FREQUENCY OF COMMON UROGENITAL ANOMALIES IN PATIENTS PRESENTING WITH HYPOSPADIAS

Shahzad Ahmad[1], Qazi Amjad Ali[1], Nasir Hayat Khan, Mansoor Khan

ABSTRACT

OBJECTIVE: To determine the frequency of common urogenital anomalies in patients presenting with hypospadias.

MATERIALS AND METHODS: This study was carried out at plastic and reconstructive unit Hayatabad Medical complex Peshawar. Study design was descriptive cross-sectional study and duration of study was one year from 1st July 2019 to 30th June 2020. All male patients, with age ranging from 3-12 years with hypospadias were included. After detailed clinical history and physical examination, ultrasound was performed to determine urogenital anomalies associated with hypospadias. The data was organized and presented in the form of tables with the help of SPSS (Statistical package for social sciences).

RESULTS: A total of 88 male patients were included in the with mean age of 7 years ± 8.12SD. Mean birth weight was 3.3 Kgs ± 8.12SD. The most common urogenital anomalies were inguinal hernia 37%, ambiguous genitalia 15%, undescended testes 30%.

CONCLUSION: Our study concludes that the most common urogenital anomalies were inguinal hernia, undescended testes and ambiguous genitalia in patients presenting with hypospadias.

KEY WORDS: Common urogenital anomalies, hypospadias

INTRODUCTION

Hypospadias is a congenital abnormality of the urethral development , in which the urethral opening is abnormally located on the ventral aspect of the phallus[1]. Hypospadias is a congenital abnormality of male babies. It is the most common congenital abnormality of the male genital organs, with a prevalence of" approximately 0.2 to 4.1 per 1.000 live births" . Hypospadias being the most common congenital abnormality of the male babies, the diagnosis of which is most commonly missed before birth[2].

The etiology of hypospadias is speculated to be caused by the exposure of fetus to certain chemicals having anti-androgen or estrogen-like activity, which may interfere with normal hormonal signaling such as" dioxins and furans, polychlorinated biphenyls, organochlorine pesticides, phthalate esters, brominated flame-retardants and some heavy metals" [3] The term " congenital anomalies" is defined by WHO as " the abnormalities should be confined to structural defects present at birth" .[4]

1. Bunrs and Trauma Center, Peshawar

Address for Correspondence:
Dr. Qazi Amjad Ali,
Consultant Plastic Surgeon
Burns and Plastic Surgery Center HMC, Peshawar.
dr_qamjad@yahoo.com
00923339237004

Although the risk factors of hypospadias are well established and can be refrained from, but the exact cause of congenital abnormalities remains unknown. A surveillance program, held in 1960 , to observe the incidence of congenital abnormalities in different populations around the world, shows the prevalence of congenital abnormalities differ significantly from country to country. These differences are because of variations in their social, racial, environmental, and economic conditions. Congenital abnormalities are the leading causes of preterm delivery, neonatal deaths, and lifelong morbidity. Recently the incidence of congenital abnormalities has increased globally significantly because of the increased maternal age at pregnancy and the development of the assisted reproductive [4]. Studies shows that the increased use of drugs and progesterone in pregnancy causes the increased risk of multiple congenital abnormalities and premature deliveries 4. Studies shows that up to 40% of hypospadias patients have associated urinary system anomalies[1]. The commonly occurring congenital genital abnormalities are undescended testes (37.5%) followed by ambiguous genitalia (22.2%) [6] and 15% of cases have an inguinal hernia [7].

If the urinary congenital anomalies are not diagnosed and treated in time, the child is at risk for chronic renal failure or other complications. The occurrence of such diseases has a decisive impact on life expectancy, quality of life and financial costs. Early diagnosis and treatment may provide a quality of life similar to that of healthy children with a lower financial burden for society.

To the best of our knowledge, there is no national data, available till date on this subject. Once the frequency of urogenital anomalies associated with hypospadias is available, it will help in directing public health policies towards the etiological factors and possible preventive measures. The data will also sensitize the clinician focus on early diagnosis and help prevent irreversible complications and thus decrease morbidity.

MATERIAL AND METHOD

This study was carried out at plastic and reconstructive unit Hayatabad Medical complex Peshawar. Study design was descriptive cross-sectional study and duration of study was one year from 1st July 2019 to 30th June 2020.

Sample size was 88 under WHO calculator using 95% confidence level and error margin of 7.5%. Non-probability consecutive sampling technique was used for sample collection. All male patients of age 3-12 years and below presenting with hypospadias were included while patients with previously operated cases, above 12 years of age, because the above ages have rare chance of hypospadias were excluded as they may act as confounders and introduce bias to the study results. After detailed clinical history and physical examination abdominal ultrasound was done for all hypospadias patients to confirm the urogenital anomalies by expert sinologist having five years post fellowship experience. All the patients were observed for the common urogenital anomalies. The collected data of the study was organized and analyzed with statistical package for social sciences (SPSS version 17). Frequencies and percentages were computed to categorical variables like common family history of hypospadia, family history of genital anomalies, urogenital anomalies (Inguinal hernia, ambiguous genitalia, undescended testes) and continuous variables i.e age, birth weight were presented in mean ±SD.

RESULTS

In this study age distribution among 88 children was analyzed as 57(65%) children were in age range 3-8 years and 31(35%) children were in age range 9-12 years. Mean age was 7 years ± 8.12. (Table No 1) Birth weight among 88 children was analyzed as 62(70%) children had birth weight range 3-8 Kgs and 26(30%) children had birth weight range 3-8 Kgs. Mean birth weight was 3.3 Kgs ± 8.12. (Table No 2) Family history of hypospadias among 88 children was analyzed as 40(45%) children had positive family history of hypospadias while 48(55%) children didn't have family history of hypospadias. (Table No 3) Family history of genital anomalies among 88 children was analyzed as 33(38%) children had positive family history of genital anomalies while 55(62%) children didn't have family history of genital anomalies. (Table No 4) Frequency of common urogenital anomalies among 88 children was analyzed as 33(37%) children had inguinal hernia, 13(15%) children had ambiguous genitalia, 26(30%) children had undescended testes. (Table No 5)

TABLE NO 1: AGE DISTRIBUTION (n=88)

AGE	FREQUENCY	PERCENTAGE
3-8 year	57	65%
9-12 year	31	35%
Total	88	100%

TABLE NO 2: BIRTH WEIGHT (n=88)

BIRTH WEIGHT	FREQUENCY	PERCENTAGE
3.0- 3.3 kg	62	70%
3.4-3.5 kg	26	30%
Total	88	100%

TABLE NO 3: FAMILY HISTORY OF HYPOSPADIAS (n=88)

FAMILY HISTORY OF HYPOSPADIAS	FREQUENCY	PERCENTAGE
Yes	40	45%
No	48	55%
Total	88	100%

TABLE NO 4: FAMILY HISTORY OF GENITAL ANOMALIES (n=88)

FAMILY HISTORY OF GENITAL ANOMALIES	FREQUENCY	PERCENTAGE
Yes	33	38%
No	55	62%
Total	88	100%

TABLE NO 5: COMMON UROGENITAL ANOMLIES (n=88)

COMMON UROGENITAL ANOMLIES	FREQUENCY	PERCENTAGE
Inguinal Hernia	33	37%
Ambiguous Genitalia	13	15%
Undescended Testes	26	30%

DISSCUSION

Hypospadias is a congenital abnormality of the urethral development , in which the urethral opening is abnormally located on the ventral aspect of the phallus[1Cajal et al. 2016)]. Hypospadias is the congenital deformity of male babies. It is the most common congenital abnormality of the male genital organs, with a prevalence of approximately 0.2 to 4.1 per 1.000 live births. Hypospadias being the most common congenital abnormality of the male babies, the diagnosis of which is most often missed before birth.[2(Çayan and Çayan 2013)] Our study shows that the mean age was 7 years ± 8.12. Mean birth weight was 3.3 Kgs ± 8.12. The most common urogenital anomalies were inguinal hernia 37%, ambiguous genitalia 15%, undescended testes 30%. Similar results were observed in other studies as the use of various drugs and progesterone during pregnancy increases the risk of premature deliveries, small for gestational age fetus and congenital anomalies, up to 40% of hypospadias patients have associated urinary system anomalies[1(Rodríguez Fernández, López Ramón y Cajal et al. 2016)]. The commonly occurring congenital genital abnormalities are undescended testes (37.5%) followed by ambiguous genitalia (22.2%) [6(Sabzehei, Mousavi-Bahar et al. 2012)] and 15% of cases having inguinal hernia .We had 2.1 % patients with inguinal hernia in our study population, which is consistent with the results of Abdelrahman et al.[11(Abdelrahman, Abdeljaleel et al. 2011)] from Sudan who reported it in" 2% of their study population" . Contrary to our results Wu WH et al.[12] (Wu, Chuang et al. 2002) noticed 12.4% of inguinal hernia associated with hypospadias. Ghazzal AM et al[13(Ghazzal 2006)] had reported that a total of 250 men had one the 4 conditions: 93 (3.0%) had inguinal hernia; 15 (0.5%) had undescended testis (26.7% bilateral); 59 (1.9%) had hypospadias; 83 (2.7%) had varicocele (98.79% on the left side). Prevalence of inguinal hernia and undescended testis were comparable with international prevalence rates, while the rate for hypospadias was higher and that for varicocele lower.

CONCLUSION

Our study concludes that the most common urogenital anomalies were inguinal hernia followed by undescended testes and ambiguous genitalia in patients presenting with hypospadias.

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