Prevalence of cleft lip and palate in a hospital-based Population in the Northern U.P.: A preliminary study

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Abstract

Objective: The purpose of this study was to report the epidemiological profile of the patients with cleft lip and palate referred to the orthodontic department of Rama dental college, hospital and research centre

Methods: The records of 2354 patients were taken who reported in Rama dental college, hospital and research centre in Kanpur Uttar Pradesh from most of the Northern U.P. region.

Results: 63 cases of cleft lip and palate were recorded among the 2354 patients. 30 cases were male and 33 were females. The study showed bilateral clefts (52%) are more common than unilateral cleft (48%). In our study, bilateral clefts were more common in females. ($p<0.05$).

Conclusions: Based on the results obtained in this study, we conclude that:

- The overall incidence of cleft lip and / or palate in was 63 in 2354 patients with a prevalence rate of 2.6%
- There is no significant variation based on gender discrimination.

Keywords: Cleft lip, cleft palate, prevalence rate, incidence, study.

Introduction

Cleft lip and/or palate (CL ± P) is the most common congenital malformation of the head and neck; it accounts for 65% of all head and neck anomalies. Blacks have the lowest incidence rate of clefts.[1] Native Americans has the highest incidence rate as 3.74 per 1000, following that Japanese subjects reports 3.36 per 1000 live births.[2] In USA, these conditions affect about one in every 700 children, with a slightly lower incidence rate of 1.3 per 1000. Most of the epidemiological studies have been carried out in USA, Europe or other countries. Asians are at higher risk than whites or blacks. [3]

Cleft lip and palate may present a very varied clinical picture, depending, at least partly, on the severity of the condition. The cause is known to be multifactorial in nature, and to include both environmental and genetic factors.[4] Medication, radiation, smoking and alcohol consumption during pregnancy have all been proposed as factors which may contribute to its a etiology.[5-7] Estimates of prevalence and incidence have varied.

There is no single efficient or universally accepted recording system for oral clefts, and inaccuracies in identifying and recording the various types of cleft are very likely to have occurred.[6] The introduction of a system of symbolic representations of cleft lip and palate anomalies in 1964 was found to be a quick and easy method of recording these disorders, and has been thought to reduce the risk of inaccuracies in recording. [7]

The functional outcomes depend on the timing of surgery, type of repair, regular follow-up, physiotherapy, and parental interest. In developed countries, these patients are seen at birth and parents are educated about the surgery and follow-up. Early interaction with cleft care team helps in timely surgery and satisfactory outcome.[8] In developing countries like India, low socioeconomic status, illiteracy, superstitions, lack of awareness, and poverty delays the presentation to the cleft care centre.[9]

No previous study exists that has studied the prevalence rate of or facial clef ting among Northern Uttar Pradesh population. This study discusses the epidemiology and clinical profile of cleft lip and palate patients who reported in Rama dental college, hospital and research centre in Kanpur Uttar Pradesh from most of the Northern U.P. region. Therefore, the present investigation was undertaken to establish the prevalence rate of cleft lip, cleft palate, differences between sexes.

Materials & Methods

This study is retrospective and cross-sectional and the target population comprises all patients referred to the orthodontic department of Rama dental college, hospital and research centre for cleft lip and/or palate in the period from August 2003 to August 2021. Firstly, all patients with a CL+/- P were recognized and various types of CL +/-P were categorized. Those patients who were born with a cleft on their lips were called as CL patients. Those patients who were born with a cleft only on their palate were called as CP patients and those who were born with a cleft on their lips extending to their palates were called as CL + P patients. After recognizing the patient with cleft, previous and following born children were recognized as non-cleft sample.

Where data was sufficient, records of all the 2354 patients were studied and analysed with respect to

- Type of cleft (unilateral/bilateral)
- Sex of the patient.

Statistical Analysis

The data was entered in MS-Excel and STATA 14.2 software was used for statistical analysis. The prevalence of cleft lip and palate cases was reported by gender and in total. The chi-square test was applied to determine the statistical associations between the independent variables and the occurrence variable. The reporting of prevalence of cleft cases was done in percentages and frequency.

The collected data were processed and analyzed using descriptive statistics and Chi-square test. $P < 0.05$ was taken as significant

Results

Presence of cleft lip and palate 63 cases of cleft lip and palate were recorded among the 2354 patients. 30 cases were male and 33 were females. The numbers of cases with cleft lip and palate unilateral or bilateral are shown in Table 1 in relation to gender.

Table 1: Frequency (n) of cleft types in relation to gender.

Gender	Bilateral	Unilateral	Total
Male	14	16	30
Female	19	14	33
Total	33	30	63

Table 2: Prevalence rate based on gender and type of cleft

	Male	Female	Unilateral	Bilateral	Total (N-2354)
Frequency (N)	30	33	30	33	63
Percentage	48 %	52 %	48 %	52 %	2.60 %
P Value*	0.436				

* P-value was obtained using chi-square test on gender and malocclusion variables

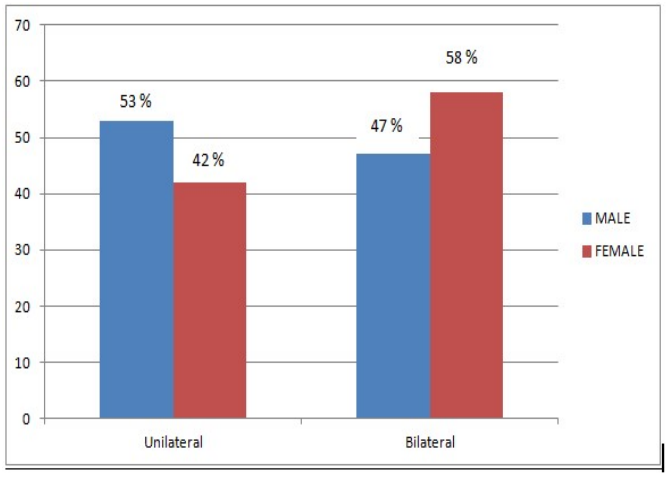

Figure 1: Gender distribution of participants in each group

Discussion

Worldwide more than 10 million people have clefts of lip and palate, the reported incidence being 0.8-1.6 for every 1000 births.[4] The age of presentation is early in case of cleft lip because of obvious esthetic concerns. A patient with cleft palate usually presents late with usual complaints of nasal regurgitation, difficult phonation, and ear problems. The mean age of surgery in cleft lip patients is 5.3 Months and in cleft palate is 1.6 Years, which are both delayed than ideal age for surgery. [5]

We noted that hospital and newspaper are helping in providing knowledge about the availability of cleft treatment, but a substantial lot of patients present late probably because of superstitions, lack of awareness about free treatment, difficult transportation making access to cleft centre difficult and illiteracy.[9] Ibrahim et al.[10] and Hodges and Hodges [11] also reported a very delayed presentation of their patients because of lack of awareness and poverty in developing countries of Africa. The latest mobile

cleft care vans are a hope to provide care to such remote poverty struck areas.

This investigation reported 2.6% prevalence of the children born with or facial clefts in Northern U.P. out of which 48% were male and 52% females. Ibrahim et al., [10] Habib [11] and Fogh-Anderson [13] also report female predominance in their studies.

The study showed bilateral clefts (52%) are more common than unilateral cleft (48%). In our study, bilateral clefts were more common in females. ($p<0.05$). Contrary to the findings of Ibrahim et al. [10]

The pitfalls of this study are the small sample size and lack of integrative management with contributions from dentists, speech pathologist, and audiologist.

Conclusion

The incidence of cleft lip and palate is similar to other countries with low socioeconomic status. We found that because of unavailability of peripheral centres for cleft awareness and its surgery, tertiary centers like ours have difficult secondary cases, prolonged hospital stay and less follow-up for dental and speech treatments. We recommend adequate public awareness and mobile cleft vans for the early management of these clefts facilitating better esthetics, feeding, speech, and dental growth.

Based on the results obtained in this study, we conclude that:

- The overall incidence of cleft lip and / or palate in was 63 in 2354 patients with a prevalence rate of 2.6%
- There is no significant variation based on gender discrimination.

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