

THE LENGTH OF THE HUMAN UMBILICAL CORD

by

PRATIBHA ROHATGI,* M.S., D.G.O.

and

B. K. GARG,** M.D., M.R.C.P., D.C.H.

The normal length of the human umbilical cord is 50-55 cm. It may be very long and one measuring 181 cm. has been reported (Javert and Bartan, 1952). There have been instances of the cord being so short that the infant's abdomen is directly in contact with the placenta, but this occurs usually in association with exomphalos (Eastman and Hellman, 1961).

It has been shown that when the placenta is situated in the fundal area, the minimum length of the cord which will allow birth of child without undue traction on the cord is about 35 cm., and when the placenta is in the lower uterine segment, this figure is further reduced and has been computed as being 20 cm (Eastman and Hellman, 1961).

Apart from the papers of Walker and Pye (1960) and Malpas (1964) from Britain, there has been no significant contribution on this aspect, especially from India. It is because of this paucity of data that the present study was undertaken.

Material and Method

The lengths of the umbilical cords

*Lecturer in Obstetrics & Gynecology.

**Lecturer in Pediatrics.

G.S.V.M. Medical College, Kanpur.

Received for publication on 18-10-1968.

of 486 consecutive full-term neonates were recorded. Newborns with congenital malformations were excluded. The mother's age and parity and the weight and sex of each baby was also recorded.

Observations and Discussion

The observed lengths of the umbilical cords are shown in the table. Minimum length was 25.5 cm. and maximum 108.0 cm., with a mean of 58.1 cm.

TABLE I
Length of Umbilical Cord

Length in Cms.	Cases		
	No.	Per cent	
25-30	3	0.6	} 4.7%
30-35	7	1.4	
35-40	13	2.7	
40-45	27	5.5	
45-50	74	15.2	} 87.9%
50-55	112	23.0	
55-60	81	17.1	
60-65	62	12.7	
65-70	31	6.4	
70-75	24	4.9	
75-80	15	3.1	
80-85	8	1.6	} 7.4%
85-90	11	2.2	
90-95	7	1.4	
95-100	4	0.8	
100-105	5	1.0	
105-110	2	0.4	
TOTAL	486	100.0	

Statistical analysis of table 1

Minimum length = 25.5 Cm.
 Maximum length = 108.0 Cm.
 Mean = 58.1 Cm.
 Range = 82.5 Cm.
 Standard deviation = 13.02
 Coefficient of variation = 22.4

The histogram shows that there is a rapid increase from the minimum of 25.5 cm to the peak at 50 cm and decrease to the maximum of 108 cm.; a rapid fall to 70 cm and then a slow fall. It will be seen that 87.9% of cords measured from 40 to 80 cm, 4.7% were less than 40 cm. and 7.4% measured more than 80 cm. The cords of male babies tended to be longer.

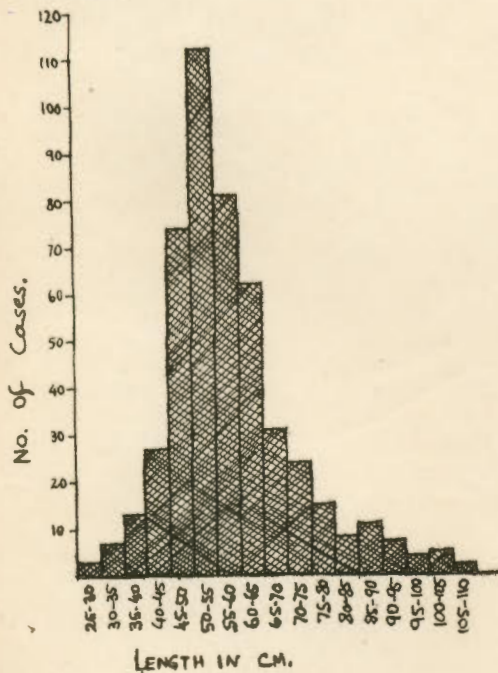


Fig. 1

We did not find any correlation between the length of the umbilical cord and weight of either foetus or placenta.

9

Malpas (1964) found that the cord at or near term varies in a continuous series from about 30 cm. to 129 cm. with a mean of 61 cm. Javert (1957) found that the length of the cord was usually the same as the standing height of the foetus at all stages of pregnancy. He defined a short cord as one less than one-third of the standing height of the foetus and a long one as three or more times its height.

Walker and Pye (1960) suggested that the length of the cord did not increase after the 28th week of pregnancy, nor was there any correlation of length with the mother's weight, height, length of baby, duration of pregnancy, weight of the baby, parity, or age of the mother.

Summary

There is a wide range in the length of umbilical cords in normal babies. The length of 486 cords of normal term babies was found to vary from a minimum of 25.5 cm. to 108 cm., with a mean of 58.1 cm. The cords of male babies tended to be longer. No correlation was found between the weight of baby or placenta and the length of the umbilical cord.

Acknowledgement

Our thanks are due to Mr. J. Singh, M.Sc. (Statistics), Statistician, Central Research Station, G. S. V. M. Medical College, Kanpur, for statistical analysis of the data of this paper.

References

1. Eastman, N. J. and Hellman, L. M.: William's Obstetrics, ed. 12, New

York, 1961, Appleton Century Crofts Inc.

2. Javert, C. T.: Spontaneous and Habitual Abortion, London, 1957, Blackston Division, McGraw Hill Co. Inc., p. 128.

3. Javert, C. T. and Bartan, B.: Am. J. Obst. & Gynec., 63: 1065, 1952.
4. Malpas, P.: Brit. Med. J. 1: 673, 1964.
5. Walker, C. W. and Pye, B. G.: Brit. Med. J. 1: 546, 1960.

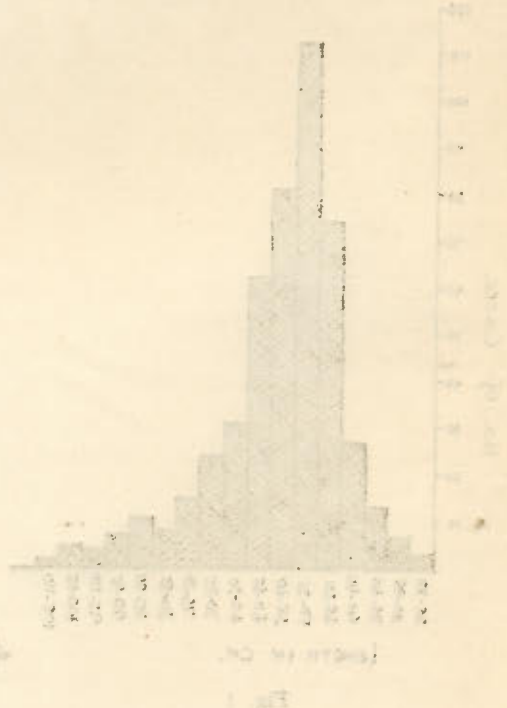
Walker and Pye (1960) suggested that the length of the cord did not increase after the 38th week of pregnancy, nor was there any correlation of length with the mother's weight, height, length of labor, duration of pregnancy, weight of the baby, parity or age of the mother.

There is a wide range in the length of umbilical cords in normal babies. The length of 188 cords of normal term babies was found to vary from a minimum of 25.5 cm. to 108 cm. with a mean of 58.1 cm. The cords of male babies tended to be longer. No correlation was found between the weight of baby or placenta and the length of the umbilical cord.

Our thanks are due to Mr. J. Singh, M.Sc. (Statistics), Statist. cum Central Research Station, C. S. V. M. Medical College, Kanchi, for statistical analysis of the data of this paper.

I. Eastman, M. I. and Hillman, J. M. Williams' Obstetrics ed. 11 New

The histogram shows that there is a wide range from the minimum of 25.5 cm. to the peak at 50 cm. and decrease to the maximum of 108 cm. rapid fall to 70 cm. and then a slow fall. It will be seen that 87.9% of cords measured from 40 to 80 cm. were less than 80 cm. and 14% measured more than 80 cm. The cords of male babies tended to be longer.



We did not find any correlation between the length of the umbilical cord and weight of either foetus or placenta.