Cleft Lip and Palate in Anbar Province

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ABSTRACT

Background: Orofacial clefts are birth defects where the mouth or roof of the mouth (palate) does not grow together properly during development, Orofacial clefts include cleft lip [CL], cleft lip and palate [CLP], cleft palate [CP] alone, as well as median, lateral [transversal], oblique facial clefts(involved other parts of facial structures and classified by Tessier to 15 lines) are among the most common congenital anomalies at birth.
Aim: To study the types of clefts lip and palate and its distribution in Al Anbar province.
Patients and Methods: This descriptive study was carried out at Maxillofacial Unit, Ramadi Teaching Hospital from the period of August 2007 till June 2010.
Result: 125 cases of clefts (of different types) were treated surgically. Children who have an orofacial cleft require several surgical procedures and complex medical treatments. The study showed that 81 of patients with cleft palate, 27 with cleft lip and 17 with cleft lip and palate.
Conclusion: Increasing in number of cleft lip in female (60%). Increasing the percent of cleft palate may be related to environmental factors.
Keywords*: Orofacial clefts, cleft lip, cleft lip and palate, cleft palate, Anbar, Iraq*

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Introduction

A cleft is a fissure or opening. Cleft lip (*cheiloschisis*) and cleft palate (*palatoschisis*), which can also occur together as cleft lip and palate, are variations of a type of clefting congenital deformity caused by abnormal facial development during gestation(failure in union of palatal, median and lateral nasal processes) [1].

Approximately 1 out of 1000 born children has a cleft lip and/or a cleft palate[2,3]. Clefts can also affect other parts of the face, such as the eyes, ears, nose, cheeks, and forehead. In 1976, Paul Tessier described fifteen lines of cleft. Most of these craniofacial clefts are even more rare and are frequently described as Tessier clefts[1].

Cleft lip (Figure 1) is formed in the top of the lip as either a small gap or an indentation in the lip (partial or incomplete cleft) or it continues into the nose (complete cleft). Lip cleft can occur as a one sided (unilateral) or two sided (bilateral). It is advised to have newborn infants with a microform cleft checked with a craniofacial team as soon as possible to determine the severity of the cleft[1].

Cleft palate (Figure 3) is a condition in which the two plates of the skull that form the hard palate (roof of the mouth) are not completely joined. The soft palate has in these cases cleft as well. In most cases, cleft lip is also present. Cleft palate occurs in about one out of 1000 live births worldwide[2,3] . Palate cleft can be complete (soft and hard palate, possibly including a gap in the jaw) or incomplete. Because of the gap, air leaks into the nasal cavity resulting in a hypernasal voice resonance and nasal emissions and speech articulation errors like distortions, substitutions, and

omissions and compensatory misarticulations [4,5,6].

Prevalence rates reported for live births for Cleft lip with or without Cleft Palate (CL +/- P) and Cleft Palate alone (CP) varies within different ethnic groups. The highest prevalence rates for (CL +/- P) are reported for Native Americans and Asians. Africans have the lowest prevalence rates[2,3]. In facial morphogenesis, neural crest cells migrate into the facial region, where they form the skeletal and connective tissue and all dental tissues except the enamel[5]. Vascular endothelium and muscle are of mesodermal origin. The upper lip is derived from medial nasal and maxillary processes. Failure of merging between the medial nasal and maxillary processes at 5 weeks' gestation, on one or both sides, results in cleft lip. Cleft lip usually occurs at the junction between the central and lateral parts of the upper lip on either side. The cleft may affect only the upper lip, or it may extend more deeply into the maxilla and the primary palate. (Cleft of the primary palate includes cleft lip and cleft of the alveolus.) If the fusion of palatal shelves is impaired also, the cleft lip is accompanied by cleft palate, forming the cleft lip and palate abnormality[5].

Cleft palate is a partial or total lack of fusion of palatal shelves. It can occur in numerous ways[7]:

- Defective growth of palatal shelves
- Failure of the shelves to attain a horizontal position
- Lack of contact between shelves
- Rupture after fusion of shelves.

The secondary palate develops from the right and left palatal processes. Fusion of palatal shelves begins at 8 weeks' gestation and continues usually until 12 weeks' gestation[7]. One hypothesis is that a threshold is noted beyond which delayed movement of palatal shelves does not allow closure to take place, and this results in a cleft palate. Cleft lip can be easily diagnosed by performing ultrasonography in the second trimester of pregnancy when the position of the fetal face is located correctly[8]. Rate of occurrence of CP is similar for Caucasians, Africans, North American natives, Japanese and Chinese, usual range of clefts is 1-2-1 (cleft lip - cleft lip & palate - cleft palate) and usual rate of male and female is (male – male – female) 63%-73%-47%[1]. The development of the face is coordinated by complex morphogenetic events and rapid proliferative expansion, and is thus highly susceptible to environmental and genetic factors, rationalizing the high incidence of facial malformations [4,6,9]. In humans, fetal cleft lip and other congenital abnormalities have also been linked to maternal hypoxia, as caused by e.g. maternal smoking, maternal alcohol abuse or some forms of maternal hypertension treatment. Other environmental factors that have been studied include: seasonal causes (such as pesticide exposure); maternal diet and vitamin intake; retinoids - which are members of the vitamin A family; anticonvulsant drugs; alcohol; cigarette use; nitrate compounds; organic solvents; parental exposure to lead; and illegal drugs (cocaine, crack cocaine, heroin, etc.) [7]. Current research continues to investigate the extent to which Folic acid can reduce the incidence of clefting [6,7,10].

Aim of the Study

To study the types of clefts lip and palate and its distribution in Al Anbar province.

Patients and Methods

This descriptive study was carried out at Maxillofacial Unit, Ramadi Teaching Hospital as the main hospital in Anbar province, from the period of August 2007 till June 2010. 125 cases of clefts (in deferent types) were treated surgically, This includes cleft lip (figurer 1) repaired during first sixth months ,cleft lip and palate repaired during 6-18 months (figure 2) and cleft palate (Figure 3) repaired between 9-18 months.

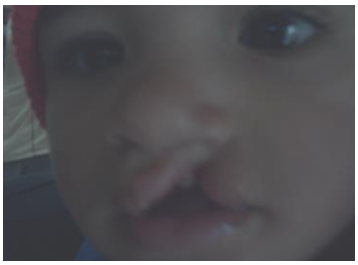

Figure 1: Cleft lip

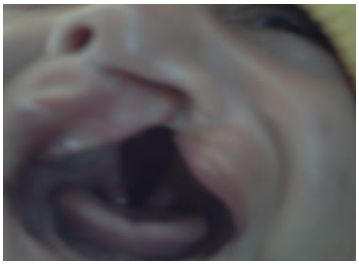

Figure 2: Cleft lip & palate

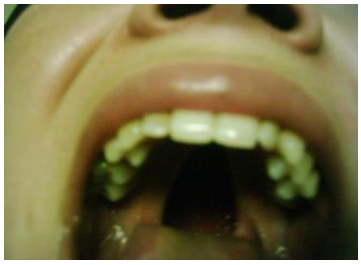

Figure 3: Cleft palate

RESULTS

125 cases of clefts (of different types) were treated surgically; the results showed that 81 patients had cleft palate, 27 patients had cleft lip and 17 had cleft lip and palate. The ratios are 64.8% C.P, 21.6% C.L, and 13.6% C.L.P in sequence (table 1). This means that among 6 patients, nearly 3 with cleft palate and 2 with cleft lip while one with cleft lip and palate. This gives the following range 2-1-3 for each 6 patients (CL-CLP-CP), increases the percent of cleft palate and decreases the percent of cleft lip and palate in relation to the other types of clefts. In this study 60% of cleft lip cases were females, 75% of cleft lip and palate were males, 58% of cleft palate cases were females this give the following sex range (female-male-female) (table2).

In calculating the number of reported cases and number of annual births in Anbar province the overall rate is about 1.2 per 1,000 live births, however the rate could be higher as some patients were visiting another centers through the same period of this study.

Table 1 Percentage of cleft lip and palate

Type	No. of cases	Percent
Cleft lip	27	21.6 %
Cleft lip and palate	17	13.6 %
Cleft palate	81	64.8 %

Table 2 sex distribution

Type	Percent in female	Percent in male
Cleft lip	60%	40%
Cleft lip and palate	25%	75%
Cleft palate	58%	42%

Discussion

In humans, fetal cleft lip and other congenital abnormalities were focused by many studies abroad as they have congenital factors and highly linked to environmental factors and to my knowledge there was no previous study about the rate of this anomaly in Al-Anbar province (west of Iraq) so this study was conducted to calculate the types and distribution of cleft lip and palate. The overall rate of this anomaly was 1.2 per 1,000 live births which is not so different from the world percent (about 1 in every 1,000 live births) [2,3] ,and in Jordon (1.4 per 1,000 live births)[11] . Moreover there were two facts found in this study:

Firstly there was increasing in the percent of cleft lip in female (60%), while in the previous studies was about 40%[1]. This changes the sex distribution from male-male-female to female-male-female (CL-CLP-CP) and may be related to the increase in the number of female births in Anbar maternal hospitals through this period.

Secondly there was an increase in the percent of cleft palate and a decrease in the percent of cleft lip and palate in relation to the another types of clefts which changed from 1-3-2 to 2-1-3 for each 6 patients[12,13,14.]

Many authors agreed about the genetic effect on clefting where there is a strong relation between the cleft lip and palate with genetic defect [6,9,10], while the relation increases between the cleft palate and environmental effect[4,6,7,9]. This study may reflect an increasing in environmental effect on clefting in Anbar. This may be as a result of wars pollutions or indirect causes like hypoxia during pregnancy period[8,15,16,17] which need further studies to reveal the presence of any direct or indirect relation between them in future.

Conclusions:

Increasing in the number of cleft lip in female (60%) and Increasing in percentage of cleft palate that may be related to environmental factors.

Recommendations:

we recommend to examine all the births and registering the cleft lip and palate defect in the birth records for more accurate assessment of its prevalence among congenital anomalies.

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