A STUDY OF CLEFT LIP AND PALATE IN NEONATES BORN IN A LARGE MALAYSIAN MATERNITY HOSPITAL OVER A 2-YEAR PERIOD

N Y Boo, A R Arshad

ABSTRACT

Out of 52,379 babies delivered in the Maternity Hospital, Kuala Lumpur, over a 2-year period, 64 were born with cleft lip and/or palates. The rate of occurrence of cleft was 1.24 per 1000 livebirths or 1.20 per 1000 deliveries. The Chinese babies had the highest incidence (1.9 per 1000 deliveries) while the Malays had the lowest (0.98 per 1000 deliveries). The most common type was unilateral cleft of the primary and secondary palates. Among the Indian babies, cleft of the secondary palate was most common. 18.8 percent of all the affected babies had positive family history of cleft. 10.9% of the mothers of affected babies had positive history of drug ingestion especially Chinese herbs during pregnancy. Associated congenital abnormalities occurred in 15.6% of the babies with cleft lip and/or palate.

Keywords: cleft lip and palate, neonates, Malaysians

SINGAPORE MED J 1990; NO 31: 59-62

INTRODUCTION

Cleft lip, cleft palate or both are among the commonest congenital malformations (1). The incidence reported in many parts of the world varies from 0.79 to 3.62 per 1000 births (2). The incidence in the Japanese ranged from 0.85 to 2.6 per 1000 livebirths, and in the Chinese 1.45 to 4.04 per 1000 livebirths (2). In a study conducted on 10,000 consecutive deliveries in the Maternity Hospital, Kuala Lumpur, Stevenson et al in 1966 (3) reported an incidence of 1.54 per 1000 births among Malaysians. However, in that study, neither the exact methodology nor the types of cleft were described.

We report here a two-year prospective study which was carried out to determine the incidence, pattern of lesions and predisposing factors in neonates born with cleft lip, cleft palate or both at the Maternity Hospital, Kuala Lumpur between January 1986 and 31 December 1987.

Department of Paediatrics
Faculty of Medicine
National University of Malaysia
Jalan Raja Muda
50400 Kuala Lumpur
Malaysia

N Y Boo, MRCP
Associate Professor

Department of Plastic Surgery
General Hospital
Kuala Lumpur
Malaysia

A R Arshad, FRCS (Edin & Glasgow)
Head of Department

METHODOLOGY

All neonates found to have cleft lip and/or cleft palate at routine postnatal examination were referred to one of us (NYB) who would examine the babies fully. The mothers of the affected babies were interviewed with regard to their age, parity, medical history, history of drug exposure during the present pregnancy, consanguinity, and any family history of cleft lip, cleft palate or both.

The cleft defects were documented with the help of the Millard's modification of the 'Striped Y' chart (4). We used the Kernahan and Stark's classification of clefts (5) for our patients. The presence of other associated congenital abnormalities were also recorded.

The mothers were advised on the method of feeding the babies. The long term management of the babies was discussed with the parents. The babies were followed up on discharge by one of the plastic surgeons in the hospital and the paediatrician (NYB).

The total number of deliveries and livebirths, including the racial distribution, in the hospital during the study period were obtained from the hospital census.

RESULTS

Between 1 January 1986 and 31 December 1987, there were 52,379 consecutive deliveries, of which 51,541 were livebirths. 64 neonates were found to have cleft lip and/or cleft palates. The rate of occurrence of cleft was thus 1.24 per 1000 livebirths (1:805 livebirths) or 1.20 per 1000 deliveries.

There were 35 female and 29 male neonates, giving a female: male ratio of 1.2:1. The female: male proportion in the 4 racial groups were - Malay 15:14, Chinese 13:10, Indian 5:4 and others 3:0.

Table I shows that Chinese babies had the highest rate of cleft while the Malays had the lowest ($p<0.05$).

7 (10.9%) of the 64 mothers gave a positive history of drug ingestion during pregnancy. Six of the mothers were Chinese who admitted to have consumed Chinese herbs for "pacifying the fetus" during the first trimester of

Table I

INCIDENCE OF CLEFT LIP AND PALATE ACCORDING TO ETHNIC ORIGINS IN THE MATERNITY HOSPITAL, KUALA LUMPUR, BETWEEN 1 JANUARY 1986 TO 31 DECEMBER 1987.

Race	No. of deliveries	Babies with Cleft	
		no.	per 1000 deliveries
Malay	29,695	29	0.98
Chinese	12,115	23	1.90
Indian	8,109	9	1.10
Others	2,460	3	1.20
Total	52,379	64	1.20

pregnancy. One Indian mother with bronchial asthma was on oral bronchodilator throughout pregnancy. None of the Malay mothers had history of taking drugs during pregnancy.

12 (18.8%) of the 64 babies had family history of cleft. 7 were Malays and 3 were Chinese. A positive history of consanguinity was obtained in one Malay family. This means that 7/29 (24.1%) of the affected Malay babies had family history of cleft while in the Chinese it was 3/23 (13%).

The mean birthweight of the 64 babies with cleft was 2904 gm (s.d. 648 gm), and the mean gestational age was 39 weeks (s.d. = 1.6). The mean age of their mothers was 27 years (s.d. = 5.1) and their parity was 3 (s.d. = 2.1). There was no significant difference in mean birthweights, gestational age, maternal age and parity among the babies with cleft lip and/or palate from the different races ($p>0.5$) (Table II).

The most common type of cleft was unilateral cleft of both the primary and secondary palate. The next common type was bilateral cleft of the primary and secondary palate, followed by cleft of the secondary palate. The least common was median cleft (Table III).

Clefts of both the primary and secondary palate were the commonest lesions in Malay and Chinese babies (Table IV) . However, the Chinese had predominantly unilateral cleft while the Malay babies had almost equal tendency to have unilateral or bilateral clefts. In the Indian babies, cleft of the secondary palate was most common.

Female babies had a higher proportion of cleft of the secondary palate and bilateral cleft of both the primary and secondary palate (Table V). Unilateral cleft, whether just cleft of primary or cleft of the primary and secondary palate were more common in males.

15.6% (10/64) of the babies had associated congenital abnormalities. The abnormalities were : congenital amputation of the fingers and toes (1 patient), natal tooth (2 patients), persistent ductus areteriosus (2 patients). Down's syndrome (2 patients), Edwards' syndrome (2 patients), and corneal opacity in the right eye (1 patient).

DISCUSSION

The incidence of cleft lip and/or palates in the Maternity Hospital, Kuala Lumpur, during this two-year period was similar to those found elsewhere (2, 3, 6-11). Like most centres' experience, we also found that : a) cleft of the primary and secondary palates were the most common lesion, b) unilateral clefts were more common than bilateral clefts, and c) cleft of the secondary palate was more common in females. However, unlike most studies which showed a male predominance, ours had a slightly higher number of affected females than males. We also did not find left-sided unilateral cleft to be more common among our Malaysian babies. This was different from the findings elsewhere where left-sided unilateral cleft accounted for as much as 75% of the unilateral clefts (10).

Compared with the incidence (1.56 per 1000 deliveries) obtained in the study of Stevenson et al done in Kuala Lumpur in 1966 (3), the incidence found in our study was lower. We are not sure whether this difference indicates a decline in the incidence of clefts among the Malaysian population. As the number of livebirths in our study was five times more than that in the study of Stevenson et al, the lower incidence was not likely to be due to an inadequate sample size of the present study. More long term study is needed before a conclusion can be made.

Our results also agreed with others' findings that the Chinese were among the races with the highest risk of being inflicted by cleft lip and/or palates (2, 3). On the other hand, the Malays in our series had only half the risk when compared with the Chinese. This finding was contrary to the study done in Alor Star in the northern part of Malaysia (12) and the figures from Stevenson et al (3) which showed that the Malays and Chinese had almost equal incidence of cleft. We are not sure what is the cause of this difference in findings. The number of babies studied in Alor Star (12) was also much less than ours (19,769 livebirths in Alor Star over three years versus 51,451 livebirths in the present study, and there was twice as many Malay babies in our study than those in the Alor Star study).

It is interesting to note that history of ingestion of drugs, Chinese herbs in particular, during pregnancy was confined only to the Chinese mothers in our series. However, without control studies, one cannot be certain how significant is the effect of Chinese herbs on the pathogenesis of clefts during the intrauterine period.

Genetics probably played an important role in our patients since 24.1% of the Malay babies and 13% of the Chinese babies had family members affected by clefts.

Several authors have found that there was an increased occurrence of cleft lip and palate, and isolated cleft palate with other malformations in neonates born to women of late maternal age (10, 11). 22/64 (34%) of the mothers in our series were above 29 years old although none of them was more than 39 years old. We are not sure to what extent the age of the mothers contributed to cleft formation in our Malaysian babies. A control study is needed to determine this.

Table II

THE BIRTHWEIGHT GESTATIONAL AGE. MATERNAL AGE AND PARITY OF 64 NEONATES WITH CLEFT LIP AND PALATE ACCORDING TO ETHNIC ORIGINS IN THE MATERNAL HOSPITAL, KUALA LUMPUR, BETWEEN JANUARY 1986 TO DECEMBER 1987.

Race	Birthweight (gram)	Gestation (weeks)	Age of Mother (years)	Parity
	mean (s.d.)	mean (s.d.)	mean (s.d.)	mean (s.d.)
Malay	2948 (770)	39 (1.5)	28 (5.0)	4 (2.5)
Chinese	2861 (462)	39 (1.3)	28 (5.3)	3 (1.9)
Indian	2975 (579)	40 (1.0)	25 (4.6)	2 (1.3)
Others	2592 (1021)	37 (4.6)	25 (6.3)	2 (0.0)

Note: s.d. = standard deviation

Table III

FREQUENCY DISTRIBUTION OF THE DIFFERENT TYPES OF CLEFT LIP AND PALATE AMONG THE 64 NEONATES BORN IN THE MATERNITY HOSPITAL, KUALA LUMPUR, BETWEEN JANUARY 1986 TO DECEMBER 1987.

Types of Cleft	Number	Total	Percentage
1. Clefts of Primary Palate only			
Unilateral		10	15.6
complete	0		
incomplete			
right	6		
left	4		
Median		1	1.6
complete	0		
incomplete	1		
Bilateral		3	4.7
complete	0		
incomplete	3		
2. Clefts of the Secondary Palate only		11	17.2
complete	6		
incomplete	5		
submucous	0		
3. Clefts of the Primary and Secondary Palates			
Unilateral		26	40.6
complete			
right	11		
left	13		
incomplete			
right	0		
left	2		
Median	0	0	0.0
Bilateral		13	20.3
complete	9		
incomplete	4		
Total	64	64	100.0

Table IV

FREQUENCY DISTRIBUTION OF THE 64 NEONATES WITH CLEFT LIP AND PALATES ACCORDING TO RACIAL ORIGIN IN THE MATERNITY HOSPITAL, KUALA LUMPUR, BETWEEN JANUARY 1986 TO DECEMBER 1987

Types of Cleft	Number of Patients (%)			
	Malay	Chinese	Indian	Others
1. Clefts of the Primary Palate only	(24.1)	(17.4)	(22.2)	(33.3)
Unilateral	5	4	1	0
Median	0	0	1	0
Bilateral	2	0	0	1
2. Clefts of Secondary Palate only	(10.3)	(17.4)	(44.4)	(0.0)
	3	4	4	0
3. Clefts of Primary and Secondary Palates	(65.5)	(65.2)	(33.3)	(66.7)
Unilateral	10	12	2	2
Median	0	0	0	0
Bilateral	9	3	1	0
Total	29	23	9	3
	(99.9)	(100)	(99.9)	(100)

Table V

FREQUENCY DISTRIBUTION OF THE 64 NEONATES WITH CLEFT LIP AND PALATES, ACCORDING TO SEX, IN THE MATERNITY HOSPITAL, KUALA LUMPUR, BETWEEN JANUARY 1986 TO DECEMBER 1987.

Types of Cleft	Male		Female	
	No.	(%)	No.	(%)
1. Clefts of the Primary Palate only				
Unilateral	6	(20.7)	4	(11.4)
Median	1	(3.4)	0	(0)
Bilateral	1	(3.4)	2	(5.7)
2. Clefts of Secondary Palate only	2	(6.9)	9	(25.7)
3. Clefts of Primary and Secondary Palates				
Unilateral	15	(51.7)	11	(31.4)
Bilateral	4	(13.8)	9	(25.7)
Total	29	(99.9)	35	(100)

REFERENCES

1. Carter CO: Genetics of common single malformations. Br Med Bull 1976;32:21-6.
2. Vanderas A: Incidence of cleft lip, cleft palate, and cleft lip and palate among races: A review. Cleft Palate J 1987;24:216-25.
3. Stevenson AC, Johnston HA, Stewart MIP, Golding DR: Congenital malformations. A report of study of series of consecutive births in 24 centers. Bull WHO 1966;34 suppl 1:47-54.
4. Millard DR: Cleft Craft: The evolution of its surgery I. The unilateral deformity. Chapter 3: The naming and classifying of clefts. Little, Brown and Company: Boston, 1976:41-55.
5. Kernahan DA, Stark RB: A new classification for cleft lip and palate. Plast Reconstr Surg 1958;22:435-41.
6. Hixon EH: A study of the incidence of cleft lip and cleft palate in Ontario. Can J Public Health 1951;42:508-11.
7. Owens JR, Jones JW, Harris F: Epidemiology of facial clefting. Arch Dis Child 1985; 60:521-4.
8. Rank BK, Thomson JA: Cleft lip and palate in Tasmania. Med J Aust 1960;10:681-8.
9. Knox G, Braithwaite F: Cleft lips and palates in Northumberland and Durham. Arch Dis Child 1963;38:66-70.
10. Moller P: Cleft lip and cleft palate in Iceland. Arch Oral Biol 1965;10:407-20.
11. Fraser GR, Calnan JS: Cleft lip and palate: Seasonal incidence, birth weight, birth rank, sex, site, associated malformations and parental age. A statistical survey. Arch Dis Child 1961;36:420-3.
12. Goh PP, Yeo TC: Major congenital anomalies in livebirths in Alor Star General Hospital during a three-year period. Med J Malaysia 1988;43:138-49.