



*Original Research Article*

## **Orthopedic Anomalies in Children with Cleft Lip and Cleft Palate: A Survey of Patients in Rural Areas - 5 Years Study**

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### **ABSTRACT**

**BACKGROUND:** Cleft lip and cleft palate are the common congenital malformations which have drawn attention of clinicians for a long time. They are associated with many recognized syndromes and isolated anomalies. There is a lack of data from the southern rural areas of India on the incidence of orthopedic anomalies associated with cleft lip and palate. Prompt detection of such cases will lead to early intervention and better outcome.

**AIMS AND OBJECTIVE:** The aim of the study was to determine the incidence, frequency and nature of orthopedic anomalies associated with cleft lip and cleft palate in the rural areas of south India.

**METHODS:** Patients with cleft lip and cleft palate who had enrolled in the camps conducted in Adichunchanagiri Institute of Medical Sciences, Bellur between August 2006 and August 2011 were surveyed. Data including age, gender, address, associated orthopedic anomalies, family history, history of smoking and alcohol consumption by mother, occupation and age of the mother at the birth of the child, drug history and history of consanguinity were collected and analyzed.

**RESULTS:** Orthopedic anomalies associated with cleft lip and palates were seen in 9 out of 650 patients surveyed (1.38%).

**CONCLUSION:** In our study, associated orthopaedic anomalies were more common in both cleft lip and cleft palate (1.74%) cases than isolated cleft lip (1.54%) and isolated cleft palate (1.66%). A larger population based study is required to determine prevalence of the associated

orthopedic anomalies with cleft lip and palate. Routine pediatric evaluation of all cleft lip and palate patients is advocated for the early detection and intervention for the orthopedic anomalies.

**KEY WORDS:** Cleft lip, Cleft palate, CTEV, Polydactyly, Syndactyly

## INTRODUCTION

Cleft and cleft palate are the common congenital malformations which have drawn attention of clinicians for a long time. They are associated with many recognized syndromes and isolated anomalies. As many as 154 recognized syndromes are associated with cleft lip and cleft palate. Considering their large number, Cohen tabulated the various associated syndromes for rapid and efficient management of patients with oral clefts. [1]

As recent data regarding the incidence of associated orthopedic anomalies in oral clefts is lacking, this study was undertaken to record the associated orthopedic anomalies in cleft lip and cleft palate patients and as well as making recommendations to ensure improved care by early intervention.

## MATERIALS AND METHODS

This prospective study was done from the year August 2006 to August 2011 in Adichunchanagiri Institute of Medical Sciences. All the cases were examined during the camp of Rotaplast conducted for cleft lip and cleft palate patients. Complete skeletal survey was done by our orthopedic

team. The incidence, frequency and the nature of orthopedic anomalies associated with cleft lip and cleft palate were recorded. Data including age, gender, address, family history, smoking habit of the mother, consumption of alcohol by the mother, occupation and age of the mother at the birth of the child, drug history and history of consanguinity were collected and analyzed .

## RESULTS

Total of 650 cases have been registered during the camps between 2006 and 2011. An average of 150 cases of cleft lip and cleft palate were registered every year for cleft lip and palate surgery. The age group of the patients ranged from 1 month to 18 years. Majority of them lived in villages surrounding Bellur. None of the mothers had the habit of smoking or drinking alcohol. Few parents of the cases reported history of consanguinity. Early intervention was done for the 3 patients of CTEV. Cases are on follow up till date.

Of the 650 patients that were registered for the cleft lip and cleft palate repair 9 cases had associated orthopedic anomalies. CTEV was seen in 6 cases, polydactyly in 2 cases and syndactyly in 1 case.

**Table 1: Associated orthopedic anomalies in cleft lip and cleft palate.**

Cleft type	Associated orthopedic anomaly	
Cleft lip and palate (286)	CTEV, Polydactyly, Syndactyly	5(1.74%)
Isolated cleft palate (180)	CTEV	3(1.66%)
Isolated cleft lip (184)	Polydactyly	1(0.54%)
Total (650)		9

**Table 2: Gender distribution of associated orthopedic anomalies in cleft lip and cleft palate.**

Cleft type	Associated orthopedic anomaly	Male	Female
Cleft lip and palate (286)	CTEV, Polydactyly, Syndactyly	4	1
Isolated cleft palate (180)	CTEV	2	1
Isolated cleft lip (184)	Polydactyly	1	0
Total (650)		7	2

## DISCUSSION

The incidence of associated deformities in cleft lip and palate reported in the literature varies widely and that mainly depends on the manner in which the data is collected. [2] Prevalence of associated anomalies with cleft lip and cleft palate in blacks is less when compared to white and orthopedic anomalies like club foot and polydactyly associated with cleft lip and cleft palate patients are more commonly seen in blacks than any other ethnic population. [3,4]

The various deformity associated with the cleft lip and palate are CTEV, syndactyly, polydactyly, radial club hand since cleft lip being a social stigma other problems are not being intervened early. Multiple anomalies of various systems are the most frequent (47.9%), followed by isolated anomaly (29.1%) and the multiple of one system (22.9%). [5] Multiple deformities occurred more commonly in cleft lip and cleft palate, especially in the bilateral cases, greater the cleft deformity more likely is the associated anomalies. [6] Anomalies were frequently seen in cases with both cleft lip and palate (32%) than in patients with cleft lip alone (11%) or patients with cleft palate alone (22%).

Orthopedic anomalies were seen in 39 patients which includes 22 upper limb anomalies and 17 lower limb anomalies. [7] There are studies which quote facial anomalies and cardiac anomaly as the commonest anomalies seen in cleft patients. [8,9]

Our findings suggest that associated orthopedic anomalies are more common in both cleft lip and cleft palate cases (1.74%) than isolated cleft lip (0.54%) and isolated cleft palate (1.66%). This is consistent with the earlier reports which mention skeletal anomalies as the commonest associated with cleft lip and palate. [6, 10, 11] CTEV was the most common anomaly observed.

According to Vanderas, incidence of clefts with associated malformations in live births, stillbirths, abortions is different from clefts without associated malformations. [12] Therefore, a larger population based study which includes live births, still births and abortions is required to obtain a true estimate of the magnitude of the condition.

## CONCLUSION

Orthopedic anomalies associated with cleft lip and palates were seen in 1.38% of the cases. In our study, associated orthopedic anomalies were more common in

both cleft lip and cleft palate (1.74%) cases than isolated cleft lip (0.54%) and isolated cleft palate (1.66%). A larger population based study is required to determine prevalence of the associated orthopedic anomalies with cleft lip and palate in Indian population. Routine pediatric evaluation of all cleft lip and palate patients is advocated for the early detection and intervention for the orthopedic anomalies. Health insurance and funding from NGOs will help such patients in early detection of the associated anomaly and early intervention. Complete pediatric evaluation is very much essential to cut down the morbidity of such patients. The establishment of the cleft centre and also programs like rotaplast and smile train will help obviate these problems.

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