



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

International Journal of Current Research

Vol. 16, Issue, 05, pp.28388-28391, May, 2024

DOI: <https://doi.org/10.24941/ijcr.47212.05.2024>

RESEARCH ARTICLE

ASSESSMENT OF STRETCHED PENILE LENGTH OF NEWBORN BABY BOY IN TERTIARY CARE HOSPITAL OF BANGLADESH

¹Shahin Ibn Rahman, ²Lubna Ahmed, ^{3*}Md Jubaidul Islam, ⁴Mohammad Tajul Islam, ⁵Rushda Sarmin Binte Rouf, ⁶Kazi Nazmul Hossain, ⁷Azimun Nessa, ⁸Nausher Azimul Huq, ⁹Bimol Kumar Agarwala, ¹⁰Md Feroz Amin, ¹¹Faria Afsana, ¹²Rubyat Hasan Chowdhury and ¹³Ranodhir Chakraborty

¹MBBS MD (E&M), Registrar, Department of Endocrinology, BIRDEM General Hospital, Dhaka, Bangladesh; ²MBBS MCPS (Pediatrics) MD (Pediatrics), Junior consultant, Department of Paediatrics, Sir Salimullah Medical College & Mitford Hospital; ³MBBS, FCPS (Medicine), FACP(USA), Assistant Professor, Department of Internal Medicine, BIRDEM General hospital, Dhaka, Bangladesh; ⁴MBBS, FCPS (Medicine), Registrar, Department of Internal Medicine, BIRDEM General hospital, Dhaka, Bangladesh; ⁵MBBS, FCPS (Medicine), MD (E&M), Assistant Professor, Dept. of Endocrinology, BIRDEM General Hospital; ⁶MBBS, MCPS (Medicine) FCPS (Medicine), Assistant Professor, Dept. of Endocrinology, BIRDEM General Hospital; ⁷MBBS, FCPS (Medicine), Registrar, Dept of Endocrinology, BIRDEM General Hospital; ⁸MBBS, MCPS (Medicine), DEM, Professor (CC), Department of Endocrinology, Dhaka National Medical College; ⁹MBBS, DEM, Associate professor (CC), Department of Endocrinology, Dhaka National Medical College; ¹⁰MBBS, MD (E&M), Professor & head, Dept. of Endocrinology, BIRDEM General Hospital; ¹¹MBBS, DEM, MD(E&M), Associate Professor, Dept. of Endocrinology, BIRDEM General Hospital; ¹² Rubyat Hasan Chowdhury, MBBS, MCPS, FCPS (Medicine), Assistant Professor, Dept. of Cardiology, BIRDEM General Hospital; ¹³MBBS, FCPS (Medicine), MRCP (UK), Registrar, Internal Medicine, BIRDEM General Hospital.

ARTICLE INFO

Article History:

Received 20th February, 2024
Received in revised form
25th March, 2024
Accepted 14th April, 2024
Published online 30th May, 2024

Key words:

Micropenis, Stretched Penile Length,
Newborn Baby.

*Corresponding author:

Md Jubaidul Islam

ABSTRACT

Background: Micropenis is a medical diagnosis which often incorrectly detected. A misdiagnosis may cause parental anxiety which may lead to unnecessary examinations and tests. The correct diagnosis is made by measuring stretched penile length. When the penile length smaller than 2.5 standard deviations (SD) below the mean is considered as micropenis & which varies from one ethnicity to another. It may occur as an independent abnormality by itself or as a clinical finding of many syndromes. **Objective:** To find out the mean of stretched penile length of newborn baby boy of Bangladesh. **Methods:** This cross sectional study was conducted in Multicenter of Dhaka city In & out patients Department from January 2022 to December 2022. The newly born male baby (upto age 28 days) will be considered as study population. Data was collected from patients (mother) file and physical examination findings of the newborn. Subject selection was done as per inclusion and exclusion criteria. After full explanation of the study procedure informed written consent was taken. Data was collected in a structured questionnaire and analyzed using MS Office tools and SPSS Version 23.0. **Results:** The mean age was 39.7±47.7 & most age distribution of the study subjects was 50% between 24-48 hours. Out of 100 newborn baby 82% were born at term. About 30% of mother suffered from different types of illness. The mean stretched penile length of all (n=100) newborn baby was 2.25±0.66 cm & there were significant differences of SPL among the different age groups (p<0.001) such as SPL was 2.36±0.65 cm of <24 hours age group (n=30), 2.06±0.47 cm of 24-48 hours age group (n=50), 2.14±0.62 cm of 48-72 hours age group (n=14), 3.60±0.62 cm of >72 hours age group (n=6). This study also shows significantly higher mean SPL (2.33±0.67 cm) at term compared with preterm (1.90±0.52 cm) (p<0.013). **Conclusion:** The mean stretched penile length of all (n=100) newborn baby boy was 2.25±0.66 cm & there were significant differences of SPL among the different age groups.

Copyright©2024, Shahin Ibn Rahman et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Shahin Ibn Rahman, Lubna Ahmed, Md Jubaidul Islam, Mohammad Tajul Islam, Rushda Sarmin Binte Rouf et al. 2024. "Assessment of stretched penile length of newborn baby boy in tertiary care hospital of Bangladesh". *International Journal of Current Research*, 16, (05), 28388-28391.

INTRODUCTION

As micropenis is a medical diagnosis, the correct diagnosis is made by measuring the stretched penile length. The first description of standard penile length for age was used by Schonfeld and Beebe in their seminal work (1). When the penile length smaller than 2.5 standard deviations (SD) below the mean is considered as micropenis & the length are varies in different ethnicities (2). It may occur as an independent abnormality by itself or as a clinical finding of many syndromes (3). Exposure to endocrine-disrupting chemicals (EDCs) like several insecticide and herbicide, which has domestic exposure been suggested to contribute for the increase of external genital malformation in male newborns. In Northeastern Brazil, widespread use of pesticides found in Slum where poor sanitary conditions were reported (4). Over the past several decades male external genitalia malformation are increasing as a trend and genetic factors surely contribute to this trend also environmental factors are probably involved for this increase(5, 6). In routine clinical neonatal examination external genitalia of newborns should be evaluated.

There are several abnormalities like ambiguous genitalia, micropenis, undescended testes, hypospadias/epispadias, hyper pigmented genitalia which give clues to find out the underlying endocrine abnormalities or serious structural malformations. Congenital hypopituitarism (associated with hypogonadotropichypogonadism) may present with micropenis along with undescended testes. It is also seen in several syndromes like Klinefelter, PraderWilli& Noonan (7, 8). Congenital adrenal hyperplasia may initially present as ambiguous genitalia in an under virialized male with hypospadias and undescended testes. Micropenis or small phallus with varying degrees of hypospadias may be the only identifiable feature of a Disorder of Sex Development (DSD) in the newborn baby's (8). So, it is very important to identify the presence of micropenis in neonatal clinical examination to avoid delay in diagnosis of these serious, sometime life-threatening conditions.

METHODOLOGY

This cross sectional study was conducted in Multicenter of Dhaka city In & out patients Department from January 2022 to December 2022. The newly born male baby (up to age 28 days) were considered as study population. Data was collected from patients (mother) file and physical examination findings of the newborn. Subject selection was done as per inclusion and exclusion criteria. After full explanation of the study procedure informed written consent was taken. Data was collected in a structured questionnaire analyzed using MS Office tools and SPSS Version 23.0.

RESULTS

The age distribution of study participants revealed that the majority of newborn (50.0%) fell within the 24-48 hour's age group, while 30.0% , 14% and 6% were in the >24 hours , 48-72 hours &>72 hours age groups respectively (Table I). Out of 100 newborn baby 82% were born at term& rest (18%) were at pre-term (Table-2).

Table 1. Age distribution of the study subjects (n=100)

Age group	Frequency	Percentage (%)
<24 hrs	30	30.0
24-48 hrs	50	50.0
48-72 hrs	14	14.0
>72 hrs	6	6.0
Total	100	100.0
Mean±SD	39.7±47.7	

Table 2. Distribution of the study subjects according to gestational age (n=100)

Gestational age (weeks)	Frequency	Percentage (%)
Term (>37 weeks)	82	82.0
Preterm (<37 weeks)	18	18.0
Total	100	100.0

Table-3. Distribution of the study subjects according to maternal illness (n=100)

Maternal illness	Frequency	Percentage (%)
GDM	9	9.0
HTN	8	8.0
Hypothyroidism	6	6.0
BA	4	4.0
PCOS	2	2.0
PE	1	1.0
None	70	70.0
Total	100	100.0

Table 4. Comparison of stretched penile length (cm) among different age group (n=100)

Age group (Time of Examination)	Number of newborns	Stretched penile length (cm)		p-value
		Mean±SD	Range (min-max)	
<24 hrs	30	2.36±0.65	1.60-4.00	<0.001
24-48 hrs	50	2.06±0.47	1.30-3.00	
48-72 hrs	14	2.14±0.62	1.10-3.00	
>72 hrs	6	3.60±0.62	2.80-4.00	
Total	100	2.25±0.66	1.10-4.00	

P-value obtained by ANOVA test, p<0.05 considered as a level of significant

Table 5. Comparison of stretched penile length (cm) between term and preterm gestational age (n=100)

Gestational age (weeks)	Number of newborns	Stretched penile length (cm)		p-value
		Mean±SD	Range (min-max)	
Term (>37 weeks)	82	2.33±0.67	1.50-4.00	0.013
Preterm (<37 weeks)	18	1.90±0.52	1.10-3.00	
Total	100	2.25±0.66	1.10-4.00	

P-value obtained by Unpaired t- test, p<0.05 considered as a level of significant

Table-6. The correlation between stretched penile length (cm) with age (hours), body weight (kg), body length (cm) and head circumference (cm) (n=100)

		Pearson correlation test	
		r-value	p-value
Stretched penile length (cm) with	Age of newborn baby (hours)	+0.344*	<0.001
	Weight (kg)	+0.364*	<0.001
	Height (cm)	+0.410*	<0.001
	Head circumference (cm)	+0.251*	0.012

*significant

Table 7. Comparison of stretched penile length (cm) with or without maternal illness (n=100)

Maternal illness	Number of newborns	Stretched penile length (cm)		p-value
		Mean±SD	Range (min-max)	
Present	30	2.0±0.38	1.50–3.00	0.011
Absent	70	2.36±0.72	1.10–4.00	
Total	100	2.25±0.66	1.10–4.00	

p-value obtained by Unpaired t-test, p<0.05 considered as a level of significant

About 30% of mother suffered from different types of illness like 9% had GDM, 8% had hypertension, 6% had hypothyroidism, 4% had bronchial asthma, 2% had PCOS and 1% had history of pre-eclampsia. The mean stretched penile length of all (n=100) newborn baby was 2.25±0.66 cm (Tabl-4)& there were significant differences of SPL among the different age groups (p<0.001) such as SPL was 2.36±0.65 cm of <24 hours age group (n=30), 2.06±0.47 cm of 24-48 hours age group (n=50), 2.14±0.62 cm of 48-72 hours age group (n=14) and 3.60±0.62 cm of >72 hours age group (n=6). This study also shows significantly higher mean SPL (2.33±0.67 cm) at term compared with preterm (1.90±0.52 cm) (p<0.013). Newborns who were born at term had a significantly higher mean stretched penile length (2.33±0.67 cm) compared to newborns born at preterm (1.90±0.52 cm) (p<0.013) (Table-5). Overall, these findings suggest that gestational age may be an important factor to consider when evaluating stretched penile length in newborn baby boys. Table-6 indicates significant positive correlations between stretched penile length and all the factors examined. The age of the newborn baby showed a moderate positive correlation with stretched penile length (r=0.344, p<0.001). Similarly, body weight (r=0.364, p<0.001), body length (r=0.410, p<0.001), and head circumference (r=0.251, p=0.012) also showed moderate positive correlations with stretched penile length.

DISCUSSION

Several disorders like hypothalamic disorders, gonadal dysgenesis and testosterone insensitivity syndrome are might be associated with micropenis. That's why it is important to establish the normative penile length for newborns. As derived from the present data, the mean stretched penile length of all newborn infants was 2.25 cm (SD, ± 0.66). Kollurage et al, a Sri Lankan study found that, SPL of their neonates was 3.03 ± 0.37 cm (9). Both were compatible with other Asian studies, such as 2.83 cm ± 0.49 cm in Tamil Nadu (10) and 3.00 ± 0.4 cm reported from China. The Asian SPL considered as being shorter than Caucasian (11). The present study shows, there were significant differences of SPL among the different age groups (p<0.001) such as SPL was 2.36±0.65 cm of <24 hours age group (n=30), 2.06±0.47 cm of 24-48 hours age group (n=50), 2.14±0.62 cm of 48-72 hours age group (n=14) and 3.60±0.62 cm of >72 hours age group (n=6). This study also shows significantly higher mean SPL (2.33±0.67 cm) at term compared with preterm (1.90±0.52 cm) (p<0.013). Matsuo *et al* study shows no apparent relationship between gestational age and penile length at 37–42 weeks, although the correlation coefficient was between the weeks of gestation (37–42 weeks) and stretched penile length was 0.12 (p = 0.004). Overall, these findings suggest that gestational age may be an important factor to consider when evaluating stretched penile length in newborn baby boys (12).

Table-6 indicates significant positive correlations between stretched penile length and all the factors examined. The age of the newborn baby showed a moderate positive correlation with stretched penile length (r=0.344, p<0.001). Similarly, body weight (r=0.364, p<0.001), body length (r=0.410, p<0.001), and head circumference (r=0.251, p=0.012) also showed moderate positive correlations with stretched penile length. On the other hand Kollurage et al, study showed no statistically significant correlation with birth weight, POA and OFC. The only statistically significant positive correlation with the length (Pearson r = 0.134, p= 0.01) is compatible with established data (9). Fok *et al* reported statistically significant positive correlation with length and SPL, while Kutlu *et al* found statistically significant positive correlation of SPL with the length, weight and head circumference (11, 13).

CONCLUSION

In conclusion, micropenis needs to be defined according to ethnicity and a separate penile length will be considered as the lowest limit for the definition of micropenis in each population. The findings from our study confirm that the mean SPL for the Bangladeshi new-born is 2.25 cm (SD ± 0.66) & this is the first study of the SPL of new-born from Bangladesh. According to this study, below the mean SPL of 2.25cm (SD ± 0.66) of a newborn is considered as micropenis of Bangladesh.

Conflict of interest: No conflict of interest

Limitations & Recommendations

- Small sample size may not represent the actual picture of Bangladesh.
- Further study is recommended to find out the association of neonatal diseases with micropenis.

Abbreviations

BA: Bronchial Asthma
DSD: Disorder of Sex Development
EDCs: Endocrine –Disrupting Chemicals
GDM: Gestational Diabetes Mellitus
OFC: Occipito-Frontal-Circumference
PCOS: Poly-Cystic Ovarian Syndrome
PE: Pre-eclampsia
POA: Pre-mature Ovarian Aging
SPL: Stretched Penile Length
SD: Standard Deviation
SPSS: Statistical Package of Social Science

REFERENCES

1. Schonfeld WA, Beebe GW. Normal growth and variation in the male genitalia from birth to maturity. J Urol 1942;48:759-777.
2. Aaronson IA. Micropenis: medical and surgical implications. J Urol 1994;152:4-14.
3. Nelson CP, Park JM, Wan J, Bloom DA, Dunn RL, Wei JT. The increasing incidence of congenital penile anomalies in the United States. J Urol 2005;174:1573-1576.

4. Clark RL, Anderson CA, Prahallada S, Robertson RT, Lochry EA, Leonard YM, Stevens JL & Hoberman AM. (1993) Critical developmental periods for effects on male rat genitalia induced by finasteride, a 5 α -reductase inhibitor. *ToxicolApplPharmacol* 119, 34–40.
5. Czeizel A, Toth J & Czvenits E. (1986) Increased birth prevalence of isolated hypospadias in Hungary. *ActaPaediatr Hung* 27, 329–337.
6. Skakkebaek NE, Rajpert-De Meyts E & Main KM. (2001) Testicular dysgenesis syndrome: an increasingly common developmental disorder with environmental aspects. *Hum Reprod* 16, 972–978.
7. Bhakhri BK, Meena SS, Rawat M, Datta V. Neonatal stretched penile length: relationship with gestational maturity and anthropometric parameters at birth. *PaediatrInt Child Health* 2015; 35(1): 53-5.
8. Lian WB, Lee WR, Ho LY. Penile Length of New-borns in Singapore. *J PediatrEndocrinolMetab* 2011; 13(1): 55-62.
9. Kollurage UA, Atapattu N, Jayamanne BD, Gunasiri JR, Silva SHD. Assessment of the stretched penile length in Sri Lankan newborns. *Ceylon Medical Journal* 2019; 64:4-8.
10. Prabhu SR, Mahadevan S, Bharath R, Jagadeesh S, Kumutha J, Suresh S. Normative data for stretched penile length in term neonates born in Tamil Nadu. *Indian J EndocrinolMetab* 2014; 18(4): 585-6.
11. Fok TF, Hon KL, So HK, et al. Normative Data of Penile Length for Term Chinese New-borns. *Biol Neonate* 2005; 87(4): 242-5.
12. Matsuo N, Ishii T, Takayama JI, Miwa M, Hasegawa T. Reference standard of penile size and prevalence of buried penis in Japanese new-born male infants. *Endocr J* 2014; 61(9): 849-53.
13. Kutlu AO. Normative Data for Penile Length in Turkish New-borns. *J Clin Res PediatrEndocrinol* 2010; 2(3):107-10.
