ORIGINAL ARTICLE

Hypospadias Repair: An Overview of 131 Cases

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ABSTRACT

Aim: To determine the age distribution of hypospadias, their presentation, type of surgical procedure and their complications.

Methods: This cross-sectional study was conducted in Institute of Kidney Diseases, Peshawar from January 2010 to December 2012. A sample of 103 patients was selected by convenience sampling. All patients with hypospadias were included. Those with disorders of sex development and coagulation disorders were excluded. Age in years, family history, age range at surgery, type of hypospadias, presence of chordee, presence of meatal stenosis, cryptorchidism or inguinal hernia, type of surgical procedure and type of complications were variables.

Results: Mean age of the sample was 7.11±4.09 (1-20) years. Anterior hypospadias was the most common type in 69(52.67%) patients. Fourteen (10.68%) patients had positive family history. Majority of the patients 74(56.49%) were operated in 4-6 years of age. Sixty nine and 62 patients underwent single and two-stage repair respectively. Chordee was present in 93(80%) patients. Meatal stenosis was observed in 11(8.93%) where as cryptorchidism and inguinal hernia were observed in 2(1.53%) patients each. Most common acute complication was edema in 52(39.69%) and most common chronic complication was urethrocutaneous fistula in 52(39.69%) patients.

Conclusion: Hypospadias repair is associated with edema as commonest acute complication and urethrocutaneous fistula as commonest chronic complication.

Keywords: Penis; hypospadias; cryptorchidism; inguinal hernia.

INTRODUCTION

Hypospadias is defined the abnormal location of meatus on ventral aspect of penis which may or may not be associated with chordee[1]. It is the most common congenital anomaly of the penis[2]. It is noted in 0.3% newborn boys[3]. The incidence is increasing and reported double since 1970s in the United States by Birth Defects Monitoring Program (BDMP) in 1993[4]. Genetic, endocrine and environmental factors are important in the aetiology of hypospadias[5]. It is classified into anterior (glanular and subcoronal), mid penile (distal penile, midshaft, and proximal penile), and posterior (penoscrotal, scrotal, and perineal) hypospadias. The incidence of anterior, mid penile and posterior hypospadias is 50%, 30% and 20% respectively[6].

It is associated with other congenital anomalies such as undescended testis, inguinal hernia, intersex disorders and persistent Mullerian structures.[7] Chordee is associated in one fourth of the hypospadias cases. Chordee is classified into mild (10–20), moderate (30–40), and severe (>50) degree per-operatively by Horton test after degloving the penis.[1] The choice of the procedure is based on the characteristics of the urethral plate irrespective of the meatal location. The hypospadias can be repaired by single-stage procedures or two-stage procedure (Bracka's repair)[5]. The aim of the surgery is positioning of the meatus at the tip of the glans, correction of chordee and normal penile appearance[8].

Complications of hypospadias repair, such as fistulae, urethral stricture, meatal stenosis, penile torsion, persistent chordee, infections and wound dehiscence, are reported[9]. The follow up protocol after hypospadias repair has not been commonly reported[10]. However, the patient is followed for 1, 3 and 6 months intervals and then yearly. For long term results patient can be followed up to midteen age[4].

MATERIAL AND METHODS

This cross-sectional study was conducted at the Department of Urology & Renal Transplantation, Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar, Pakistan from January 2010 to December 2012. With convenience sampling, 131 patients were included.

All patients with hypospadias were included. Those with disorders of sex development and coagulation disorders were excluded from the study. All patients were subjected to detailed history and physical examination followed by routine investigations like urinalysis and complete blood count. Intravenous prophylactic antibiotics were

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administrated one hour preoperatively. The surgical procedure was carried out by specialists (fellow urologists) under general anesthesia using isoflourane. Sixty nine, one-stage repair (TIP, MAGPI, Mathews) and 62 two-stage repair (Bracka) were carried out. We followed our patients at three, six and 12 months. The demographic variables of the sample were; age in years, family history of hypospadias and age range at surgery. The research variables were; type of hypospadias, presence of chordee, presence of meatal stenosis, cryptorchidism or inguinal hernia, type of surgical procedure and type of complications. Age in years was a ratio data and analyzed for mean, SD, minimum and maximum. The rest were categorical data and analyzed as number and percentage by using SPSS version 16.

RESULTS

Mean age of 131 patients was 7.11±4.09 (1-20) years. Fourteen (10.68%) patients had positive family history. Most of the patients 74 (56.49%) were operated in 4-6 years of age followed by 51(38.93%) in 1-3 year window period and 6(4.58%) patients above six year of age. Anterior hypospadias (glanular, coronal and sub coronal) were found in 69(52.67%) cases, mid penile hypospadias (distal penile, midshaft, and proximal penile) in 40(30.53%) cases and posterior hypospadias in 22(16.80%) cases. Chordee were present in 93(80%) patients with mild, moderate and severe chordee in 49(52.70%), 29(31.18%) and 15(16.12%) patients respectively. Meatal stenosis was observed in 11(8.40%) where as cryptorchidism and inguinal hernia were observed in two (1.53%) patients each.

Single-stage repair was done in 69(52.67%) patients, out of which TIP repair done in 53(76.81%), MAGPI repair in 13 (18.84%) and Mathews repair in three (4.35%) patients. Two-stage Bracka repair was performed for 62 (47.33%) patients. Acute complications were edema in 52 (39.69%), bleeding in three (2.29%), hematoma in two (1.53) % and infection in six (4.58%) cases which were successfully managed conservatively. Most common chronic complication was urethrocutaneous fistula observed in 52(39.69%) patients, out of which 13(25%) were closed spontaneously during two to three months postoperatively where as 39(75%) were closed by surgical procedure. The second chronic complication was meatal stenosis observed in ten (7.63%) patients.

DISCUSSION

We observed that 10.68% patients had a positive family history. This report is consistent with the report of Khan et al[11] and Abdelrahman et al[12] who reported positive family history in 8.6% and 12% respectively. In contrast Akin et al[13] reported an even higher association of positive family history in 26.5% patients. In the current study 56.49 % operated patients were in 4-6 years of age followed by 38.93% in 1-3-year window period and the rest of the patients were above 7 year of age. This is in contrast to the study conducted by Chrzan et al[14] who reported the timing of hypospadias repair in the age group of 6–18 months. The guidelines also recommends hypospadias repair in early age group[15] but the low ratio of patients operated in 4-6 years window in our study may be due to lack of public awareness, late presentation, and economical issues.

In our study we observed that the most common type of hypospadias was anterior type. Aslam et al[16] and Spinoit et al[17] also reported anterior hypospadias to be the most common type in their studies, however Khan et al[11] reported mid penile hypospadias as the most common type followed by anterior hypospadias. In the current study, 80% patients were associated with chordee and mild chordee being the most common type. Khan et al[11] and Abdelrahman et al[12] reported similar results with positive chordee in 88% and 89% cases respectively.

We observed that 8.93% patients were associated with meatal stenosis. This is consistent with result of Khan et al[11] who observed meatal stenosis in 9.6% patients. In contrary to this Esposito et al[18] conducted study on 445 patients aged between 8 and 120 months who underwent surgical correction of hypospadias and observed meatal stenosis in 0.9% patients. In our study we observed cryptorchidism in 6.87 % cases. Itesako et al[19] retrospectively reviewed the records of 566 boys with hypospadias and observed congenital cryptorchidism in 6.2% patients. In our study sample, 2.29% patients had inguinal hernia which is consistent with the results of Abdelrahman et al[12] who reported this in 2% of their study population. In contrast to our observations Wu WH et al[20] observed inguinal hernia in 12.4% of hypospadias patients which is higher than our results.

We performed single-stage repair in 52.57% patients with TIP, a predominant repair and two-stage Bracka repair in 47.43% patients. The most common acute complication was edema observed in 39.69 % patients. It may be due to prolonged tourniquet and tight postoperative dressing. Other acute complications were bleeding in 2.29%, hematoma in 1.53% and infection in 4.58% cases. Khan et al[11] also reported almost similar percentages for acute complications. All acute complications were successfully managed by conservative management. In our study the most common chronic complication

was urethrocutaneous fistula (UCF), observed in 33% patients. Aulagne et al[21] also observed urethrocutaneous fistula in 33% patients. Snodgrass et al[10] observed fistulas in 43% cases in his recent prospective study in a median follow up of 6 months. In contrast to our observations Bush NC et al[22] reported UCF in 11.5% patients in his study which is much lower than our result.

CONCLUSION

Hypospadias repair is associated with edema as commonest acute complication and urethrocutaneous fistula as commonest chronic complication.

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