



## ORIGINAL ARTICLE

### Physicians Approach to Hypospadias in Kingdom of Bahrain

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#### Abstract

**Background and objectives:** Hypospadias is a congenital condition affecting the urethral opening in males where the opening is present on the underside of the penile shaft rather than at the tip of the glans. The aim of this research was to evaluate the general knowledge and approach of Pediatricians, Family Physicians and General Practitioners (GP) in the Kingdom of Bahrain towards hypospadias.

**Methods:** This is a descriptive study in which an anonymous online questionnaire was sent to pediatricians, family physicians and general practitioners in Bahrain. The questionnaire included both yes and no questions, open ended short answer as well as multiple choice questions. The questionnaire included components aimed at finding the professional background as well as to assess the knowledge and approach of these physicians regarding hypospadias.

**Results:** The total number of participants in this study was 60 physicians. An average of 11.3 years of postgraduate experience was present among the participants. The average number of hypospadias cases seen per year by the participants was 3.1. The age of referral to a surgical specialty was on average 4 months and 65% of participants believed that the optimal age for surgery was between 12-18 months. A majority of 75% participants believed that there were congenital anomalies associated with hypospadias, with the commonest one described being undescended testis. Finally, 38 (63.3%) physicians answered that they would refer cases to pediatric surgery while 22 (36.7%) answered that they would refer these cases to pediatric urology.

**Conclusion:** Most physicians had an appropriate knowledge of when to refer and when to intervene surgically in cases of hypospadias. However, several components of the approach, including whether it was a hereditary condition or if investigations needed to be performed prior to referral were inaccurate.

**Keywords:** Hypospadias, Undescended Testis, Chordee, Pediatric Urology, Bahrain.

#### Introduction

Hypospadias is a congenital condition affecting the urethral opening in male newborns where the opening is present on the underside of the penile

shaft rather than at the tip of the glans<sup>1</sup>. Hypospadias is a common condition with an incidence of 1/300 live male births worldwide and the locations of the abnormal meatus opening is distributed as

follows: distal to the glans (71%); corona (43%); distal shaft (34%), mid-penis (16%) and proximal to glans (13%)<sup>1</sup>. In addition to that, some congenital anomalies have been associated with the presence of hypospadias, most notably inguinal hernia, undescended testis and abnormal penile curvature (Chordee)<sup>2</sup>.

During intrauterine development, the urethra for males and females is similar until eight weeks of gestation, after which the penis begins to develop in males. During gestational weeks nine to twelve, penile urethral defect can occur leading to hypospadias<sup>3</sup>. The specific causes of why this occurs are still unknown and although no specific mode of inheritance has been identified in hypospadias, fathers and brothers of children with hypospadias are slightly more likely to have the abnormality<sup>3</sup>.

Hypospadias is a clinical diagnosis that can be made by a thorough history and physical examination and does not require any further investigations unless concurrent congenital anomalies are noted<sup>3</sup>. Surgery to correct the location of the urethral opening along with concurrent Chordee, if present, is the treatment of choice for hypospadias cases<sup>4</sup>.

The time of diagnosis as well as the penis size determine the most suitable time to operate on a child with hypospadias<sup>4</sup>. The optimal age to operate on most cases is between 6 to 18 months of age<sup>4</sup>. Some surgeons prefer to operate even earlier if the child has an adequate-sized phallus at 4 months of age and this is because healing is quicker with minimal scars and the infant overcomes the stress of surgery easily at this age<sup>4</sup>. Patients who are diagnosed late, after the age of 4 years, can be operated on whenever they present to the hospital<sup>4</sup>.

Most patients with hypospadias have normal testicular and androgen end-organ functions after surgical correction. Sexual function should be normal after successful hypospadias repair<sup>5</sup>. Most patients, including those with a less than perfect result from hypospadias repair, are able to enjoy a satisfactory sexual life<sup>6</sup>.

The aim of this research was to evaluate the general knowledge of Pediatricians, Family Physicians and General Practitioners (GP) in the Kingdom of Bahrain about hypospadias as well as assess

their approach when presented with a case of hypospadias.

## Materials and methods

This is a descriptive, cross-sectional study aimed at physicians who are usually the first to encounter most cases of hypospadias, largely through regular post-natal checkups, and refer these cases from across Bahrain to pediatric surgeons or pediatric urologists for further evaluation and treatment.

An anonymous online questionnaire was sent to Pediatricians, Family Physicians and GPs from all three sectors of healthcare in Bahrain, including governmental hospitals and health centers, military hospitals and private practices. The questionnaire included Yes or No, open ended short answer and multiple choice questions. The questionnaire also had several components aimed at finding the professional background of the physicians completing the forms. This included questions regarding the sector in which the physicians' practice along with his/her years of experience post-graduation.

Furthermore, in order to assess knowledge of these physicians regarding hypospadias and their approach towards cases, questions such as the number of hypospadias cases seen per year by the physician, the correct ages for referral and surgery according to them, whether there were any anomalies associated with the condition and if any investigations were necessary for a child with hypospadias were included. Finally, physicians were asked as to which specialty should these cases be referred to.

## Results

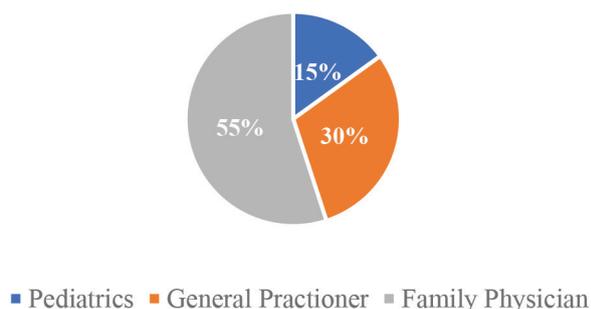
The total number of participants in this study was 60 physicians, all of whom were practicing medicine in the Kingdom of Bahrain at the time of this survey. Firstly, their professional background was obtained, including years of experience post-graduation, which from our results, ranged from minimum of 1 year minimum to a maximum of 40 years, with an average of 11.3 years of experience after graduation among all participants.

The majority of participants were family physicians, comprising 33 (55%) of the total number of 60,

followed by GPs at 18 (30%) and pediatricians who were 9 (15%), as demonstrated in Figure 1.

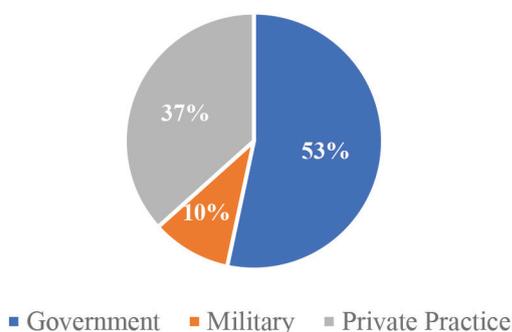
Moreover, out of the three sectors of healthcare provided in Bahrain, most of our participants, 32 (53%) out of 60, practiced in the government sector, while the rest were from the private sector [22 (37%)] and from the military sector [6 (10%)], as is apparent from Figure 2.

Physicians by Specialty



**Figure 1:** Participating physicians grouped by their specialty

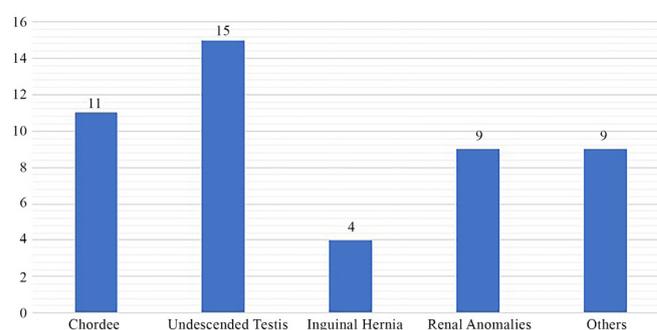
Sector of Practice



**Figure 2:** Participating physicians grouped by their sector of practice

Further questions were aimed at understanding the approach these physicians had towards a case of hypospadias. The average number of hypospadias cases seen per year by the participants was 3.1 cases per year. The age of referral to a surgical specialty was on average four months with 25 (41%) participants referring cases as early as two months of age. In addition to that, (65%) of participants believe the best age for a child with hypospadias to undergo corrective surgery is between 12-18 months of age with an average of 16.3 months old between all participants.

When asked whether hypospadias is a hereditary condition, 48 (80%) of participants answered that it was not. The survey included whether physicians believed that there are any congenital anomalies that were associated with hypospadias and the result was that 45 (75%) participants believed that there are congenital anomalies associated with hypospadias. Participants who believed that hypospadias was associated with congenital anomalies were asked to describe the anomalies. The most common answer was undescended testis followed by chordee, renal anomalies and then inguinal hernia, as demonstrated in Figure 3.



As seen in Figure 3, the other congenital anomalies that were answered in this open-ended question allowed physicians to answer with more than one anomaly and included bifid scrotum, vesico-ureteric reflux, neurogenic bladder, underdeveloped foreskin, hydrocele, penoscrotal transposition and ambiguous genitalia.

When asked whether they would perform any investigations on a child with hypospadias prior to referral, 30 (50%) of the participating physicians believed that the child should be referred without undergoing investigation. Out of those who would perform investigations before referring to surgery, renal ultrasound was the most common investigation followed by a routine urine test.

Finally, when asked which specialty to refer cases of hypospadias, 38 (63.3%) answered that they would refer to pediatric surgery while 22 (36.7%) answered that they would refer these cases to pediatric urology.

**Discussion**

Hypospadias is the second most common congenital anomaly in males after undescended testis, with

incidence rates of 1/300 to 1/250 live male births in most countries<sup>7</sup>. Due to its incidence, it is important that physicians who come into contact with infants frequently, especially those performing regular post-natal checkups, be aware of how to approach a case of hypospadias.

In this survey, it is apparent that physicians practicing in Bahrain have a decent understanding of how to approach a case of hypospadias. This can be observed with 41% of them accurately describing the appropriate age of referral and 65% of them accurately stating the preferred age of surgery. Most participants also accurately described the commonest congenital anomalies associated with hypospadias including undescended testis and abnormal penile curvature (Chordee) but on the other hand, only four (8.3%) out of 48 participants believed that congenital anomalies were associated with hypospadias, including inguinal hernias, even though they are a common type of congenital anomaly associated with hypospadias<sup>8,9</sup>.

Moreover, a significant amount of the participants (50%) believed that hypospadias cases should be investigated before referral, which is inaccurate, as isolated hypospadias requires no further workup prior to surgical referral. This could lead to performance of unnecessary investigations and a delay in referral.

With regard to whether hypospadias was a hereditary condition, 80% of participating physicians believed it was not, which is not entirely accurate. This is because a genetic component is believed to be present, even though no specific mode of inheritance has been identified. However, other factors such as prematurity and low birth weight have been shown to increase chances of a child developing hypospadias<sup>7</sup>.

In addition,, more than half of the participants (63.3%) believed that these cases should be referred to pediatric surgeons rather than pediatric urologists. This can be attributed to the fact that most pediatric surgeons in Bahrain receive training in pediatric urology as well and that these two subspecialties are not divided as is the case in other countries where pediatric surgeons and pediatric urologists have separate practices.

Spreading awareness regarding hypospadias amongst physicians can help in earlier detection, diagnosis and proper referral which can lead to significantly improved outcomes and better prognosis. It can also enhance physicians' communication with parents of boys with hypospadias and help reassure and educate them regarding their child's condition. We suggest that more is done to spread awareness amongst physicians practicing in Bahrain regarding this common congenital anomaly.

### Limitations

Although the survey was sent to many physicians across Bahrain, the response rate was low, limiting the sample size. Hence, further analysis between specialties and sectors of practice was also limited.

Furthermore, most respondents selected Pediatric Surgeons as the specialist choice for referrals. This can be attributed to the fact that the concept of Pediatric Urology as a separate surgical specialty is not yet established in Bahrain.

### Conclusion

According to our survey, most physicians have a decent understanding of hypospadias and have a proper knowledge of when to refer and when to intervene surgically. However, it can also be stated that several components of the approach, including whether it was a hereditary condition or if investigations needed to be performed prior to referral were inaccurate.

### Conflict of Interest

The authors of this study have no conflict of interest to declare.

### Acknowledgement

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