



CLINICO-EPIDEMIOLOGICAL PROFILE OF CHILDREN WHO UNDERWENT SURGICAL CORRECTION FOR OROFACIAL CLEFTS IN SOUTH INDIA: A RETROSPECTIVE STUDY

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ABSTRACT

Introduction: The Orofacial clefts(OFC) are described as a range of abnormalities that are seen in the newborn infants. The OFC usually involves the structures around the oral cavity which sometimes extend to facial structures that results in oral, facial and craniofacial deformities. Hence the management of this condition is important not just as an aesthetic aspect but also as a psychosocially stigmatized condition as it affects the mastication, ventilation, phonation and hearing of an individual.

Aim and Objective: To assess the epidemiological distribution of OFC and utilisation of Dr. NTR Vaidya Seva Scheme for OFC Surgeries in Andhra Pradesh.

Materials and methods: This was a retrospective study based on three years data of patients undergoing plastic surgery for CL/P under Dr. NTR Vaidya Seva scheme in Andhra Pradesh. Dr. NTR Vaidya Seva Trust maintains an electronic database of all patients who underwent treatment for different conditions of which only the data related to patients utilising these services for cleft lip with or without palate has been retrieved for analysis. Data was analysed by Descriptive statistics on Microsoft Excel 2016. The frequency distribution of patients according to age, gender, type of cleft and treatment provided was done.

Results: The cases of CL/P were 629 out of these 353(56.12%) were male and 276(43.88%) were females. The majority (58.19%)of the subjects were using public healthcare facility to use the scheme whereas 41.81% of the participants preferred private healthcare facilities. In case of distribution of age at surgery among the subjects, the majority (292) were found to be below one year of age.

Conclusion: The condition of cleft lip with or without palate is a congenital birth deformity which requires treatment at the right age and right time as it may affect the development of a child. Awareness should be created among people about the risk factors of the condition.

KEYWORDS : Oro-facial clefts, Plastic Surgery, Cleft Lip / Palate, Electronic Health Records, Andhra Pradesh

Introduction:

The Orofacial clefts(OFC) are described as a range of abnormalities that are seen in the newborn infants.¹ Orofacial clefts are commonly seen craniofacial anomalies in the field of plastic and reconstructive surgery.² The OFC usually involves the structures around the oral cavity which sometimes extend to facial structures that results in oral, facial and craniofacial deformities.¹ Hence the management of this condition is important not just as an aesthetic aspect but also as a psychosocially stigmatized condition as it affects the mastication, ventilation, phonation and hearing of an individual.³ The main categories under OFC are isolated cleft palate (CP) and cleft lip with or without cleft palate (CL/P). Both types may present as part of a syndrome or other associated abnormalities.⁴ Oro-facial clefts are considered as a major health problem as it is affecting 1 in every 500 to 1000 births worldwide.⁵ According to a study by World Health Organisation(WHO) in 2001, a child is born with a cleft, every 2 minutes.⁶ The schematic representation of the different types of malformations found in cases of orofacial clefting is presented in fig-01.

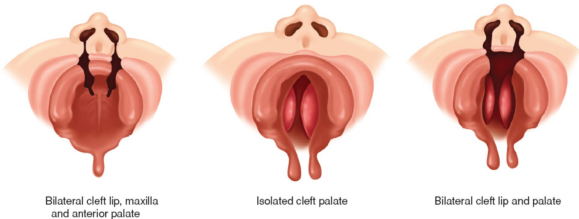
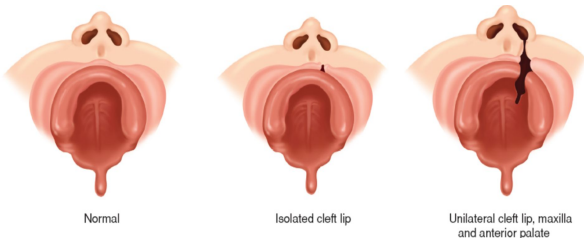


Fig 01 Schematic representation of the different types of malformations found in cases of orofacial clefting.Source: Fetology: Diagnosis and Management of the Fetal Patient 2nd edition by Diana Wet al.,⁷

India is the second most populous country of the world with a population of more than 1.21 billion, it is estimated that 24.5 million births per year and the birth prevalence of clefts is somewhere between 27,000 and 33,000 clefts per year. In India prevalence of cleft lip is estimated as 9.1 per 10,000 depending upon various epidemiological factors such as ethnicity, geographic location and socio-demographic parameters.⁸ The problem of OFC may not be an end of life problem for children, but it goes beyond that as there will be obvious disfigurement of the face and extends to social stigma and mental impairment which can affect the speech, hearing and teeth formation. The children who are having this condition are found to be teased about their cleft-related features like speech, teeth and lip appearance which will result in loss of self-confidence.⁹ Based on the National Family and Health Survey, 2015-16 (NFHS)¹⁰,



consanguineous marriages are observed to be uncommon in the northern, eastern and northeastern states. In comparison, in southern India, the highest rates are reported from the states of Andhra Pradesh, Karnataka and Tamil Nadu and Kerala.¹¹

The state of Andhra Pradesh is in the southern part of India with a population close to 50 million. It is divided into 13 districts for easy administration. According to the studies, the incidence of OFC is found to be high in Andhra Pradesh compared to other states of India.^{12,11,4,13} In the state of Andhra Pradesh, a Government sponsored Health scheme known as Dr. NTR Vaidya Seva is provided for below poverty line families (BPL) where treatment is being given free of cost for 1044 procedures. The surgeries for OFC are done free of cost under this scheme for the needy who belong to BPL category. This study was conducted to assess the utilization of services and distribution of OFC in Andhra Pradesh.

Materials and Methods:

This was a retrospective study based on three years data of patients who underwent plastic surgery for CL/P under Dr. NTR Vaidya Seva scheme during the period of June 2014 to October 2017 across the state of Andhra Pradesh. Dr. NTR Vaidya Seva Trust maintains an electronic database of all patients who underwent treatment for different conditions of which only the data related to patients utilizing these services for cleft lip with or without palate has been retrieved for analysis. A total of 629 out of 652 cases were taken after removing cases with incomplete data or improper or illegible entries. The collected data were subjected to descriptive analysis using Microsoft Excel. Data has been analyzed using frequency distribution of patients according to age, gender, type of cleft and treatment provided.

Results:

The total number of clefts during the period of June 2014 to October 2017 across the state of Andhra Pradesh using plastic surgery under Dr. NTR Vaidya Seva Scheme were found to be 629 patients. Out of these 353 (56.12%) were male and 276 (43.88%) were females. The majority (58.19%) of the subjects were using public healthcare facility to use the scheme whereas 41.81% of the participants preferred private healthcare facilities. (Table 1)

Table 1: Demographic distribution of CLP in Andhra Pradesh				
Factors	Gender		Healthcare Facility Used	
	Male	Female	Public	Private
Total	353	276	366	263
Percentage (%)	56.12	43.88	58.19	41.81

Among the 629 subjects, CL and CP cases were found to be almost close to 45% (44.52%, 44.99%) each leaving CLP as 10.49% of total subjects. The site of cleft was found to be on the right side in the majority (53.26%) of the subjects. In case of distribution of age among the subjects, the majority (292) were found to be below one year of age. (Table 2)

Table 2: Type and Distribution of Clefts among study population					
Types of Cleft Pattern	Type	Total	Age group	Gender	
	CL	280(44.52)		Male(%)	Female(%)
	CP	283(44.99)	<1	175(59.93)	117(40.07)
	CLP	66(10.49)	1 to 5	131(53.47)	114(46.53)
Site of cleft	Right	335(53.26)	5 to 10	15(36.59)	26(63.41)
	Left	294(46.74)	10 & above	32(62.75)	19(37.25)

CL: Cleft Lip, CLP: Cleft Lip & Palate, CP: Cleft Palate

The assessment of utilization of healthcare services with respect to healthcare facility is presented in Table 3. It was observed that Chittoor district (117) has recorded highest utilization of services followed by Kadapa (103) and Guntur (75). In Nellore and Kadapa districts, the utilization of private healthcare facilities was more compared to public healthcare facilities (Table 3).

Table 3: Assessment of utilization of healthcare facilities with respect to the location of patient and cleft occurrence.

District Name	Private			Private Total	Public			Public Total	Grand Total
	CL	CLP	CP		CL	CLP	CP		
Anantapur	3	0	3	6	5	0	7	12	18
Chittoor	31	0	22	53	32	0	32	64	117
East Godavari	7	0	14	21	13	0	15	28	49
Guntur	3	11	7	21	14	22	18	54	75
Krishna	5	6	4	15	8	9	13	30	45
Kurnool	16	1	10	27	22	1	11	34	61
Nellore	3	3	4	10	1	0	3	4	14
Prakasam	3	6	1	10	3	3	3	9	19
Srikakulam	0	0	5	5	9	1	6	16	21
Vishakhapatnam	14	0	14	28	20	2	20	42	70
Vizianagaram	6	0	4	10	6	0	9	15	25
West Godavari	1	1	3	5	4	0	3	7	12
Kadapa	22	0	30	52	29	0	22	51	103
Grand Total	114	28	121	263	166	38	162	366	629

CL: Cleft Lip, CLP: Cleft Lip & Palate, CP: Cleft Palate

Discussion:

This study was done based on data obtained from Dr. NTR Vaidya Seva Trust's electronic health records under plastic surgery for cleft lip and palate surgery. The records consist of data from all the Network Hospitals (NWH) both public and private empanelled throughout the state to provide cashless free treatment to BPL families. Hence the data will reflect the diversified subjects socially and generalization from district to state level is hypothetical.

This study shows that males are found to be commonly affected by cleft than females with the ratio being 56.12: 43.88 respectively. Similar kind of results was found in studies conducted by Sridhar *et al*, Devi *et al* and Nambiar *et al*^{11,14,15} whereas the study conducted by Jamilian *et al*¹⁶ observed a higher incidence of cleft in females. In this study, 44.99% were found to be having CP followed by CL with 44.52% and CLP with 10.49%. which is in contrast to the findings of Niall *et al* and Hiroshi Koga *et al*.^{17,18} Majority (44.7%) of the surgeries were performed on the age group of less than one year as the parents felt that it would affect the growth and abilities of their children, this finding was similar with the findings of Banerjee *et al* and Hunt *et al*^{6,9} where they found that the delay in surgery will lead to problems with speech, teeth formation, social stigma and disfigurement of face or lips which leads to loss of self-confidence in these children. The studies suggest that the incidence of cleft was associated with ethnicity and socioeconomic backgrounds, wherein most of the cases cleft goes uncorrected due to the cost involved in surgery. In Andhra Pradesh, these kinds of surgeries were done free of cost with the help of State Government of AP which helps the children of BPL families to overcome the burden of catastrophic healthcare expenditure.

Conclusion:

The Indians believe that the condition of CLP is caused due to exposure of women to eclipse during her pregnancy which leads to the child being born with cleft lip. This shows the traditional beliefs surrounded by this condition and shows us the need for creating awareness among people saying that the condition of cleft lip with or without palate is a congenital birth deformity. The child affected with the clefting requires treatment at the right age and right time. In case of providing care to the patients with CL/P, the approach

should be multidisciplinary. The team that provides care should include the experts from different fields like audiology, plastic surgery, speech pathologist etc., The identification of risk factors causing CL/P can be crucial as it helps in preventing/treating the orofacial clefts.

Clear and accurate data regarding the role of risk factors such as consanguinity, hereditary occurrence and folate deficiency could not be assessed due to the absence of sufficient information from the birth records.

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