

A STATISTICAL STUDY OF THE INCIDENCE OF CONTRACTED PELVES IN CHINESE WOMEN AND ITS RELATION TO LABOR AND THE SIZE OF THE NEWBORN

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THIS study of the pelves of Chinese women was undertaken in order to ascertain, if possible, whether the measurements usually accepted as normal for other races, would apply to the Chinese. Accordingly, in a series of 500 women who were delivered spontaneously at the Margaret Williamson Hospital, Shanghai, the pelvis was measured and the data were recorded as to age, parity, presentation, length and weight of the child, and its head measurements. No attempt has been made to use the duration of labor as a factor in this study because of the uniformly unreliable histories obtained. Since the patients were rarely seen before the onset of labor, the pelvic measurements were made at the postpartum examination in maternity, before the discharge from the hospital. The measurements taken were the iliac spines and crests, the trochanters, Baudelocque's diameter, the diagonal conjugate and the transverse diameter of the outlet, and for the sake of uniformity I made all these measurements.

Similar data were recorded in a series of operative cases, but unfortunately the number in which complete data were obtainable is very small (83), on account of the propensity of sick Chinese patients to run away from the hospital before being discharged and the failure of the hospital to prevent this practice.

In spite of a careful search through the literature no adequate measurements of the Chinese pelves were found. Garner³ has measured a number of Chinese pelves but failed to include measurements of the trochanters and diameter of the outlet. As a result she erroneously concludes, "—there are yet few cases of contracted pelves among them." Whitmore⁴ makes the same error. Oppenheim (Fukien¹) gives the average weight of newborn Chinese infants as 3225 gm. for 441 males and as 3094 gm. for 501 females. No lengths or head measurements were given. It seems fair to assume that the pelvic measurements in our series may be taken as a representative average for Chinese women,

since the patients seen at Shanghai are drawn from all parts of China and comprise the larger northerners as well as the smaller southerners.

In this series of 500 spontaneous deliveries the pelvic measurements show the following averages: spines 22.07 cm., crests 26.56 cm., trochanters 29.31 cm., Baudelocque's diameter 18.80 cm., tuber ischii 8.53 cm. In only 159 of the cases was the diagonal conjugate reached and in them it averaged 11.60 cm. In all others it may be assumed to be approximately normal and to measure 12 cm. or more. In other words, the average measurements fall far below the standards regarded as normal for European and American women.

If the classification of Michaelis and Litzmann is taken, except for the funnel pelvis where a distance between the tuber ischii of 8 cm. or less is used (Williams), we find that the cases in our series fall into three main groups, funnel, generally contracted funnel, and generally contracted, as shown in Table I. There was a striking absence of rachitis, and I saw only three definite cases of rachitic pelvis in the course of over 1,500 pelvic examinations.

TABLE I. INCIDENCE OF PELVIC CONTRACTION AND PERCENTAGE OF VARIOUS TYPES OF CONTRACTION

	SPONTANEOUS	OPERATIVE
Contracted pelves	249, 49.8%	48, 58.5%
Funnel typical	160, 32.0%	25, 30.4%
Generally contracted	60, 12.0%	11, 13.4%
Generally contracted funnel	29, 5.8%	12, 14.6%
PERCENTAGE OF TOTAL NUMBER OF CONTRACTED PELVES		
Funnel typical	64.25%	52.0%
Generally contracted	24.09%	22.9%
Generally contracted funnel	11.6 %	25.0%

One notes at once the high incidence of contracted pelvis (49.8 per cent) found in 500 women able to deliver themselves spontaneously, and particularly the high incidence of funnel pelvis (32 per cent) in the series, which means that the latter constitutes 64.25 per cent of all contractions encountered. The fact, moreover, that Emmons² reported an incidence of 9.2 per cent funnel pelves among 217 North American Indian squaws is of anthropologic interest as a possible additional point connecting these two races.

Table II shows the comparative frequency of the several types of contracted pelves in the white, black, and Chinese races, the figures for the first two races being taken from Williams and Sun.⁵

From Tables II and III it will be seen that the incidence of contraction among Chinese women is nearly 3½ times as great as among white women in Baltimore and is slightly greater than among black women in that city. The funnel type of contraction occurs 6 times more frequently than among the whites, about 5 times more frequently than

among the blacks, and $3\frac{1}{2}$ times more frequently than among the North American Indians.

The tables also show the preponderant position which the funnel pelvis occupies in Chinese women, in whom it makes up 64.25 per cent of all abnormal pelves, as contrasted with 33.49 per cent and 12.87 per cent respectively in the white and black women of Baltimore. In other words, it more than takes the place of the generally contracted and generally contracted rachitic pelves seen in patients in that city.

TABLE II. COMPARATIVE FREQUENCY OF DIFFERENT TYPES OF CONTRACTED PELVES ACCORDING TO RACE

PELVES	WHITE (PER CENT)	BLACK (PER CENT)	CHINESE (PER CENT)	N. AM. INDIAN (PER CENT)
Generally contracted typical	4.74	16.62	12.0	
Generally contracted funnel	0.64	4.31	5.8	
Funnel typical	5.03	6.44	32.0	9.2
General rachitic	0.52	14.21		
Simple flat	2.43	0.84		
Flat rachitic	0.30	1.02		
Total	13.66	43.44	49.8	9.2

TABLE III. PERCENTAGE OF DIFFERENT TYPES OF CONTRACTED PELVES ACCORDING TO RACE

PELVES	WHITE (PER CENT)	BLACK (PER CENT)	CHINESE (PER CENT)
Generally contracted typical	35.23	38.80	24.09
Generally contracted funnel	4.75	10.06	11.6
Typical funnel	33.49	12.87	64.25
Generally contracted rachitic	3.82	33.17	
Simple flat	18.07	1.96	
Flat rachitic	2.20	2.37	
Atypical	2.43	0.76	

In order to make our data on pelvic measurements of practical obstetric value, an attempt has been made to correlate it with the data on the size of the newborn. For this purpose the weights of 1000 full-term infants delivered at Margaret Williamson Hospital just prior to my service there, were averaged and found to be 3123.73 gm., or 126.27 gm. less than the average for white infants. The average weight of the newborn infants in my series of 500 cases was somewhat less or 2958.61 gm. It seems this average may be low, since it includes only spontaneously delivered infants.

TABLE IV. LENGTH AND WEIGHT IN THE NEWBORN

	WHITE	BLACK	CHINESE
Length	49.64 cm.	48.75 cm.	50.16 cm.
Weight	3316.9 gm.	3104.8 gm.	2958.61 gm.

The average length of the full-term, newborn Chinese infant as obtained from our 500 spontaneous cases is 50.16 cm., as compared to

49.64 cm. for white infants and 48.75 cm. for black infants (Williams) Table IV. Unfortunately no record of the length or head measurements was made in the 1000 cases referred to above. The head measurements of these 500 infants (FO 11.56 cm., MO 13.20 cm., BP 9.16 cm., SOB 9.58 cm., SOB circumference 30.92 cm.) show no striking variations from normal, Table V.

It would appear from Table IV that the average Chinese baby born in Shanghai falls below the usual average, which may account for the relative ease of labor.

TABLE V. HEAD MEASUREMENTS OF NEWBORN

	AVERAGE (CM.)	WHITE (CM.)	BLACK (CM.)	CHINESE (CM.)
FO	11.75	11.71	11.26	11.56
MO	13.5	13.33	13.31	13.20
BP	9.25	9.25	9.05	9.16
SOB	9.5	9.7	9.29	9.58
SOB circ.	32.0			30.92

In view of the fact that among whites and negroes the smaller infants are found in cases of generally contracted pelvis and the larger children in typical funnel and simple flat pelvis, a modal study of the weights found in each of the three types of contraction encountered among the Chinese was made and is shown in Table VI. It will be seen that in the funnel typical pelvis, 38 per cent of the infants weigh

TABLE VI. MODAL WEIGHTS OF NEWBORN INFANTS GROUPED ACCORDING TO OCCURRENCE IN DIFFERENT TYPES OF Pelves

	TOTAL SERIES (PER CENT)	FUNNEL (PER CENT)	GEN. CONTRACTED (PER CENT)	GEN. CONTRACTED FUNNEL (PER CENT)
Less than 2500 gm.	9.73	10.0	5.0	0.0
2500 - 2999	31.33	38.1	21.6	20.6
3000 - 3249	22.6	20.6	30.0	37.9
3250 - 3499	19.0	16.8	18.3	13.7
3500 - 3749	9.2	8.7	15.0	17.2
3750 - 3999	6.6	4.3	5.0	10.3
4000 - 4499	1.0	0.0	3.0	0.0
4500 or more	0.05	0.0	1.6	0.0

2500-2999 gm. In the generally contracted typical pelvis, 30 per cent of the infants weigh 3000-3249 gm. In the generally contracted funnel, 37.9 per cent of the infants weigh 3000-3249 gm. In this group also are found more infants between 3500 and 3999 gm. Thus, we see quite the reverse condition obtains in the weights of Chinese infants, i.e., among generally contracted pelvis 33.3 per cent weigh 3250-3749 gm., while among the generally contracted funnel 30.9 per cent weigh 3250-3749 gm., and among the funnel pelvis 25.5 per cent weigh 3250-3749 gm.

If we admit that the generally contracted pelvis is a stigma of degeneration, and consequently smaller children are born of these women, we are confronted by the fact that either this does not hold true in the Chinese, or these pelves are not true examples of general contraction. In view of the high percentage of contracted pelves occurring in a series of spontaneous deliveries, and the uniformity with which the measurements as a whole fall below the accepted average for whites and the fact that the larger infants occur in the group of generally contracted pelves, it would seem that we are justified in assuming that the normal measurements for a Chinese female pelvis fall below the accepted standard of other races. Therefore this mode should be determined for the guidance of the obstetrician. Further compilation of data on the size of newborn infants, careful pelvic measurements, and type of labor will be necessary, however, before this can be finally established.

In order to establish the part played by age and parity of the mother and presentation of the child in determining the type of labor, a study was made of these factors and the results were what would be expected in any series of obstetric cases. In examining the presentations which occurred in the operative cases, an unusual number of transverse, 18.07 per cent was noted, as well as 8.43 per cent compound presentations.

I am fully aware that this series of cases is small and inadequate as a basis for establishing authoritative data on labor in Chinese women, but it is presented with the hope that even this compilation of measurements may be of assistance to the obstetrician dealing with Chinese patients. It is hoped even more that it may stimulate workers now in China to keep more careful and complete obstetric records for future compilation and analysis.

SUMMARY

The average pelvic measurements of 500 Chinese women delivered spontaneously in Margaret Williamson Hospital, Shanghai, show that they fall below the usual standards.

In this series 49.8 per cent of the pelves were abnormal, and the typical funnel pelvis accounts for nearly two-thirds of the entire number, while rachitic and simple flat pelvis did not occur.

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