CLINICOSTATISTIC OBSERVATIONS ON THE PATIENTS OF CLEFT LIP AND CLEFT PALATE

REPORT 1: MORPHOLOGICAL CLASSIFICATION

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This time, on the basis of the classification proposed by the Nomenclature Committee of American Cleft Palate Rehabilitation 223 cases of cleft lip and cleft palate seen at our clinic during 10 years from July 1960 to June 1970 were all classified morphologically. In addition, other congenital malformations associated with clefts were also observed statistically.

1. Though slight, the annual change showed a yearly increase and corresponded to 1.4% on the average against the total of our outpatients.

2. On sex difference, males affected were 116 cases and females 107 cases. The ratio between them was 1.08 : 1.

3. With regard to the form of cleft, unlike other reports cleft lip was most frequent and found in 101 cases (45.9%), next cleft palate in 68 cases (30.9%) and cleft lip and palate in 51 cases (23.2%). In accord with foreign reports, cleft lip and cleft lip and palate were more frequent in males, while cleft palate in females.

4. Facial cleft was seen in 3 cases. They were all transverse facial cleft (males 2, females 1).

5. In 152 cases of cleft lip and cleft lip and palate, cases of unilateral occurrence was about 4.5 times as many as those of bilateral one, and that, left unilateral occurrence was more frequent. Both complete and incomplete clefts on either right or left side were more frequent in males.

6. Based on the aforesaid classification, morphological classification was made in details :

a) Cleft of lip was found in 30 of 220 cases in all (13.6%). Incomplete unilateral cleft of lip was 14 times as many as incomplete bilateral one. They were both more abundant in males and there was little difference between the right and left sides.

b) Cleft of lip and alveolar process was confirmed in 71 cases (32.2%). It was more frequent in males and very often left unilateral.

c) Cleft palate was found in 68 cases (30.9%) and occurred about 2 times more frequently in females. Morphologically, cleft soft palate was most frequent, amounting to 60.3% of the whole, next cleft soft and hard palate, and cleft uvula in order.

d) Clefts of prepalate and palate were found in 51 cases (22.3%) and they were about 1.6 times more frequent in males. Cleft palate with unilateral cleft prepalate was found in 32 cases, about 1.6 times more frequent

as compared with 19 cases of cleft palate accompanied by bilateral cleft prepalate. Cleft palate with bilateral cleft prepalate was mostly bilateral, and cleft palate with unilateral complete cleft prepalate was often accompanied by cleft palate on the same side.

7. As to the correlation between the sites of cleft, cleft prepalate was most frequent and its frequency of appearance in the isolated regions proved to be very low.

8. Other malformations associated with clefts were found in 23 cases, among which defect of ventricular septum was most frequent (5 cases).

Clinicostatistic observations on the patients of cleft lip and cleft palate have so far been reported in every way by many authors¹⁾⁴⁻¹⁴⁾¹⁶⁾¹⁷⁾ both at home and abroad, and the form of cleft has also been classified in respective ways. There is, however, no uniformly applicable classification as yet. Since the method of classification proposed by the Nomenclature Committee of American Cleft Palate Rehabilitation¹⁵⁾, as reported by Nagai et al.⁹⁾, can be regarded in all points as most appropriate, this time with reference to this classification observation was made clinicostatistically on the patients of cleft lip and cleft palate seen at our clinic of oral surgery of Kurume University School of Medicine. At the same time, the achievements hitherto produced by us were also rearranged and rechecked on this occasion. The results obtained are as follows :

MATERIAL AND METHOD

On 223 cases of cleft lip and cleft palate inclusive of 3 cases of transverse facial cleft seen at our clinic during 10 years from July 1960 to June 1970, the forms of cleft were divided macroscopically into classes on the basis of the aforesaid classification. Moreover, the annual change, sex difference, morphological classification, correlation of clefts, other congenital malformations associated with clefts, and others were also examined statistically. In case of the statistic treatment, the numerical

value within the ration of risk (P) of 0.05 was considered as having a significant difference.

RESULTS AND CONSIDERATION

1) The annual change.

The change showed a yearly increase, though slight, and corresponded to 1.4 % against the total of outpatients (Table 1).

2) The sex difference.

All the cases of 223 were sorted depending on sex. As given in Table 2, males were 116 and females 107. The former were 1.08 times more frequent than the latter, which was in accord with the reports by other authors¹⁾⁴⁾⁶⁻¹¹⁾¹³⁾¹⁴⁾¹⁶⁾¹⁷⁾. Statistically, however, no significant difference was noted there.

3) The morphological classification of cleft lip and cleft palate.

In order to compare our results of this time with other reports hitherto made, the material was divided into 3 groups as before : cleft lip, cleft palate, and cleft lip and palate. As seen in Table 3, cleft lip was most frequent and amounted to 45.9 % of the whole, secondly cleft palate 30.9 %, and then cleft lip and palate 23.2 %. According to the past reports⁴⁾⁷⁾⁹⁾¹⁶⁾¹⁷⁾, however, cleft lip and palate proved to be most frequent, next cleft lip and cleft palate, which was different in order from our results. As to the sex difference, cleft lip and cleft lip and palate were dominant in males, and cleft palate in

TABLE 1
Annual change

Year	Total of outpatients	Number of cases of cleft lip and cleft palate	percentage
1960 (from July)	769	0	0
1961	1495	3	0.2
1962	1501	7	0.5
1963	1605	17	1.1
1964	1531	20	1.3
1965	1580	28	1.8
1966	1638	22	1.3
1967	1555	17	1.1
1968	1781	35	1.9
1969	1796	49	2.8
1970 (to June)	1027	25	2.4
Total	16278	223	1.4

TABLE 2
Sex distribution

Sex	Number of cases	Percentage
Male	116	52.1±3.3
Female	107	47.9±3.3
Total	223	100

TABLE 3
Morphological classification of cleft lip and cleft palate

Morphological classification	Sex		Total	Percentage	P
	Male	Female			
Cleft lip	60	41	101	45.9±3.4	
Cleft palate	22	46	68	30.9±3.1	
Cleft lip and palate	32	19	51	23.2±2.9	
	114	106	220	100	

(* : $P < 0.05$, ** : $P < 0.001$)

females, which agreed with the reports by many European authors¹⁾⁶⁾⁸⁾¹¹⁾¹³⁾. In this country, however, with the exception of Tsutsui¹⁶⁾ it was reported that cleft lip and palate were dominant in males, and cleft lip and cleft palate in females⁴⁾⁵⁾⁹⁾¹⁷⁾.

Next, as seen in Table 4, out of 152 cases of cleft lip and cleft lip and palate 124 cases occurred unilaterally in about 4.5 times as many frequency as 28 cases of bilateral occurrence. On the other hand, the left side was more frequent than the right with a significant dif-

TABLE 4
on the right and left sides

	Left side		Right side		Bilateral	Total
	Complete	Incomplete	Complete	Incomplete		
Male	22	25	14	16	15	92
Female	18	12	7	10	13	60
Total	40	37	21	26	28	152
	77		47			
	124					
P	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div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ference. Complete cleft was frequent on the left and incomplete one on the right. Unilateral complete or incomplete cleft was more frequent in males, and so it was, though slightly, in cases of bilateral cleft, too.

4) Facial cleft.

Facial cleft was 3 cases, corresponding to 1.3 % of the whole. They consisted of 2 males and 1 female, and were all transverse facial cleft.

5) Detailed morphological classification of cleft lip and cleft palate.

A) Cleft prepalate

Among the cases so far reported as cleft lip there are cleft lip only with the soft tissue of lip hurt and cleft prepalate. Therefore, cleft lip was subdivided into cleft of lip and cleft of lip and alveolar process.

(a) Cleft of lip

Almost like the report by Nagai et al., cleft of lip was confirmed in 30 cases, corresponding to 13.6% of all the cases. As given in Table 5, no complete cleft of lip was found in both cases of uni- and bilateral occurrence in accord with the report by Nagai et al., whereas in cases of incomplete cleft of lip, 28

TABLE 5
Morphological classification of cleft of lip

Cleft of lip		Male	Female	Total	Sum total	
Comlete	Bilateral	0	0	0	0	
	Unilateral {	Right	0	0		0
		Left	0	0		
Incomplete	Bilateral	2	0	2	2	
	Unilateral {	Right	9	6	15	28
		Left	10	3	13	
Total		21	9	30		

cases were unilateral cleft of lip and 2 cases bilateral one. The former was 14 times more frequent than the latter. On sex distinction, males (21 cases) were more frequent than females (9 cases) with a significant difference, and so it was in both cases of uni- and bilateral cleft of lip. Further, unilateral incomplete cleft of lip appeared right or left with little difference.

(b) Cleft of lip and alveolar process.

Cleft of lip and alveolar process was 71 cases, corresponding to 32.2% of the whole. Unlike Nagai et al., Table

6 showed that it was slightly more frequent in males, and that no disparity in frequency was noted between cleft alveolar process accompanied by complete cleft of lip and that accompanied by incomplete one. In regard with cleft alveolar process accompanied by complete or incomplete cleft of lip, it occurred unilateral in the large majority of cases, and yet it was found more often left in both sexes, as reported by Nagai et al.. In cases of bilateral complete cleft of lip and alveolar process, females (3 cases) were more frequent than males (1 case).

TABLE 6
Morphological classification of cleft of lip and alveolar process

Cleft of lip		Cleft alveolar process	Sex			Sum total	
			Male	Female	Total		
Complete	Bilateral	Bilateral	1	3	4	35	
	Unilateral	Right	5	4	9		31
		Left	10	12	22		
	Incomplete	Bilateral	Right	2	0		2
Left			0	0	0		
Bilateral			0	2	2		
Unilateral		Right	8	5	13	32	
		Left	13	6	19		
		Total		39	32		

B) Cleft palate

Cleft palate was 68 cases, corresponding to 30.9% of all. In regard with this deformity, like Nagai et al., females affected were about 2 times as many as males. Morphologically, as seen in Table 7, cleft soft palate was dominant in 60.3%, and then cleft soft and hard palate and cleft uvula were observed with a significant difference in descending order of 33.8% and 5.9%.

C) Clefts of prepalate and palate.

Clefts of prepalate and palate were 51 cases, amounting to 22.3% of the whole. As to the proportion of male and female, males (32 cases) were about 1.6 times as many as females (19 cases). Cleft palate with unilateral cleft prepalate was 32 cases, which was about 1.6 times more frequent in comparison with 19 cases of cleft palate with bilateral cleft prepalate. Cleft palate with bilateral complete cleft prepalate ap-

TABLE 7
Morphological classification of cleft palate

	Male	Female	Total	Percentage	P
Cleft uvula	2	2	4	5.9 ± 2.9	
Cleft soft palate	11	30	41	60.3 ± 5.9	
Cleft soft and hard palate	9	14	23	33.8 ± 5.7	
Total	22	46	68	100	

(* : $P < 0.05$, ** : $P < 0.001$)

peared overwhelmingly on both sides. In the rest, there was only one case of left complete cleft palate. It was found that cleft palate accompanied by bilateral in complete cleft prepalate was 8 cases, bilateral complete cleft palate 5 cases, cleft soft and hard palate 2 cases, and left complete cleft palate 1 case. Cleft palate with unilateral comp-

lete cleft prepalate was found in 24 cases, which was just 3 times as many as cleft palate with unilateral incomplete cleft prepalate of 8 cases. Moreover, cleft palate with unilateral complete cleft prepalate was more often accompanied by cleft palate lying on the same side (Table 8).

TABLE 8
Morphological classification of clefts of prepalate and palate

Cleft prepalate			Cleft palate	Male	Female			
Bilateral	Complete		Right complete	0	0	0	11	19
			Left complete	0	1	1		
			Bilateral complete	7	3	10		
	Incomplete		Right complete	0	0	0	8	
			Left complete	0	1	1		
			Bilateral complete	3	2	5		
			Cleft soft and hard palate	1	1	2		
Unilateral	Complete	Right	Right complete	4	2	6	24	32
			Cleft soft and hard palate	0	1	1		
		Left	Left complete	10	4	14		
			Cleft soft and hard palate	1	2	3		
	Incomplete	Right	Right complete	1	0	1	8	
			Cleft soft palate	1	1	2		
			Cleft soft and hard palate	1	1	2		
		Left	Cleft uvula	1	0	1		
			Cleft soft palate	1	0	1		
			Cleft soft and hard palate	1	0	1		
Total				32	19	51		

6) Statistics on the frequency of appearance of the site of cleft.

According to Masuyama⁷⁾, the correlation between the sites of cleft was classified as in Table 9. Unlike other reports⁹⁾¹⁰⁾, examination revealed that the case of cleft prepalate in which cleft of lip (L) and cleft alveolar process occurred simultaneously was most abundant, amounting to 32.2% of the whole, and next, cleft of prepalate, and palate appeared in descending order. There were many cases in which the sites of cleft, such as cleft of lip, cleft soft and hard palate, cleft soft palate, and cleft uvula, were found in the independent or ranging region, while in the distant region few cases of their occurrence was confirmed like other reports, as indicated by connecting solid line in Table 9.

7) Other congenital malformations found in cases of cleft lip and cleft palate.

It has already been reported by many authors¹⁻⁷⁾¹⁰⁾¹³⁾¹⁴⁾¹⁶⁾ that the present disease was quite often associated with other congenital malformations, and various malformations associated with clefts have been made public. Even our own results other congenital malformations were found in 23 of the 223 cases (10.3%), and as seen in Table 10, among 11 kinds of malformation in all defect of ventricular septum was most frequent (5 cases).

As in other reports, malformation of limbs was very scant (2 cases).

(The essential points of this paper was presented at the 16th General Meeting of Japanese Medical Society held in Tokyo on April, 1971.)

TABLE 9
Statistics on the frequency of appearance of the cleft site

L K		G	Number of incidences	
L	K	H.G. W.G U	Number of cases	Percentage
○			30	13.6±2.3
○—○			71	32.3±3.2
○		○	1	0.5±0.5
○—○		○	0	
○		○—○	2	0.9±0.6
○—○		○—○	2	0.9±0.6
○		○—○—○	1	0.5±0.5
○—○		○—○—○	7	3.2±1.2
○—○—○			0	
○—○—○—○—○—○			38	17.3±2.5
		○—○—○—○—○	0	
		○—○—○—○	23	10.5±2.1
		○—○—○	41	18.6±2.6
		○	4	1.8±0.9
Total			220	100

L : Lip K : Jaw G : Palate H.G. : Hard palate W.G. : Soft palate U : Uvula
○ the cleft site — shows the connection between cleft sites

TABLE 10
Other malformations found in cases of cleft lip and cleft palate

Kind of malformation	Number of cases
Defect of ventricular septum	5
Auricular appendix	4
Hydrocele	3
Ingninal hernia	3
Clubfoot	2
Lateral cervical fistula	1
Congenital dislocation of the hip joint	1
Craniommaracia (rickets)	1
Exotropia	1
Congenital symblepharon	1
Oblique facial cleft	1
Total	23

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