 1. The premature loss of deciduous teeth was reported to be more in urban areas compared to rural areas, the difference was statistically significant ($p < 0.05$), females demonstrate a higher premature loss of primary teeth compared to males but the difference was statistically not significant ($p < 0.05$, Table 1).

The distribution of class I, II and III occlusal relationship in both urban and rural samples for both sexes was shown in figure 2. Chi-square test revealed a statistically significant difference in the anteroposterior relationship between urban and rural samples ($p < 0.05$), whereas, the differences between males and females

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within both urban and rural samples were not significant ($p < 0.05$).

The distribution of children with premature loss of canines, first and second primary molars according to occlusal relationship is seen in figure 3, 4 and 5. The premature loss of deciduous canines were found only in class I anteroposterior relationship and although the differences between both samples were statistically not significant, it was more in rural than urban samples ($p < 0.05$) Figure 3. However, in class II and III occlusal relationship the premature loss of deciduous teeth include only the first and second primary molars only in both samples with no primary canine loss.

DISCUSSION

Since the present sample age was 3 - 6 years, any missed canine, first and second primary molars was considered as a premature loss because its normal shedding time is later than the present sample age, whereas the normal shedding time of primary incisors could be within the present sample age, therefore primary incisors were excluded from this study to prevent any subjectivity. Moreover, certain teeth may be extracted serially to prevent or reduce the severity of malocclusion later on, this extraction known as serial extraction or interceptive orthodontics which is done at the age of 8 - 9 years old, therefore any missed primary canines, first and second primary molars at the age of 3 -6 years old considered as premature loss which could be due to dental caries or trauma rather than normal shedding or serial extraction.

In the present study, the early loss of deciduous teeth was significantly more in urban than rural samples and this could be related to better dental knowledge in urban areas so they attend dental clinics whenever there is badly carious teeth, for extraction, more than those in rural areas in which the people may keep the badly carious teeth without any treatment. Moreover, early loss of primary canine was seen only with class I occlusion and this could due to high percentage of class I in comparison to class II and III occlusion and it was more in rural than in urban sample because of poor oral

hygiene and dental knowledge in rural areas in which the negligence of proper oral hygiene was noticed.

Concerning the anteroposterior occlusal relationship, class I “normal” was less in urban sample than in rural sample, and this could be related to early loss of primary teeth, which was more in urban sample, that may affect the occlusion and this is confirmed by several studies that revealed a premature loss of primary teeth affect the occlusion^{12,15-17} especially the posterior teeth so the child may tend to protrude or deviate his jaws, especially the mandible, to get an occlusal contact during mastication and this could be confirmed by increasing the percentage of class III anteroposterior occlusal relationship which is also could be related to the reduction in overjet and overbite due to attrition of teeth which occurs to a marked degree in the primary dentition resulting in an edge to edge incisor relationship of the deciduous teeth.¹⁴

On the other hand, class II anteroposterior occlusal relationship was higher in urban sample and this could be related to growth factors of the maxilla and the mandible, as the maxillary growth take places earlier than mandible, and other factors like the very common habit of thumb sucking which increased in civilized areas in which the thumb act as a stopper to a forward growth of the mandible and many push the maxilla forward increasing the tendency of class II relationship.

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Table 1: Sample Distribution.

		No.	Full dentition	Early loss	Chi-square	p	F	p
Rural	Male	53	42	11	4.843	0.088	8.693	0.002**
	Female	53	40	13				
	Total	106	82	24				
Urban	Male	53	40	13	2.64	0.104	8.693	0.002**
	Female	53	36	17				
	Total	106	76	30				

** highly significant ($p < 0.01$)

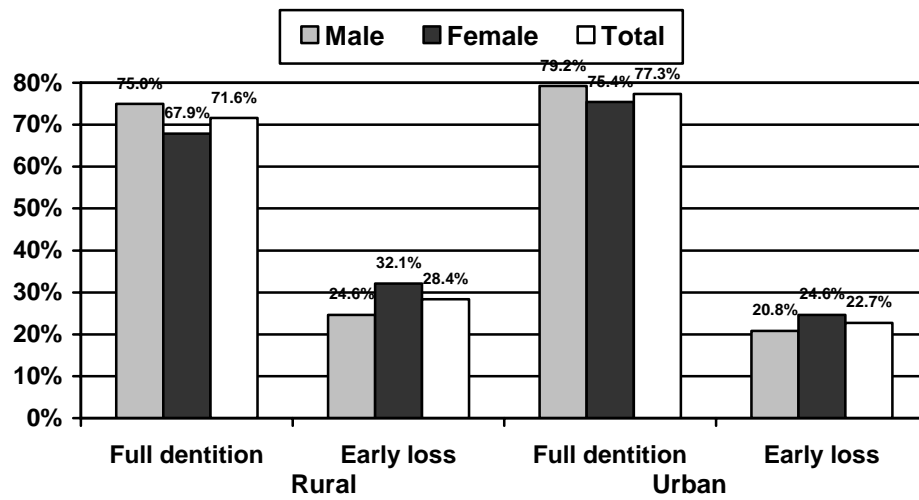


Figure 1: Distribution of children according to the teeth presence and loss.

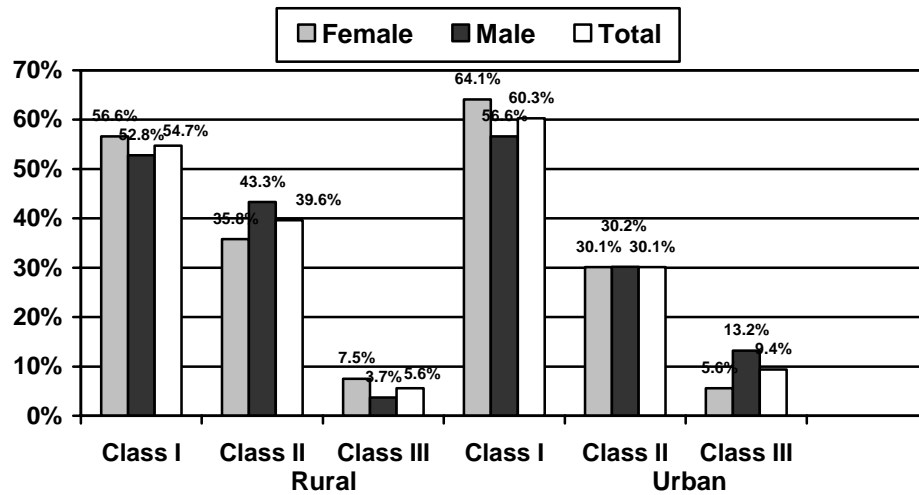


Figure 2: Distribution of males & females due to different occlusal relationship for rural & Urban samples.

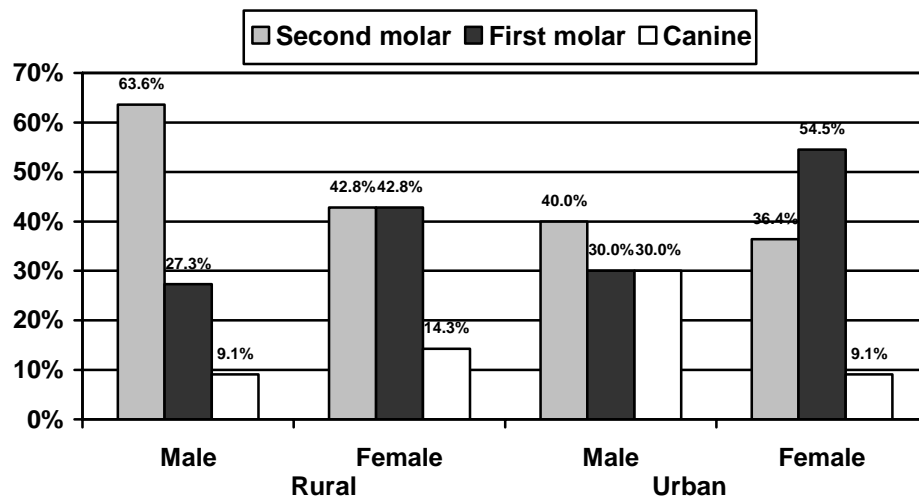


Figure 3: Distribution of children according to early loss of deciduous teeth in class I occlusal relationship.

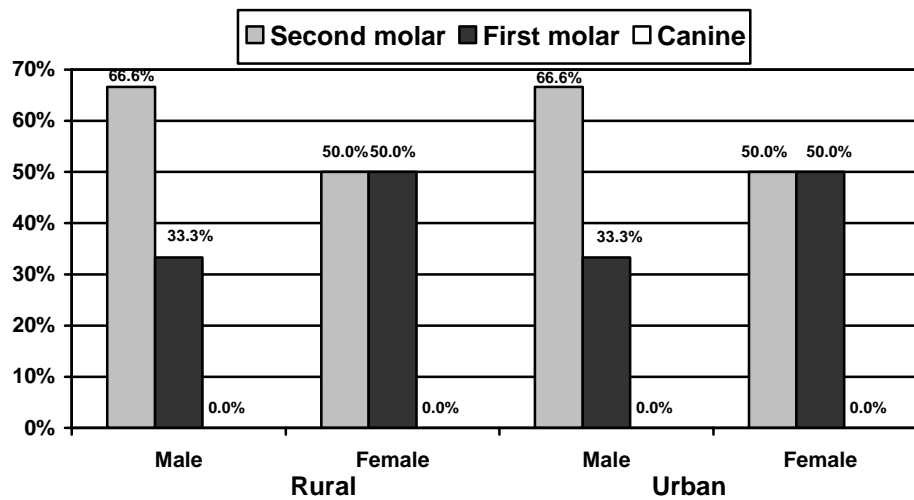


Figure 4: Distribution of children according to early loss of deciduous teeth in class II occlusal relationship.

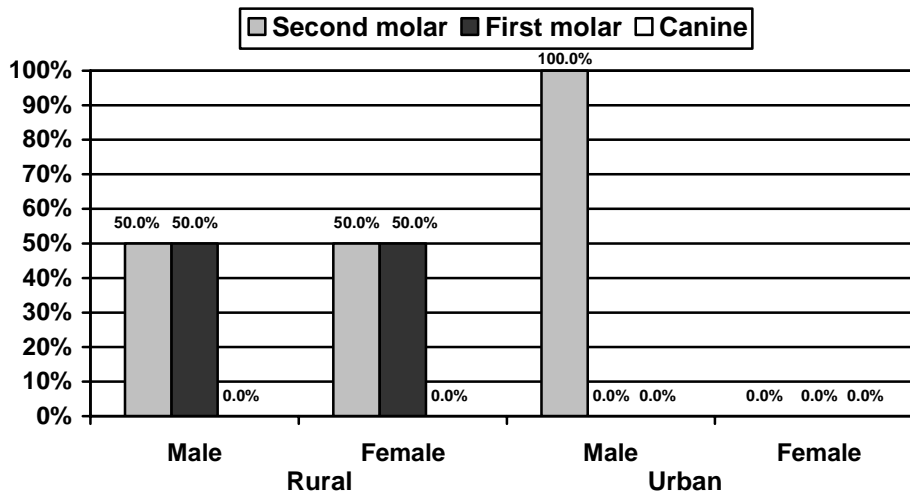


Figure 5: Distribution of children according to early loss of deciduous teeth in class III occlusal relationship.

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