

**Periodontal Status of Patients with Cleft Palate (CI) and Unilateral Cleft Lip, Palate and Alveolus (UCLPA)-A  
Comparative Study**

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**Type of Publication:** Original Research Paper

**Conflicts of Interest:** Nil

**Abstract**

**Background :** To evaluate and compare the oral hygiene and periodontal status in children with cleft palate (CP) and unilateral cleft lip, palate and alveolus.

**Method:** 60 patients were taken for the study. They were divided into two groups, group 1 consists of cleft palate patients and group 2 consisted of unilateral cleft lip, palate and alveolus patients. From all the patients, the following parameters were recorded: Plaque Index (PI, Silness and Loe), Sulcus Bleeding Index (SBI, Muhlemann and Son), Probing Pocket Depth (PPD), Clinical Attachment Level (CAL).

**Results:** Prevalence of periodontal disease is high among patients with cleft lip, alveolus and palate than in cleft palate as indicated by all parameters.

**Conclusion:** In this study, patients with cleft lip, palate and alveolus had poor oral hygiene and periodontal status compared with patients with cleft palate.

**Keywords** Periodontal Status, Cleft Lip, Cleft Palate, Plaque index

**Introduction**

Facial clefts are ranked as the most common congenital malformations. Cleft lip and palate (CLP) are common congenital deformities that often affect speech, hearing,

and facial esthetics and may at times lead to airway compromise.<sup>[1]</sup> CLP have an impact on multiple developmental and functional processes. Children and adults with cleft lip and palate are at increased risk for the development of gingival and periodontal diseases, which are associated with both anatomic defects and long-term orthodontic treatment.<sup>[2,3]</sup> Anatomic defects, delays in the formation and eruption of teeth, problems with orthodontic movement, and the presence of prosthetic restorations all contribute to reductions in bone levels in the areas adjacent to cleft regions. Dental and arch segment irregularities, orthodontic appliances, and persisting soft tissue folds before palatoplasty as well as the presence of scar tissue after cleft closure make oral hygiene control difficult. All of these factors enhance the progression of periodontal disease.<sup>[4,5,6]</sup>

Even before the complete closure, the soft tissue folds making it difficult to access the areas with conventional cleaning techniques and may serve as a habitat for putative pathogens. This increases the risk of enhancing the intraoral translocation of pathogens, thereby increasing the risk of periodontal infection.<sup>[7]</sup> High incidence of bleeding on probing and plaque in individuals with cleft lip, palate and alveolus (CLAP) was reported, after the

analysis of progression rate.<sup>[8]</sup> Cumulative periodontal destruction is more in teeth with long supracrestal connective tissue attachment and which is adjacent to the cleft.<sup>[9]</sup>

Evaluation of periodontal conditions is often neglected or insufficiently documented, since the patients' major problems are related to reconstructive treatment and quality of life.<sup>[10, 11]</sup> As a result, there are very few studies regarding the periodontal status in cleft patients. The aim of the study was to evaluate the periodontal status and oral hygiene in growing patients with bilateral cleft lip and palate and to compare the results with other studies.

**Materials and Methods**

The present study was conducted in 60 patients with age ranging from 10-18 years, who reported to the department of dentistry SKIMS. They were divided into two groups: Group 1 consisted of 30 patients with Cleft palate (CP) and Group 2 consisted of 30 patients with unilateral Cleft Lip Alveolus and Palate (UCLAP).

**Inclusion criteria**

- Subjects having purely congenital cleft lip/cleft palate and those having cleft lip, alveolus and palate that was not operated.
- Systemically healthy subjects.

**Exclusion Criteria**

- History of any systemic disease.
- Oral prophylaxis underwent 6 months prior to the study.
- Only the permanent teeth were considered for periodontal examination.

The dental examinations were conducted in a dental chair using a mouth mirror and Williams probe. The following parameters were recorded:

1. Plaque Index (PI, Silness and Loe 1964).
2. Sulcus Bleeding Index (SBI, Muhlemann H.R. and Son S.

1971)

3. Probing Pocket Depth (PPD)

4. Clinical Attachment Level (CAL)

**Results**

Among the 60 study subjects, 39 were males and 21 were females. Tables 1, 2, 3 and 4 show the mean difference of values between different parameters of two groups.

Table 1: Comparison of mean plaque value index between two groups			
	Group 1	Group 2	p value
Plaque index	1.28±0.36	1.59±0.35	<0.0001

Table 2: Comparison of mean sulcus bleeding index scores between the groups			
	Group 1	Group 2	p value
SBI Scores	0.09±0.11	0.21±0.22	0.01

Table 3: Comparison of mean probing pocket depth (in mm) between two groups			
	Group 1	Group 2	p value
Probing pocket depth	2.23±0.68	2.54±0.59	0.03

Table 4: Comparison of mean clinical attachment level (in mm) between the groups			
	Group 1	Group 2	p value
CAL	2.44±0.75	2.75±0.54	0.02

**Discussion**

There are only a few studies on periodontal conditions in growing patients with clefts. In fact the periodontal status may have important implications in the comprehensive treatment of these individuals.<sup>[12, 13]</sup> Alveolar process

deficiency has a negative impact on soft tissue appearance, causing functional and aesthetic problems in this area. Additionally, combined deficiencies of hard and soft tissues are particularly difficult to treat. [14, 15, 16, 17] Most authors are consistent that patients with clefts are at an increased risk for the development of periodontal disease and carious lesions. However, the data are still limited. Patients with clefts are at high risk of progress of periodontal disease if no supportive periodontal therapy is provided in their early childhood. It has already been presented that adult patients with clefts, high plaque score and gingival inflammation had more periodontal tissue destruction. Moreover, the risk of periodontal disease and the level of tissue disorders increased with age. [13]

Thus, it may be inferred from this study that subjects with CLPA are more prone for periodontal lesions. In case of neglected oral hygiene, these subjects are predisposed to periodontal disease in the direct vicinity of clefts, leading to premature pathological loosening of teeth. Thus, intensive oral hygiene measures taken by these subjects along with early interdisciplinary treatment are an effective way to prevent extensive periodontal disease.

### Conclusion

From this study, it can be concluded that patients with UCLPA had a poor oral hygiene and periodontal status when compared with cleft palate patients. It seems essential to include regular periodontal examination and prophylaxis into comprehensive treatment in cleft patients. Further assessment of a large-sized group is necessary to establish the preventive protocol in multidisciplinary treatment.

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