

ORIGINAL ARTICLE

Penile Dimensions of Newborn Infants

by

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Jakarta, Indonesia)***Abstract**

Of 336 full-term, newborn male infants, penile diameter, length, and volume of the testis were measured. All of the infants were Indonesians. The penile stretched length was $2,86 \pm 0,23$ cm and the diameter $0,82 \pm 0,33$ cm. There was statistically a significant correlation between penile length and gestational age ($p < 0,01$), but no significant correlation between penile length and testicular volume, body length, body weight, or head circumference.

Introduction

A clinical need for more thorough knowledge of normal variations in the size of the male genitalia has long been evident. The detection of penile size deviations from normal can facilitate the diagnosis, of endocrine disorders such as hypogonadism, micropenis, etc. (Schönfeld and Beebe, 1942).

Standards of penile size are available from newborns to adulthood (Schonfeld and Beebe, 1942; Feldman and Smith, 1975; Flatau et al., 1975), but all predominantly White and Black subjects in the

USA (Feldman, 1983) and reports from Bulgaria (Troshev, 1969) and Israel (Flatau et al., 1975).

Until now, no study has been done in Asian ancestry subjects so the assumption that there is little difference between Whites, Blacks and Asians might be correct, but is undocumented.

The purpose of this study is to find penile size in the newborn infant in the present Indonesian population and to compare it with earlier reports.

Materials and Methods

Cross sectional study within a period of three months of 336 healthy fullterm male infants from Indonesian parents born in Dr. Cipto Mangunkusumo General Hospital, Jakarta, with appropriate birth weights for gestational age (Dubowitz et al., 1970) and without abnormalities in physical examination, comprises the subjects for this study.

They were examined between the first and third day of life in the ward for newborns. All measurements were done by one person (AD). The gestational age was determined by history and Dubowitz evaluation (Dubowitz et al., 1970).

Penile length in the newborn infant was measured with Schönfeld's method (Schönfeld and Beebe, 1942) from the pubic ramus to the tip of the glans penis by placing the end of a straight-edge ruler against the pubic ramus and applying traction along the length of the penis to the point of increased resistance. The location of the tip of the glans penis was determined by palpa-

tion. None of the infants were circumcised. Schönfeld (1942) has previously shown that stretched penile length is the most consistent measure of phallic length and correlated closely with the erect penile length.

Penile diameter was determined by passing the penis through a hole of a device which resembles a vertical moving sluice. The measurement was taken at the riddle of the shaft in centimeters.

Testicular volume was determined by bimanual palpation and the orchidometer of Prader.

Each measurement was done twice and the mean was recorded. The difference between the two measurements was not more than 0,1 - 0,15 cm for penile length and less than 0,1 cm for the width.

The gestational age, birth weight, birth length, and head circumference were noted by the regular staff of the ward.

All data were analyzed using appropriate statistical test.

Results and Discussion

During the three-month period when this study was done, there were 362 deliveries of full-term male infants. Three hundred and thirty six infants (92,8%) comprised the subjects for this study. Twenty six infants (7,2%) were excluded because they did not fulfill the requirements for the study.

The mean values and ranges of the measurements are listed in table 1.

The mean length of the penis in the

group of newborn infants was $2,86 \pm 0,23$ cm. Feldman and Smith (1975) reported a mean penis length of $3,5 \pm 0,7$ cm in 37 full-term male newborn infants, while Flatau and associates (1975) reported a mean penis length of $3,5 \pm 0,4$ cm in 100 full-term newborn infants.

In comparison with their data we found a statistically significant difference ($p < 0,001$) with ours.

Table 1 : *Penile, testicular, and body measurements in 336 fullterm newborn infants*

Measurement	Mean \pm 1 SD	Range (Mean \pm 1 SD)
Penile length (cm)	2,86 \pm 0,23	2,63 - 3,09
Penile width (cm)	0,82 \pm 0,33	0,49 - 1,35
Testicular volume (ml)	1,25 \pm 0,43	0,82 - 1,68
Body length (cm)	48,92 \pm 1,94	46,98 - 50,86
Body weight (g)	3.246,00 \pm 461,00	2.785,00 - 3.707,00
Head circumference (cm)	34,16 \pm 1,67	32,49 - 35,83
Gestational age (week)	38,58 \pm 1,40	37,18 - 39,98

A comparison of Schonfeld's data with ours was not possible because in his study the age of the infants was not the same. He included also infants of 12 months old. Furthermore, Troshev (1969) did not describe in detail the technique used for taking measurements, failing to mention whether or not the penis had been stretched during measuring.

The calculated mean penile circumference (from the width using the equation $2\sqrt{r}$; penis width = $2r$) in our series was $2,5 \pm 1,03$ cm, which is smaller than that reported by Schonfeld (1942) ($3,6 \pm 0,3$

cm), Flatau et al. (1975) ($3,3 \pm 0,3$ cm), again probably due to the difference in age with Schonfeld's series, as well as in the technique of measuring with both.

There was statistically a correlation between penile length and gestational age ($r = 0,6078$, $p < 0,001$) (Fig. 1) and a weak correlation between penile length and testicular volume ($r = 0,2180$, $p < 0,001$). No significant correlations were found between penile length and body length, penile length and body weight, penile length and head circumference.

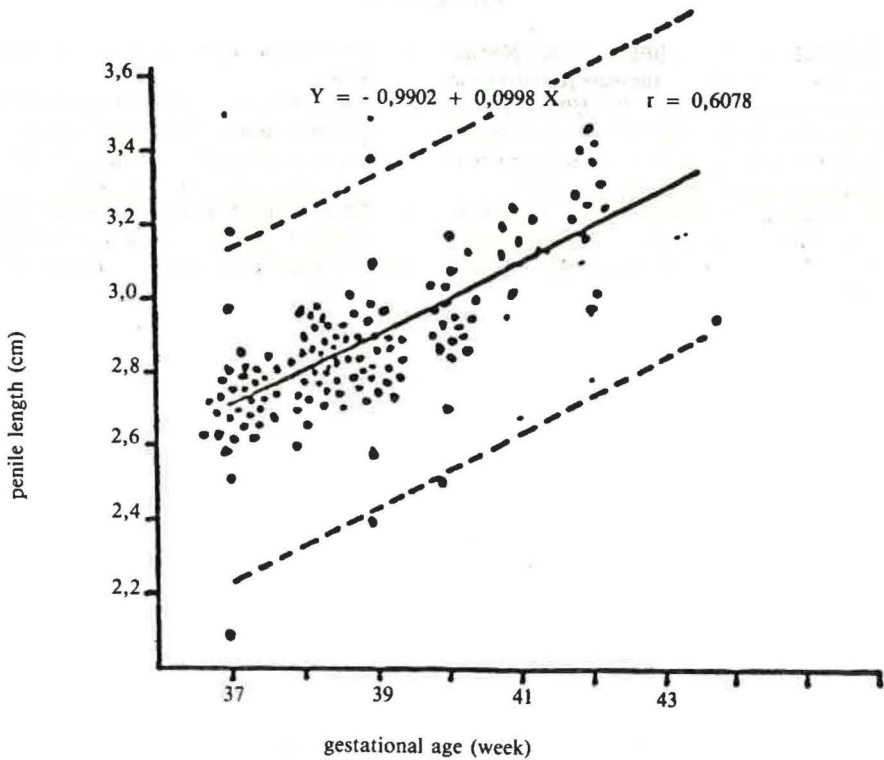


Figure 1 : Stretched penile length of 336 full-term male infants, showing lines of mean ± 2 SD. Correlation coefficient to 0,6078

Clinically, micropenia may be defined as a small, but normally formed organ falling beyond 2 standard deviations from the

mean size. Therefore, in our newborn infants, we consider a micropenis when the length of the penis is less than 2,4 cm.

Summary

The penile stretched length of Indonesian full-term newborn was $2,86 \pm 0,23$ cm and the diameter was $0,82 \pm 0,33$ cm. There was statistically a significant correlation between penile length and gestational age, but not between penile length and body weight, penile length and body length, penile length and head circum-

ference.

There was statistically a significant difference between penile length of Indonesian newborn infants with earlier reports from the USA (Feldman and Smith, 1975) and the Jewish Israelies (Flatau et al., 1975).

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