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Original Article (Pages: 1407-1411)

External Genital Abnormalities and Inguinal Hernia among Males of Children Nurseries, North West of Iran

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Abstract

Background
Abnormalities of external genitalia in male children nurseries and inguinal hernia are the most common congenital disorders in children. We aimed to determine prevalence rate of inguinal hernia and other genital among children nurseries, in Shahrood-Iran.

Materials and Methods
In this descriptive cross-sectional study, we examined 920 children nurseries boys. Physical examination of children was performed in presence of a parent in a warm room in supine and upright position with and without Valsalva maneuver. A written consent was obtained from parents before examination. Past medical history and history of surgery on inguinal and genital area was taken. Examination was performed 2 interns who were trained about genital system examination.

Results
A total of 920 children nurseries boys aged 3 to 6 years were examined which were detected in 88 children and prevalence rate of these abnormalities were 9.6%.
The prevalence of abnormalities in the children under study were as follows: Inguinal hernia (5.1%), cryptorchidism (2.1%), Hydrocele (1.5%), hypospadias (0.4%), Varicocele (0.1%), micropenis (0.4%).

Conclusion
Regarding to relatively high prevalence rate of these abnormalities and low level of people knowledge, seem screening systems for diagnosis and appropriate treatment of these abnormalities to be necessary.

***Key Words**:* Children, External genital, Inguinal hernia, Nurseries.

*Please cite this article as: Haratipour H, Zolfaghari P, Sohrabi MB, Yahyaei B, Nick kheslat N, Yahyaei E, et al. External Genital Abnormalities and Inguinal Hernia among Males of Children Nurseries, North West of Iran. Int J Pediatr 2016; 4(2): 1407-11.

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Received date Nov 15, 2015 ; Accepted date: Dec 22, 2015

1. INTRODUCTION

Abnormalities of external genitalia in male children nurseries have a prevalence rate between 6.6 to 18.7% (1, 2). The most common disorders of external genitalia include inguinal hernia, varicocele, undescended testis (UDT), hydrocele, hypospadias, epispadias, and micropenis (3, 4). Inguinal hernia, hydrocele and other inguinoscrotal abnormalities are the most common congenital disorders in children (5). Prevalence of inguinal hernia is about 1-5% in general population (6).

Approximately 3% to 5% of term infants may be born with an inguinal hernia. Preterm infants have a higher incidence (9% to 11%). Approximately 80% to 90% of inguinal hernias appear in boys. Male to female ratio of inguinal hernia varies from 4:1 in infants to 12-25:1 in adults (1, 7). If strangulated, inguinal hernia may lead to loss of testis and life threatening situations (8). Hydrocele is a limited collection of fluid in tunica vaginalis of testis or along spermatic cord which lead to swelling and blood supply obstruction of testis resulting in destruction of testicular tissue (1, 4).

Hydrocele and inguinal hernia in children occur from the incomplete or abnormal closure of processus vaginalis and are the most common surgery requiring conditions (2-4). Varicocele is dilatation of spermatic vessels of pampiniform plexus which causes scrotal swelling and is reason of infertility in 30% of men. It has a 0.18% prevalence rate in children (9, 10).

Cryptorchidism or undescended testis (UDT) refers to failure in descending of testis to scrotum and has complications such as malignancy, torsion and infertility (11, 12). It has a prevalence rate of 3-5% in male neonates and 1.12% in 6 to 12 years old boys (2, 11, 13). Hypospadias and epispadias are disorders in position of meatus and cause abnormal appearance of penis, urinary incontinence, and difficult intercourse in adults. For psychological reasons, repair surgery should be performed before age of 2 years (8, 14). Micropenis is treatable before puberty because testosterone receptors in penis are still active but after puberty they disappear (15). In an epidemiologic study by Yegane about prevalence of genital abnormalities and inguinal hernia in west of Iran, 3,205 elementary school boys were examined of whom 6.6% had genital abnormalities (2). Therefore, regarding to high prevalence of these disorders in children, physical and psychological complications associated with these disorders, lack of adequate parental attention to these anatomic abnormalities, importance of early diagnosis and treatment of genital disorders and inguinal hernia in preventing their complications, and the fact that genital examination for screening is not done before school age in Iran. So, we studied on children nurseries boys of Shahrood city, capital of Shahrud County, Semnan Province- Iran (Figure.1), to determine prevalence rate of inguinal hernia and other genital abnormalities.

Fig.1: Shahrood city, North East of Iran

2. MATERIALS AND METHODS

In this descriptive cross-sectional study run in 2012 to 2013 preschool year to

determine prevalence of inguinal hernia and genital abnormalities in the all of children nurseries boys of Shahrood city (920 boys). Physical examination of children was performed in presence of a parent in a warm room in supine and upright position with and without Valsalva maneuver.

Consent form filled out by parents. Parents of patients had complete cooperation with us. Past medical history and history of surgery on inguinal and genital area was taken. Examination was performed 2 interns who were trained about genital system examination. For cases with by positive or suspicious findings, further examinations and evaluation was done by specialists. Data was collected according to study variables and recorded in questionnaire. To analyze data, we used SPSS-16 software and descriptive tests (such as t-test). In this study, we tried to consider all ethical issues related to clinical research on patients (such as confidentiality of patient information).

3. Results

In this study, 920 children nurseries boys aged 3 to 6 years were examined for penoscrotal abnormalities and inguinal hernia which were detected in 88 (9.6%) children (Table.1).

The most common abnormality in this study was inguinal hernia. Forty seven one children (5.1%) had inguinal hernia, of which 34 cases (71.5%) were right-sided, 9 (19.1%) were left-sided, and 4 (8.4%) were bilateral. Nineteen cases (2.1%) had cryptorchidism with 11 (59.2%) right-sided, 6 (32.5%) left-sided, and 2 (8.3%) bilateral involvement. Hydrocele was detected in 14 cases (1.5%). It was right-sided in 7 (50%), left-sided in 4 (28.6%), and bilateral in 3 (21.4%) cases. About other abnormalities, we found 4 cases (0.4%) with hypospadias, 1 (0. 1%) with varicocele all at left side, 3 (0.4%) with micropenis. No cases of ambiguous genitalia, epispadias and apenia were detected in this study (Table. 2).

Table1: Type, frequency and prevalence rate of penoscrotal disorders and inguinal hernia in children

Type of disorders	Frequency	Prevalence rate (%)
Inguinal hernia	47	5.1
Cryptorchidism	19	2.1
Hydrocele	14	1.5
Hypospadias	4	0.4
Micro penis	3	0.4
Varicocele	1	0.1
Epispadias	0	0
Total	88	9.6

Table2: Frequency and prevalence rate of penoscrotal disorders and inguinal hernia base on age groups

Variable	Inguinal hernia		Hydrocele		Varicocele	
Age (year)	Frequency	Prevalence (%)	Frequency	Prevalence (%)	Frequency	Prevalence (%)
3-4	19	2.1	3	0.3	-	-
4-5	17	1.8	5	0.5	1	0.1
5-6	11	1.2	6	0.7	-	-

4. DISCUSSION

At current study, the prevalence rate of inguinal hernia was 5.1%. In study of Yegane et al. among elementary boys in West of Iran, prevalence of inguinal hernia was 2.4% (2). In another study by Al-Abbadi in Jordan, 4.2% of 4-10 year old children had inguinal hernia (8); in that study, the researchers used valsalva maneuver for better detection of inguinal hernia. Since some children are not able to do this maneuver, prevalence rate of hernia may be underestimated (15). In our study, frequency of inguinal hernia at the right side (71.5%) was more than twice at the left side (19.1%) which is consistent with results of other studies (16-18).

Prevalence of cryptorchidism in our study was 2.1%. This number was 1.12% and 2.2% in Yegane et al. and Abbadi et al. studies, respectively (2, 8). Prevalence of UDT in this study is consistent with results of various studies suggesting that no pathologic concern exists about etiology of this abnormality in our region. As in other studies, in this study, more than half of the UDT was on the right side (8, 11, 14, 17).
Prevalence of hydrocele in current study (1.5%) was not similar to Yegane et al.'s study (0.78%); due to more than half of hydrocele cases were rught-sided. Since most cases of hydrocele are self-limiting and resolve within 1 year (2), we may conclude that prevalence of hydrocele in our study was high. Studies have shown that prevalence rate of hydrocele in different communities varies due to associated underlying diseases and environmental factors (15).

Results showed that prevalence rate of hypospadias were 0.4%. It was reported 0.78% in Yegane et al.'s study (2) and 1.9% in Abbadi et al.'s studies (8). In our study, varicocele had a prevalence rate of 0.11% while it had a rate of 0.46% in Abbadi et al.'s study (8). In comparison with results of mentioned study and similar ones, prevalence of varicocele was low in our study (3, 10). According to previous studies, socioeconomic status, maternal age, birth weight, history of congenital anomaly and other associated diseases are reasons of difference in prevalence rate of these disorders in various geographical regions (18). Results of current study showed that inguinal hernia and other genital abnormalities in children nurseries boys of Shahrood city had a high prevalence. This could be due to differences in race and geographical region, inadequate access medical care, high prevalence of prematurity and insufficient breastfeeding (1, 3, 5, 15).

An important point in this study is that most parents were unaware of their child's genital abnormality which raises the need for better education in community. On the other hand, regarding to lack of timely diagnosis of these abnormalities before preschool ages, screening of preschool and elementary school students seems to be necessary. Thus, regarding to relatively high prevalence rate of these abnormalities and their irreversible complications and low level of people knowledge, public and health staff education and screening systems for diagnosis and appropriate treatment of these abnormalities seem to be necessary.

5- Conclusion

Regarding to relatively high prevalence rate of these abnormalities and low level of people knowledge, seem screening systems for diagnosis and appropriate treatment of these abnormalities to be necessary.

5-CONFLICT OF INTEREST: None.

6-ACKNOWLEDGMENT

We acknowledge Vice-chancellor Research of Islamic Azad University of Shahrood for their financial supports. We also thank the personals of nurseries

Shahrood that cooperates with us in this study.

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