Low Set Ears in the Newborn

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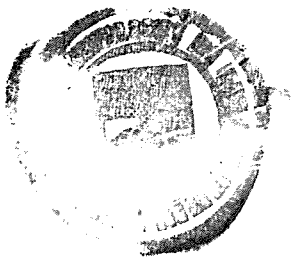


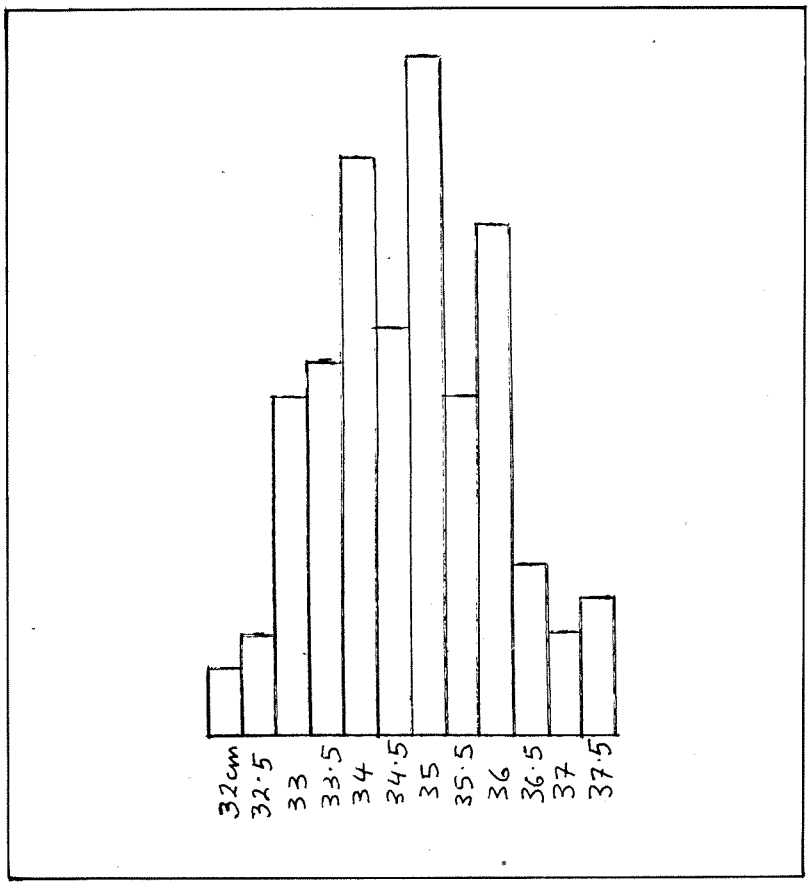
There are a number of congenital anomalies which, although not possessing any inherent significance, yet are usually of some diagnostic help through their frequent association with major abnormalities, which, in their turn may not be readily obvious at the time. Thus, for example: café-au-lait spots may be associated with such a variety of abnormalities such as neurofibromatosis, pulmonary stenosis, ataxia-telangiectasia, polyostotic fibrous dysplasia and tuberose sclerosis. The presence of a single umbilical artery should lead to investigations to exclude congenital defects of the heart, alimentary and genito-urinary systems, and skeletal anomalies. Abnormalities of the ears are commonly associated with kidney pathology; it is interesting to note that certain drugs such as the aminoglycosides are both potentially nephro-and oto-toxic.

Although published figures exist for various bodily features, (Feingold, Holmes, Smith) the question of low-lying ears poses some difficulty in that criteria for its diagnosis are not so well established. An imaginary line is usually made to run from the lateral canthus of the eye on to occipital protuberance at the back of the skull, and its relation to the ear taken as the point of reference.

Considerable amount of time was spent in order to take correct measurements of ear setting; a standard technique was utilised in a hundred neonates aged between a few hours and 3 days. The newborns were selected from the nursery at Karin Grech Hospital in order that the study would only include normal babies, and all neonates in whom the possibility of disease was suspected were excluded. The gestational age ranged between the 35th and the 41st week of gestation; this was recorded with the reading, as was also the occipito-frontal circumference and the birth-weight.

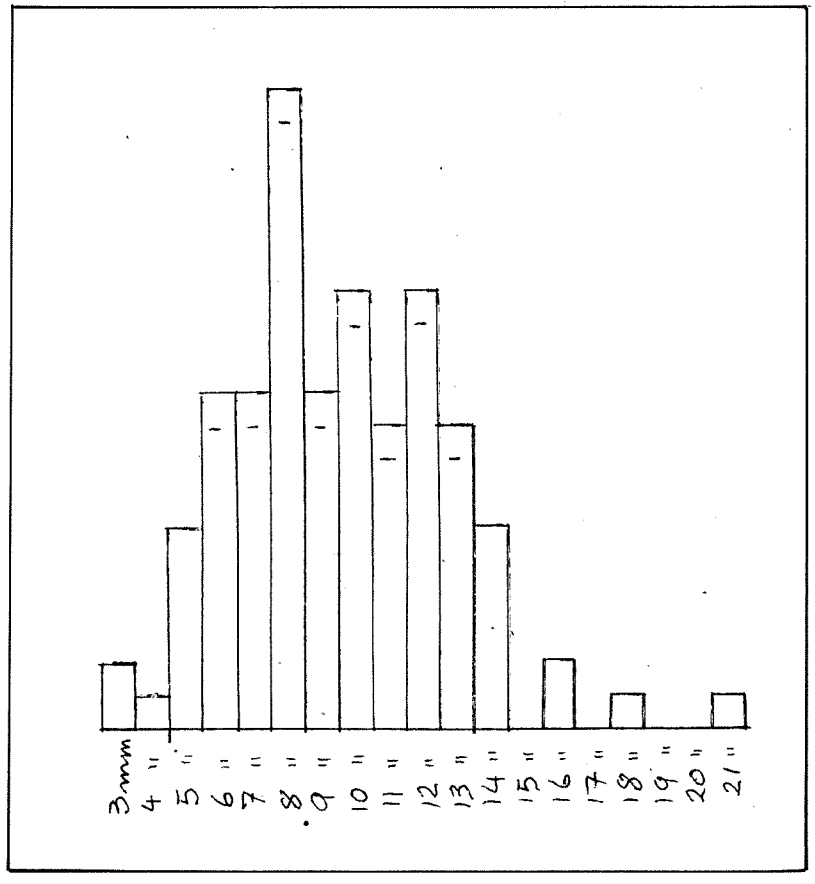
Fifty infants of each sex were studied and the results were compared with other parameters and charted on scattergrams. The site on the ear which was being measured from the imaginary occipito-ocular line was the upper border of the external auditory meatus. Plastic, transparent and pliable rulers such as are normally found in exchange transfusion sets were used to delineate this occipito-ocular line, and this facilitated its measurement from the superior border of the external auditory meatus. The left ear was the one chosen in all the measurements. A certain amount of restraint was required to maintain the infant in a favourable position during the reading.

Table 1 shows the distribution of occipito-frontal circumference in both sexes; here a mean of 35 cm was recorded, whilst the range extended from 32 to 37.5 cm. As all the infants studied were under three days of age, a small allowance for an increased occipito-frontal circumference (OFC) has to be made because of scalp oedema in the first few days of life. It is in fact a constant observation in the SCBU, where the infants' OFC is regularly measured, that there is a



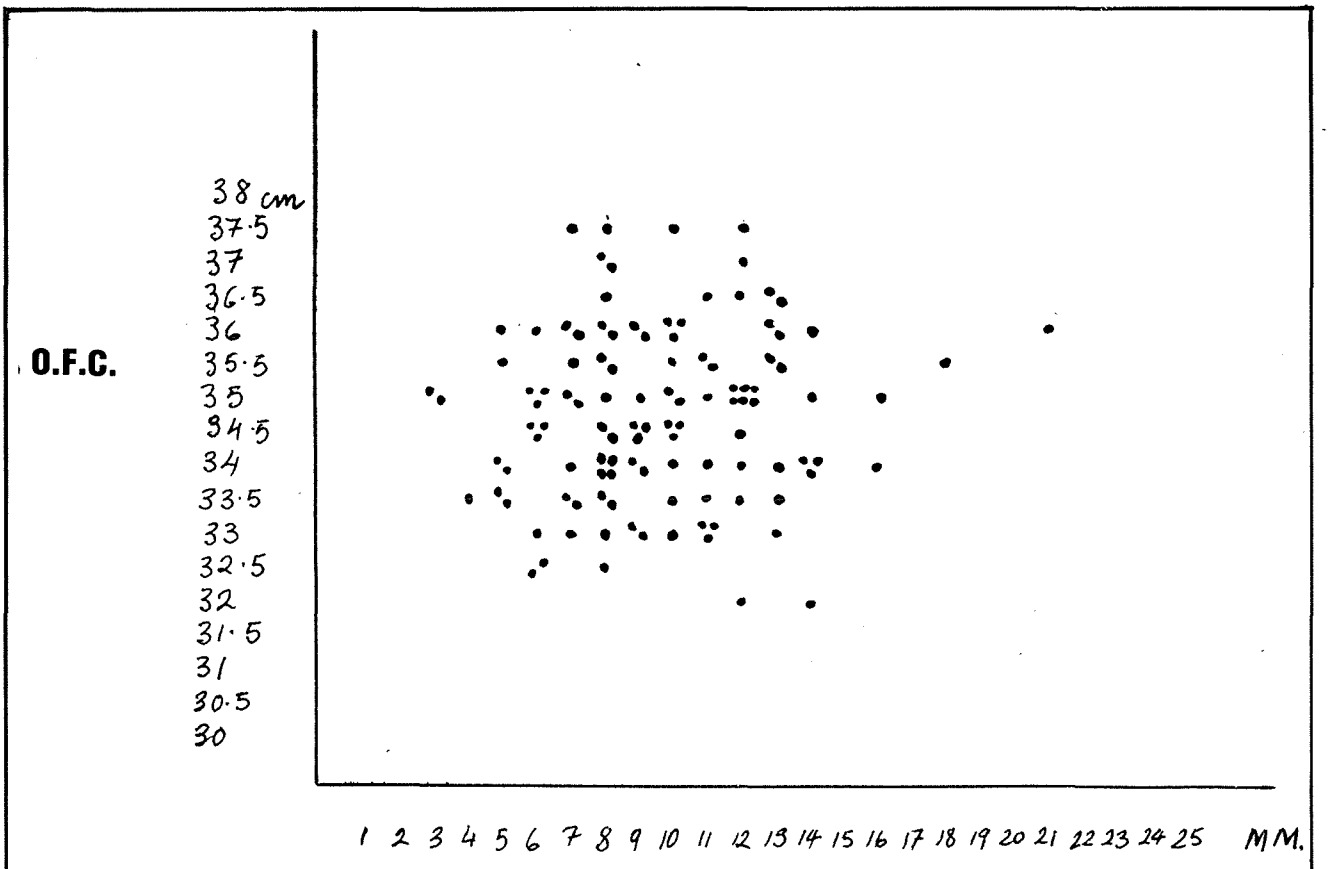
OCCIPITO - FRONTAL CIRCUMFERENCE

TABLE 1



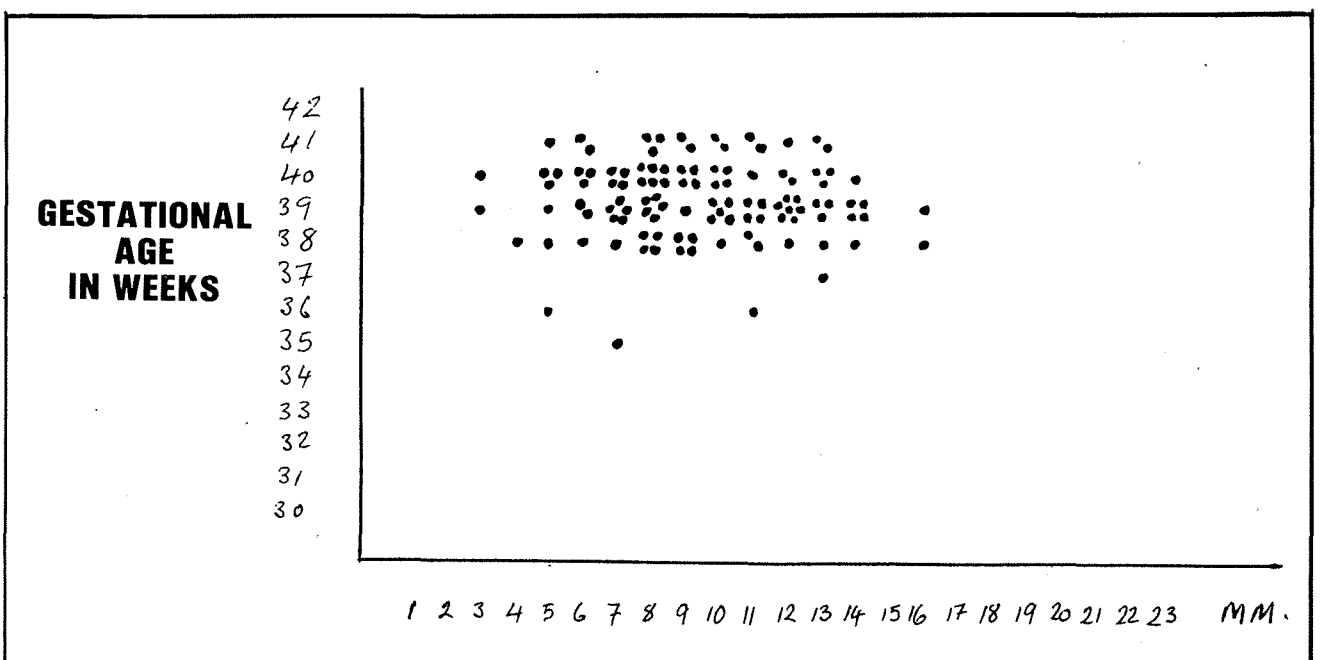
AUDITORY MEATAL SETTING

TABLE 2



AUDITORY MEATAL SETTING

TABLE 3



AUDITORY MEATAL SETTING

TABLE 4

small decrease in head circumference over the first few days of life and is in the order of between 0.5 and 1 cm. This tallies with accepted standards of normality in neonatal occipito-frontal circumferences, which in most charts range from 31 to 37 cm with a mean of 34 cm at birth; these reading apply for full-term infants.

Table 2 shows the distribution of the actual measurements of the distance from the upper border of the ear to the occipitocular line. The most constant measurement in females is 8 mm whilst the distribution in males is spread out between 5 and 14 mm. There was one infant with a reading of 2.1cm but investigations to rule out associated anomalies were negative. At the other end, the minimum reading was 3 mm.

Table 3 is a scattergram comparing occipito-frontal circumference with auditory meatal setting; the larger hollow circles represent the average measurement of the latter reading for each OFC. This demonstrates that the occipitofrontal circumference exerts only a mild influence on the auditory meatal setting in a direct relationship. The mean range of measurements for all occipito-frontal circumferences lies between 6 and 12 mm.

The auditory meatal setting was finally plotted against gestational age and this is shown in Table 4 in scattergraph form. The mean measurement for gestational age between 38 and 41 weeks of gestation lies just above 9 mm. These results tally with those obtained in the previous scattergram, and it would therefore seem justifiable to accept a mean of 9 mm and a range lying between 3 and 16 mm. It is with readings approaching or exceeding the latter that a careful search should be made for pathology, particularly if other features are present, such as the Potter facies of renal agenesis or the skeletal and facial abnormalities of Trisomy 13 and other chromosomal anomalies. These conditions are fortunately not common, so that it will be quite a while before a sufficient number are collected for comparison with our normal controls in order to assess their reliability and usefulness.

References

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