Assessment Of Pattern of Distribution Of cleft Lip and Palate Patients Presented in Tertiary Care Hospital in Karachi, Retrospective Analysis

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Abstract

Objective: To assess patterns of cleft lip and palate individuals referred to tertiary care hospital in Karachi, based on the type, side, gender, laterality, and level of hard and/or soft palate involvement.

Methods: From January 2016 to January 2017, a retrospective investigation was done. It contained information about patients from December 2014 to December 2015. The study comprised a total of 198 individuals with a diagnosed cleft lip and/or palate abnormality. Health record forms were used to collect data, and pertinent results were entered on a pre-designed proforma. SPSS 17.00 was used to tabulate and analyze the data.

Results: Males accounted for 117 cases out of a total of 198. (59%). out of 198, 54 cases of isolated cleft lip (27.27%) were reported, 34 cases of isolated cleft palate (17.17%), and 110 cases of combined cleft lip and palate (55.55 %). Among 54 cases with isolated cleft lip, 43 (79.62 %) were unilateral, with 26 (48.14%) had left sided and 17 (31.48%) had right sided, and 11 (20.37%) being bilateral. Among mixed cleft lip and palate patients, 82.54% were unilateral, with 48.63% having left sided cleft lip and palate and 34.31% had right sided cleft lip and palate, and 28.45% having bilateral cleft lip and palate. There were 125 incidences of unilateral cases in all (63.13%). There were 74 left-sided cases (37.37%) and 51 right-sided cases (25.75%) in total.

Conclusion: Clefts of mixed lip and palate were the most common type, unilateral cleft lip and clefts of left side comprised of major segment of cleft patients and incomplete clefts of both lip and palate are more common in terms of reported to tertiary care hospital of Karachi.

Keywords: Cleft Lip Palate, Tertiary Care,

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Introduction

Cleft lip and palate is a craniofacial defect that affects one out of every 500 to 1000 live births across the world[1]. The greatest rate of cleft lip and palate is seen at the Japanese population (6.3/1000), while the lowest rate is found in the Negros (0.3/1000)[2]. Cleft lip and palate affects 1.9 out of every 1000 live births in Pakistan[3].

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Cleft Lip (CL): It might be unilateral (affecting only one side) or bilateral (affecting both sides). A cleft extends as of free border of the upper lip to the base of the nose, as well as to the skin, mucosa, bone, and muscles, and may extend into the nose The incomplete type just affects border of lip, leaving nose and adjacent area unaffected.

Cleft Lip and Palate (CLP) are the anatomical deformities which affects upper lip, maxillary bone, alveolar bone, and hard/soft palate and are separated by a slit or incision. Depending on the involvement of tissues and site it has two types: unilateral (UCLP) and bilateral (BCLP). Cleft Palate (CP) another intraoral deformity which is characterized by the cleft of hard and soft palates, or a cleft of the soft palate alone. Fissuration commonly extends from the nasopalatine duct up to soft palate[4]. Cleft

involving the primary palate usually occurs near the incisive foramen, where the primary and secondary palates meet. Failure of the palatal shelves to raise, adhere, or fuse can result in subsequent palate clefting[5]. Cleft lips with or without a palate are more common in males, although cleft palates are more common in females. Males are likewise more likely to have bilateral clefts[6].

The interplay of genetic and environmental variables throughout the early stages of development causes cleft lip and palate. Maternal exposure to nicotine, smoking, alcohol, and corticosteroids, folic acid deficiency, and maternal sadness are the most prevalent risk factors for solitary cleft palate[5]. Family history, antibiotic usage, stress during first three months of pregnancy, cyclic influences, cousin marriages are major health risks of cleft lip and palate development[7]. Genetic activity is hypothesized to be influenced by environmental and seasonal variations. Oro-facial clefting of the newborn has been linked to maternal cigarette smoking[8] as well. Cleft lip and palate can affect ventilation, attractiveness, dental occlusion, cosmetic maturation, communication, hearing and auditory, all of which can have psychological effects. Moreover, the problem includes repeated infections, social stigmatization, and mental incapacity that impacts language, listening, and dental growth in addition to noticeable facial defects. These children's self-esteem decreases as a result of being teased about their cleft-related traits, such as speech, teeth, and lip appearance[9]. After a thorough search of data, no current research describing the prevalence and distribution of clefts in Karachi has been discovered. As a result, the goal of this research was to evaluate distribution of cleft lip and palate patients among the community who reported to the Saifee hospital, which indicates the disease burden in that group. It has indicated the frequency of cleft patients and could help in further investigating the possible causes of these anomalies in the patients reported to Saifee hospital which in turn opens doors for prevention and management of disease.

Patients and Methods:

After receiving clearance from the institutional research council, this cross-sectional study was under taken from January 2016 to January 2017 i.e., one year. Patients' data from December 2014 to December 2015 were included in the retrospective research. Patients of both genders, age range from 0 to 35 years, and those with a confirmed cleft lip and/or palate abnormality fulfilling the inclusion criteria. Patients were recruited using simple random sampling, and a minimum sample size of 171 patients was computed using Raosoft software with a 5% margin of error, a 95 percent confidence interval, and a population size of 3074 patients with a 50 percent response distribution. Despite the fact that we included a total of 198 patients who reported to our hospital. Throughout the data gathering process, the patients' records were kept anonymous and confidential. A total of 212 people were included in the study. However, 198 records have been included for study since they met the inclusion criteria. Patient record forms were used to collect data, and pertinent results were entered on a pre-designed proforma. SPSS 17.00 was used to tabulate and analyze the data. The distribution of the cleft and the kind of cleft was quantified as percentages for qualitative factors.

Results

A total of 198 individuals with cleft lip and/or palate has been recruited. Males made up 117 of the 198 cases (59 %) Figure-1. 36 (66.6%) out of the 54 instances with solitary cleft lip were males, while 18 (33.33%) were girls. Males made up 71 (64.54 %) of mixed cleft lip and palate cases and females were made up 39 (35.45 %), whereas females made up 24 (70.58 %) of isolated cleft palate cases and males were 10 (29.4%).

Table I shows the prevalence of clefts and their dispersion. Out of 54 isolated cleft lip instances, 43 (79.62 %) were unilateral, with 26 (48.14 %) being left sided and 17 (31.48 %) being right sided, and 11 (20.37 %) being bilateral. Among patients with mixed cleft lip and palate, 82 (74.54 %) instances were unilateral, with 48 (43.63 %) being left sided and 34 (31 %) being right sided, and 28 (25.45 %) being bilateral. Total 125 incidences of unilateral cases in all (63.13 %). There were 74 left-sided instances (37.37 %) and 51 right-sided cases in total (25.7 %). There were 39 bilateral instances in all (19. 69 %). Hard and soft palate clefts, as well as

soft palate clefts, were classified in cases with solitary cleft palate.

Table II shows the distribution of clefts by side and kind, with central palatal clefts accounting for 38.23 % of all clefts.

The percentage of complete and incomplete clefts is shown in Table III. Among individuals with mixed cleft lip and palate, 84 (76.36 %) had complete clefts, whereas 26 (23.63 %) had partial clefts. All of the solitary cleft palate instances were incomplete, accounting for 34 (17.17%) of the total. In isolated cleft lip instances, 41 (75.92 %) were incomplete, whereas 13 (24.07 %) were complete. There were 95 examples of full clefts (47.97 %) and 101 cases of incomplete clefts (51.01 %). The Chi square test was employed to assess the relationship between gender and cleft type, and no statistical significance was identified. (Table-IV)

Table 1. The occurrence of clefts and their dispersion are shown.

Isolated Lip (%)		Isolated palate (%)		Mixed cleft lip and palate (%)	
27.27		17.1		55.56	
Unilateral	Bilateral	Soft palate cleft	Mixed Hard and soft palate cleft	Unilateral	Bilateral
79.62	20.37	38.23	61.76	74.54	25.45

Table 2. Distribution of total clefts by side and type

Type of cleft	Unilateral				Central		Bilateral		Total	
	Right		Left							
	n	%	n	%	n	%	n	%	n	%
CL	17	39.53	26	60.46			11	20.37	54	27.27
CP					34	17.17			34	17.17
CLP	34	31	48	43.63			28	25.45	110	55.55
Total	51	25.75	74	37.37			39	19.69	198	99.99

Table 3. Showing frequency of clefts showing completeness

S.no		Mixed cases		Isolated Cleft Palate		Isolated Cleft Lip		Total	
		%	n	%	n	%	n	%	n
1.	Complete	76.3	84	-		24.07	13	47.97	95
2.	Incomplete	23.63	26	100	34	75.92	41	51.01	101

Table 4. Showing association of type of cleft with gender (p= <0.05)

Type of cleft	Male	Female
Central	0.06	0.07
Unilateral cleft lip	0.07	0.07
Bilateral cleft lip	0.06	0.08
Unilateral cleft lip and palate	0.09	0.09
Bilateral cleft lip and palate	1.0	0.8

Discussion

The male population was a little more effected than that of the female gender (59 percent) (41 percent). This conclusion was comparable to that of research conducted in Kisoro District, Uganda, in 2014, which indicated that males were affected more than females, with 65 percent male and 35 percent female patients[8]. Although the findings of this study opposed those of a study done in Malaysia in 2015, which revealed that women were more likely than men to be affected by oral clefts, with 56.7 percent and 43.3 percent, respectively[9]. Male was the dominant gender in isolated cleft lip and mixed cleft lip and palate cases, accounting for 66.66 percent and 64.54 percent, respectively, whereas female was the dominating gender in isolated cleft palate cases (70.58 %). These findings were comparable to those of 2012 research, which found that men (55.7 %) were more prevalent in combined cleft lip and palate cases, males (66.3 %) were more common in isolated cleft lip cases, and females were more common in isolated cleft palate cases (65 %)[10]. According to another study, solitary cleft palate is the rarest cleft kind, affecting predominantly women[11]. According to the findings, the majority common cleft type was combined cleft lip and palate, which affected 55.55 % of all patients, followed by isolated cleft lip, which affected 27.27 % of patients, and isolated cleft palate, which affected 17.17 %. These findings contradicted the findings of a 2012 study in Nigeria, which found that the most prevalent kind was cleft lip (52.7 %), followed by combined cleft lip and palate (41.6 %), and 5.1% were cleft palate instances[12]. According to research done in Burkina Faso in 2015, cleft lip and palate was the most prevalent kind of cleft

(49.7 %), preceded by isolated cleft lip (48.7 %), and isolated cleft palate (48.7 %). (1.6 %). These findings were similar to those of a study conducted in Burkina Faso in 2015[13]. According to a survey conducted in Northern Pakistan in 2012, cleft lip and palate was most prevalent cleft type, followed by cleft palate, with cleft lip accounting for least number of patients[14].

In all, 63.13 % of the patients had unilateral clefts, with the left side being the most common. Left sided clefts accounted for 37.37 % of all clefts, whereas right sided clefts accounted for 25.75 %. Bilateral cases accounted for 19.69 % of all cases. A research conducted in Brazil in 2013, left sided cleft was found to be the most common (44 %), followed by right sided (24 %), and bilateral instances (15 %)[16]. Another study found a nearly identical pattern, with 57.2 % of patients having unilateral cleft, 32.7 % having left sided cleft, 24.5 % having right sided cleft, and 42.8 % having bilateral oral clefts[15], despite the proportion of bilateral cases being higher in the current study. According to a research conducted in Korea, the left side was the most commonly damaged side in unilateral clefts[16]. The number of patients with a mixed soft and hard palate cleft was higher than the number of patients with a soft palate cleft alone in isolated cleft cases, which was consistent with the findings of a study conducted in Tanzania and Nigeria, where combined soft and hard palate clefts were 83.8 % and soft palate clefts were only 3.4 %, respectively[17,18]. We discovered no correlation between the kind of cleft and gender. As a result, it is concluded that gender has no bearing on the type of cleft, and that any gender can have either form of cleft. The study was limited by the fact that it used a retrospective cross-sectional design with a small sample size. Because of lack of cooperation and mental impairment, it excludes non-cooperative, syndromic patients.In light of the findings, it is suggested that the government establish a register for cleft lip and palate patients, which will aid in determining the incidence and prevalence of the condition. This research will also help with future longitudinal studies. According to a new analysis, smoking, diabetes, and the use of certain medications such as topiramate or valproic acid are all independent predictors for cleft lip and palate[19,20].

People should be educated and counseled on the long-term consequences of such marriages in the family, especially if there is a history of cleft and other genetically transmissible disorders in the family. Efforts should be made to raise parental understanding of the etiological aspects of clefts and to dispel common misconceptions about this structural defect. It is also suggested that bigger sample sizes be used in future research so that the findings may be generalized and more representative of the community.

Conclusion

The distribution of patterns of cleft was more common in male gender, clefts of mixed lip and palate was most common type, unilateral cleft lip and clefts of left side of both lip and palate comprised of major portion of cleft patients and incomplete clefts of both lip and palate are more common in terms of extent to a tertiary care hospital of Karachi.

Conflict of Interest

Authors have no conflict of interest and no grant/funding from any organization was required.

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