

## CARIES AND ORAL HYGIENE STATUS AMONG A GROUP OF SAUDI CLEFT LIP AND PALATE CHILDREN

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### ABSTRACT

*The objective of the present study was to determine caries prevalence and oral hygiene status among a group of Saudi cleft lip and palate (CLP) children. A total of 84 cleft children (45 males and 39 females) were examined for dental caries and oral hygiene status. The children were divided into two age groups; Group A with children age one to six years and Group B with children age seven to 14 years. All the children in both age Groups had dental caries. The mean dmft (decayed, missing and filled primary teeth) score in Group A children was 10.54 (SD 4.59). In Group B children, the combined mean dmft / DMFT (decayed, missing and filled primary and permanent teeth) score was 10.92 (SD 4.90) respectively. There was no statistically significant ( $p > .05$ ) difference observed between the mean dmft / DMFT scores in relation to age and gender of the cleft children. More than half (54.7%) of the children had poor oral hygiene. In conclusion; the caries prevalence and severity was high in the studied cleft children. Majority of the children had poor oral hygiene.*

**Key words:** Dental caries, Oral hygiene, Cleft lip and palate, Children

### INTRODUCTION

Cleft lip (CL) and cleft palate (CP) are one of the most common congenital malformations noticeable at birth<sup>1,2</sup>. Cleft lip results from failure of normal fusion process of lip to come to completion during embryonic life. Cleft lip can be unilateral or bilateral, and may range from a slight noticeable scar to a complete gap running up through the nose. Cleft palate is an opening in the roof of the mouth (the palate) due to failure of palatal shelves to come fully together from either side of the mouth and fuse together. Cleft lip and palate (CLP) causes immediate and urgent feeding problems. Cleft lip creates sucking problems during feeding, whereas cleft palate makes sucking very difficult; milk or food can run out of the infant's nose instead of being swallowed. Cleft lip and palate often exist together. Both the conditions initiate at different times during pregnancy and, the exact etiology is not known. However, both the conditions are attributed to the development and growth problems during early pregnancy. Other factors such as heredity, environmental influences during pregnancy, blood supply, radiation

exposure, severe vitamin deficiencies, certain drugs and biochemical processes can also affect the human fetus.

Only two epidemiologic studies have reported the incidence of facial clefts in Saudi Arabia. Kumar et al (1991)<sup>3</sup> in a hospital based study reported an incidence of 0.3 per 1000 live births over a period of six years in Riyadh, Kingdom of Saudi Arabia. In another hospital based study, Bokar et al (1993)<sup>4</sup> reported an incidence 2.19 cleft cases per 1000 live births in AlGaseem, Saudi Arabia.

Cleft Children often experience esthetic, speech, hearing, feeding and swallowing problems as well as poor dental health<sup>5-7</sup>. Review of literature yields only few studies that have investigated the prevalence of caries in cleft children. Lauterstein & Mendelsohn (1964)<sup>8</sup> found no significant difference between caries experience of cleft children and non-cleft children in Sweden. Johnsen & Dixon (1984)<sup>9</sup> found more carious lesions in the deciduous incisors of cleft children than non-cleft children in United Kingdom. Two other comparatively newer studies conducted in United Kingdom

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have reported that more than half of the cleft children were caries free and attributed this to strict preventive dental care program in these children<sup>10,11</sup>. Investigators from other countries have reported more carious, filled and missing teeth in cleft children as compared to non-cleft children, and have concluded that children with clefts have a higher risk of developing caries than normal children of similar age group<sup>12-16</sup>.

Caries prevalence studies of school children and preschool children in Eastern region of Saudi Arabia have shown a high caries prevalence<sup>17,18</sup>. However, no such study has been conducted in Saudi cleft children. Only few studies pertaining to periodontal health of cleft children have been published. In general, periodontal disease has often been observed in the cleft children with varying degrees of severity<sup>6,7</sup>. Various studies have found that children with clefts exhibited poor oral hygiene as well as poorer gingival health<sup>10,14,19-21</sup>. In spite of an established association between gingival/periodontal health and poor oral hygiene, no information is available on the oral hygiene status of cleft children in Saudi Arabia. Therefore, the purpose of the present study was to determine caries experience and oral hygiene status among Saudi cleft Children.

**METHODOLOGY**

Cleft lip and palate children registered in CLP clinics of King Fahad Military Medical Complex and Qatif Central Hospital, Dammam, were selected for the study. These children were examined for dental caries and oral hygiene during their routine visit to the CLP Clinics, after consents from their parents. The children were divided into three categories on the basis of cleft type; CL only, CP only and CLP children. The children were examined by three examiners on a dental chair utilizing a dental mirror and explorer. The examiners were earlier calibrated with a senior King Saud University College of Dentistry faculty. The intra-examiner and inter-examiner reliabilities were determined utilizing Kappa method, and all were found excellent (0.9 and above). The data obtained during the examination were recorded on a form especially designed for the study. The following indices were used to assess caries and oral hygiene in the children.

The WHO criteria were used for the diagnosis of dental caries<sup>22</sup>. The caries was diagnosed on visual evidence, after drying and removing the debris from the teeth with the help of explorer and mirror. No radiographs were taken.

The oral hygiene index described by James et al<sup>23</sup> was utilized by the study. The index has three categories of dental cleanliness.

- Good: The teeth are clean. There is no sign of food debris or materia alba.

- Poor: The teeth are very dirty. There is considerable long-standing food debris, materia alba.
- Fair: This class falls between the two preceding ones. There is some evidence of debris, but not of the degree recognized as poor.

The data were then entered into a computer using the FOXPRO software and analyzed utilizing the Statistical Program for Social Sciences (SPSS) version #10. Various frequencies were generated. The Pearson Chi-square test was used to determine gender differences in relation to caries and oral hygiene, and any significant relation between caries and oral hygiene.

**RESULTS**

A total of 84 cleft children, 45 males and 39 females with a mean age of 6.6 (SD 3.7) years were examined during the study. There were 48 children in group A and 36 children in group B. Out of the 84 children examined, 29 (34.5%) had CL, 27 (32.1%) had CP and 28 (33.4%) had CLP. Table #1 summarizes the distribution of children by gender and cleft type. There was no difference in the caries experience or oral hygiene status in relation to cleft category, therefore combined data are presented.

The children were divided into two age groups; Group A consisted of children aged one to six years and Group B had children aged seven to 14 years. All the children in both groups had dental caries. Caries experience in both the groups is presented in Table #2. The mean dmft score in Group A children was 10.54 (SD 4.59) with decay (d) component of 9.23 (SD 4.39), missing (m) component of 1.17 (SD 1.95) and filled (f) component 0.15 (SD 1.01). In Group B children; the mean score was 10.92 (SD 4.90) with decay component of 9.6 (SD 4.77), missing component of 1.17 (SD 1.94) and filled component of 0.14 (SD 1.01). There was no significant difference ( $p > .05$ ) in mean caries scores in relation to age. Mean caries scores were slightly higher in female children as compared with male children (Table 3). However, the difference failed to reach a statistical significance ( $p > .05$ ).

TABLE 1: DISTRIBUTION OF CHILDREN BY GENDER AND CLEFT TYPE.

Cleft Type	Male (%)	Female (%)	Total (%)
CL	15 (51.7)	14 (48.3)	29 (34.5)
CP	10 (37.0)	17 (63.0)	27 (32.1)
CLP	20 (71.4)	8 (28.6)	28 (33.4)
<b>Total</b>	45 (53.6)	39 (46.4)	84 (100)

CL: Cleft lip only, CP: Cleft palate only, CLP: Cleft lip and palate

TABLE 2: CARIES EXPERIENCE OF THE CHILDREN

Age Group	Mean dmft/ DMFT (SD)	Mean decay (SD)	Mean missing (SD)	Mean filled (SD)
A	10.54 (4.59)*	9.23 (4.39)	1.17 (1.95)	0.15 (1.01)
B	10.92 (4.9)**	9.6 (4.77)	1.17 (1.94)	0.14 (1.01)

A: up to 6 years, B: Above 6 years, \* Primary teeth only, \*\* Primary and permanent teeth combined)

TABLE 3: CARIES EXPERIENCE OF THE CHILDREN IN RELATION TO GENDER

Age Group	Gender	Mean dmft/ DMFT	SD	p value
1-6 Years	Male	9.96	4.11	>0.05
	Female	11.23	5.12	
> 6 Years	Male	5.32	4.60	>0.05
	Female	6.00	5.72	

TABLE 4: ORAL HYGIENE STATUS IN RELATION TO GENDER

Gender	Oral hygiene			Total (%)
	Good (%)	Fair (%)	Poor (%)	
Male	4(8.9)	14(31.1)	27(60.0)	45(100.0)
Female	1(2.6)	19(48.7)	19(48.7)	39(100.0)
Total	5(6.0)	33(39.3)	46(54.7)	84(100.0)

TABLE 5: ORAL HYGIENE STATUS IN RELATION TO AGE

Gender	Oral hygiene			Total (%)
	Good (%)	Fair (%)	Poor (%)	
1-6 Years	4(8.3)	21(43.8)	23(47.9)	48(100.0)
> 6 Years	1(2.8)	12(33.3)	23(63.9)	36(100.0)
Total	5(6.0)	33(39.3)	46(54.8)	84(100.0)

Very few children (6%) had good oral hygiene and a great majority (94.0%) of the children had either fair or poor oral hygiene (Table 4). There was no statistically significant difference ( $p>.05$ ) between oral hygiene status in relation to gender of the cleft children.

The younger cleft children had comparatively better oral hygiene status as compared to the older group (Table 5). However; the difference was not statistically significant ( $p>.05$ ). There was no correlation ( $p>.05$ ) between caries experience and oral hygiene status in both the age groups.

## DISCUSSION

There has been a general paucity of information on caries and oral hygiene status of cleft children especially in Saudi cleft children. The present study has provided an initial insight into the subject. It is expected that this study adds useful input to the limited data available about oral health of cleft children. The results of this study would also serve as baseline data for future comparisons, and assist in planning of preventive efforts in these children.

Studies conducted on the caries experience of young cleft lip and palate children have shown considerable variation in their findings<sup>24</sup>. The present study demonstrated a very high caries experience in both primary and mixed dentition. The findings of our study are in agreement with several other studies<sup>12-15,25</sup>. The severity of caries and prevalence are known to vary with age. In primary dentition, the effects are cumulative until about 7 years of age, after which the effects decline as the primary teeth begin to exfoliate<sup>26</sup>. Previous studies<sup>17,18</sup> in non-cleft Saudi school children and preschool children in Eastern Region have shown a much lower level of caries as compared to the caries levels of cleft children in the present study. A high level of caries in cleft children could be attributed to low priority of dental care for these children because of the parents' focus on the numerous medical procedures required to correct the birth defects during early childhood. Therefore, it is very important to integrate dental preventive regimens into the general treatment protocol in these children<sup>8,27</sup>. Our medical counterparts need to be made aware of the relationship between CLP and dental health. The parents of cleft children should be informed about potential dental problems in their children, and motivated to consult their dentist for better preventive dental care. The dental profession also needs to be better informed about the special needs of cleft children. Oral rehabilitation programs need to be designed for cleft individuals leading to better dental health<sup>28</sup>.

More than half of the cleft children demonstrated poor oral hygiene in this study. Similar findings were reported in other studies in agreement to our study<sup>20,21</sup>. The poor oral hygiene in cleft children could be attributed to the deformity and surgical scars which makes it difficult to maintain good oral hygiene and to control plaque<sup>29</sup>. It has been suggested that intensive oral prophylactic programs for cleft children should be

implemented as early as possible<sup>25</sup>. A coordinated team approach for the treatment of all aspects of care should include close supervision of oral hygiene measures and continuous professional maintenance through a regular recall system for the entire life of the cleft individuals<sup>21</sup>. Parents of cleft children should be encouraged to attend for regular dental check-ups.

## CONCLUSIONS

- The caries experience of cleft lip and palate children was very high.
- There was no significant difference between caries experience of cleft children in relation to their age and gender.
- Majority of the cleft children had fair or poor oral hygiene.

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