Incidence and risk factors of cleft lip and palate in Diyala governorate

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Abstract

Aim: To identify the incidence and risk factors of lip and cleft palate in Diyala governorate

Patients and methods: This is a cross sectional study. It was conducted in the period from October 2023 to February 2024. We collected 6 patients who have been diagnosed with lip/cleft palate. We collected the data from the patients who attend Al-Batool teaching hospital. we collected information about age, weight, gender, any

complications, chronic diseases, causes of admission, etc. we collected the information using prepared written questionnaire and by direct interview with the patients' parents.

Results: 6 patients were enrolled in this study. the mean birth weight was 2.7 kg. 83.3% of them were full-term and 16.7% were preterm, 50% of them were males and 50% were female. The total incidence was 0.76 per 1000 persons.

Conclusion: Both cleft lip and palate are birth deformities that impact various aspects of structure and function, including eating, nutrition, speech difficulties, and appearance. We found that the incidence was 0.76 per 1000.

Introduction

Among congenital craniofacial deformities, cleft lip and palate (CL/P) is among the most frequent. A newborn with this condition will have a clearly visible deformity as a result of the palate and lip failing to fuse normally at the midline during development. In addition to being cosmetic abnormalities, cleft lip and palate (CL/P) and cleft palate alone (CPO) carry a considerable functional risk for the baby if proper care is not provided. There are several ways that CL/P affects a newborn's

ability to feed: it can cause exhaustion from increased feeding effort, nasal reflux, and difficulty forming a sufficient latch. Additionally, even though isolated CPO and CL/P are not unusual, these abnormalities are frequently a component of congenital syndromes that need to be identified and can benefit from early diagnosis and treatment. CL/P and CPO are, therefore, paradigm situations for the involvement of an interprofessional social and medical healthcare team (1).

A cleft palate results from a development failure that occurs during pregnancy. About week four, the formation of the stomodeum, or primordial mouth, starts. Around the mouth, there are five distinct facial prominences that emerge: the bilateral maxillary prominences, the bilateral mandibular prominences, and the frontonasal prominence in the middle. The nasal prominences on the medial and lateral sides grow from the frontonasal prominence. Over the course of the following week, the two maxillary prominences grow in the direction of the nasal prominences, eventually meeting the medial nasal prominences to form the lip and the lateral nasal prominences to develop into the nasolabial region. A unilateral or bilateral cleft lip results from the failure to merge at the end of week five (2).

The palate starts to develop at this point and finishes around week twelve. The median palatine process, also known as the primary palate, is formed when the medial nasal prominences unite at the midline. The lateral palatine processes, which merge at the midline between the anterior and posterior to produce the secondary palate, are formed when the medial sections of the maxillary processes rotate from a vertical to a lateral position, approximately week seven. Cleft palate is the outcome of midline fusion failure (3).

More than two hundred distinct congenital syndromes include CL/P and CPO. The two that are most frequently addressed are velocardiofacial or DiGeorge syndrome (22q11.2 deletion) and CHARGE syndrome (coloboma, heart problems,

atresia choanae, growth retardation, genital abnormalities, and ear abnormalities). Compared to 15% for CL/P, cleft palate alone is more frequently linked to additional congenital abnormalities—roughly 50%. The micro/retrognathia, glossoptosis, and cleft palate anomalies that make up the Pierre Robin sequence are the most frequently mentioned conditions linked to CPO. While it can also be detected in Treacher Collins, Nager's, DiGeorge, and fetal alcohol syndromes, Stickler syndrome is the condition where this sequence is most frequently observed (4).

The fourth most frequent congenital abnormalities and the most prevalent craniofacial defect in newborns is CL/P. According to published research, the prevalence ranges from 1 in 1,000 to 1 in 650 live births, with Asians experiencing twice the burden compared to Whites. Males are two to one more affected than females. The National Institute for Dental and Craniofacial Research showed that the prevalence of CL/P was 6.64 per 10,000 births worldwide, including stillbirths and terminations. The study covered approximately 7.5 million births. The prevalence for cleft palate alone was 3.28 per 10,000. Of these, 16% had other deformities, 7% had a recognized condition, and 77% were solitary (5).

Surgical intervention is the means by which cleft palates are finally managed. Repair is frequently done in phases, with the lip being taken care of first, then the palate. According to the often-cited rule of tens, "10 pounds, hemoglobin of 10, and age > 10 weeks," the initial surgical intervention should be timed accordingly. Cleft lip and palate surgery can be performed using a variety of approaches. The Mulliken approach for bilateral cleft lip and the Millard rotation-advancement technique for unilateral cleft lip are the most widely used lip repairs. Palatoplasty is done later, between the ages of 9 and 15 months, for both cleft palates alone and those with cleft lip. Repair methods include Veau-Wardill-Kilner V-Y pushback, Furlow double Z-plasty, and straight line repair (6).

Aim of study

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Patients and methods

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patients' parents. We preserved the privacy and we coded the patients for the reasons of confidentiality and risk of bias.

Statistical analysis was done by using SPSS Version 25 for the description of the data. We expressed the quantitative data by arithmetic mean, standard deviation and mode and the qualitative data by frequencies.

Results

6 patients were enrolled in this study. Their gender is demonstrated in table 1.

Table 1. gender

Gender	Count	Percentage
Male	3	50%

Female	3	50%
Total	6	100%

the mean birth weight was 2.7 kg and the type of cleft is demonstrated in table 2.

Table 2. type of cleft

Type	Count	Percentage
Right lip/palate	2	33.3%
Left lip/palate	1	16.7%
Bilateral	3	50%
Total	6	100%

The mode delivery is demonstrated in table 3.

Table 3. mode of delivery

Mode	Count	Percentages
Vaginal	2	33.3%
Cesarean section	4	66.7%
Total	6	100%

the associated congenital anomalies are enlisted in table 4.

Table 4. associated congenital anomalies

Congenital anomalies	Count	Percentage
Hydrocephalus	1	16.7%
Down syndrome	1	16.7%
None	4	66.7%
Total	6	100%

The gestational age demonstrated in table 5.

Table 5. gestational age

Mode	Count	Percentages
Full Term	5	83.3%
Preterm	1	16.7%
Total	6	100%

The associated maternal risk factors are demonstrated in table 6.

Table 6. associated risk factors

Risk factors	Count	Percentage
Oligohydramnios	2	33.3%
Polyhydramnios	1	16.7%

Previous family history	2	33.3%
DM	1	16.7%
Total	6	100%

Discussion

Males and females had similar rates of cleft lip and palate (50%) and 50 percent respectively; nevertheless, these findings did not differ from those of a previous study conducted in Baghdad, the capital of Iraq, by Al-Zubaidee et al. (7).

Th number of life birth during the period of research was 7820 which make the incidence of cleft lip and palate 0.76 per 1000 birth which is lower than the findings of Aldaghir et al (8).

The aetiology of most solitary cases of cleft lip and palate is thought to be complex, involving both genetic and environmental influences. In Denmark, the incidence of cleft lip and palate has doubled over the past 50 years and tripled over the past 100 years, according to Fogh-Andersen (9). A clear tendency toward a sharp rise in cleft lip and palate cases was also evident in a 30-year follow-up study conducted in Finland by Rintala et al. (10). The authors link it to a decline in infant mortality, the use of teratogenic medications during pregnancy, and an increase in the number of cleft marriages.

This study found that 33.3% of cleft patients had associated congenital anomalies, which was lower to that reported by Robent et al. (11).

For a patient with an orofacial cleft malformation to be functionally and aesthetically well, treatment must be started at the appropriate time and age. The therapeutic procedure is intricate, utilizing an integrative and multidisciplinary approach. Coordinated treatment from a variety of specialties, including as oral/maxillofacial surgery, otolaryngology, genetics/dysmorphology, speech/language pathology, orthodontics, prosthodontics, and others, is necessary for the successful management of a newborn with a cleft lip and palate. Surgical intervention must often occur in numerous phases for this reconstruction to be successful (12).

Psychological rehabilitation should be used to support the mental health of CLP patients, and patients' spirits should always be raised. In order to attain a reasonable quality of dental perfection, significant dental treatment may be required, but it shouldn't be made more extensive or difficult than is necessary. The findings of this challenge have steadily improved as a result of the multidisciplinary strategy used to solve it (13).

Conclusion and recommendations

Preventing CLP in the first place is undoubtedly the best course of action. Teaching parents and aspiring mothers and fathers is the main goal of CLP. Both cleft lip and palate are birth deformities that impact various aspects of structure and function, including eating, nutrition, speech difficulties, and appearance. For patients with orofacial cleft deformities to attain both functional and cosmetic well-being, treatment must be started at the appropriate time and age.