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Outcome of Distal Hypospadias Repair in Pediatric Surgery Department at Alribat Teaching Hospital

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Objectives: To evaluate the surgical and cosmetic outcome of distal hypospadias repair including different procedures used to repair distal hypospadias and to identify complications and suggest solutions.

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Abstract- *Background:* Hypospadias is a common congenital anomaly affecting the penis in which the opening of the urethra is on the ventral surface of the penis, usually associated with ventral curvature of penis (chordae). Treating hypospadias is a challenging mission for the surgeons. Many techniques have been descried in the literature for the repair of hypospadias with variable results.

Objectives: To evaluate the surgical and cosmetic outcome of distal hypospadias repair including different procedures used to repair distal hypospadias and to identify complications and suggest solutions.

Patients and methods: This study was conducted at Pediatric surgery department of Alribat University Hospital from August 2012 to September 2013, during this period 31 patients with anterior hypospadias with or without chordee underwent hypospadias repair using different techniques.

Result: The common operation done in repair was MAGPI 51.6% (16 patients), then TIPS in 29% (9 patients). Over all complications rate of hypospadias repair were 35.5%. And the most common complications were fistula 16.1% and stenosis 6.5%. 50% of patients with chordee had developed complications compared to 29% of patients without chordee.

*Conclusion:*The MAGPI is an excellent choice for glandular and coronal hypospadias without chordee. Proper patient selection is mandatory for success.

TIP urethroplasty is an excellent technique for the majority of boys with subcoronal hypospadias. Urethrocutaneous fistula remains the commonest complication after distal hypospadias repair. There is no single ideal operation for all hypospadias, therefore, the urologists have to be proficient in performing a number of procedures in order to be prepared for all eventual possibilities. Hypospadias surgery is still challenging, however, adherence to the basic principles of surgery and postoperative care can markedly reduce complications.

Recommendations: Mean age for surgical repair of hypospadias should be less than 3 years. Long follow-up of young children underwent surgery and they should bereassessed after adulthood for functional, cosmetic and psychosexual outcomes.

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I. Introduction

Is derived from the Greek word 'hypos' meaning "under" and 'spadon' meaning "rent" or "fissure." (1) Hypospadias is one of the most common congenital anomalies of the male newborns affecting 1 in 300(2). Urethral meatus lies ectopically on the ventral surface of penis proximal to its normal position, from just below the tip of the glans to the perineum in the most severe cases.

The purpose of hypospadias repair is to construct a urethra which enables the patient to urinate adequately and to have a penis with satisfactory cosmetic result and adequate for coitus in adulthood (3).

Hypospadias constitute major challenges both functional and psychological. Parents may be the term hypospadias aware about both however, the psychological impact on the child is great especially if hypospadias was not repaired till school age. In communities where circumcision was conducted for religious or traditional requirements and in these communities where circumcision was prohibited for religious requirements, the presence of normally appearing complete circumferential prepuce is mandatory and this is the main source for the psychological burden(4).

Hypospadias is divided into three types of posterior (proximal), middle and anterior (distal), regarding the position of meatus. In anterior type, meatal orifice opens either on distal penile shaft, on corona, or under the glans (5). The majority of cases are distal hypospadias, and many different techniques have been described for their repair.

Repair of hypospadias is a challenging undertaking and there is a learning curve for every surgeon (6).

Different techniques for hypospadias repair have been described and newer methods continue to evolve. There is no one standard procedure for all hypospadias repair. A technique must be adapted for each individual patient. Therefore, the surgeon ought to be proficient in performing number of procedures in order to be prepared for all possible eventualities.

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Currently, the aim of hypospadias repair is to provide a semi normal-looking straight penis with the meatal opening at the tip in a single-stage procedure (7).

II. Patients and Methods

The current study is done at Alribat University hospital, department of paediatric surgery, for patients who underwent distal hypospadias repair in the period August. 2012 to September using patient's record.

a) Material and method

31 children (aged between 2 years and 13 years) with distal hypospadias have been treated from August 2012 to September 2013. The average age at operation was 5.8 years.

They underwent primary repair using different type of operations, and they had no history of previous hypospadias repair. The preoperative meatal sites were glandular in 7patients, coronal in 8 patients, and subcoronal in 16 patients.

Data collected using predesigned questionnaire including information such as age, family history, type of hypospadias, type of surgery, complications ect…..
Statistical analysis of the data were performed with the statistical software package SPSS

III. Result

- All patients enrolled in this study have no family history of hypospadias
- Most of the patients were diagnosed at birth (87.1%), and only 12,9% diagnosed at circumcision (Table 1)
- The most common presentation of our patients is abnormal shape of penis and abnormal stream of urine (71 % and 25,8% respectively) (Fig 1)
- According to the site of meatus subcoronal hypospadias is the commonest 51.6% of patient. (Fig 2)
- Associated chordee is present in 19.4% of patients (6 patients) (Table 2)
- Associated external genitalia anomalies are inguinal hernia and undescended and they are equals 3.2% for each. (Table 3)
- Only one patient had been circumcised before surgery representing about 3.2% (Table 4)
- Mean age at time of surgery was 5.8 and 74.2% of patients underwent surgery after 3 year of age (Table 5)
- The common operation done in repair of our patients is MAGPI 51.6% (16 patients), then TIPS in 29% (9 patients), and UGPI in 9.7 (3 patients) (Fig 3)
- Post-operatively 35% of our patients had been catheterized more than 7 days (Table 6)
- This study showed that over all complications rate of hypospadias repair were 35.5%. And the most common complications were fistula 16.1%, stenosis 6.5%, and infection 3.2%. (Table 7 and Fig 4)
- 50% of patients who had hypospadias with chordee had developed complications, compared to 29% of those who had no chordee. (Table 9 & Table 10)

IV. Discussion

Hypospadias is one of the most common congenital male birth anomalies, occurring in approximately 1 out of 200–300 live male births (49) Anterior or distal hypospadias comprises 50% to 70% of all hypospadias according to Barcat (1973) and Duckett (1992).(8)(9)Several surgical techniques have been advocated for repairing anterior hypospadias. Some of these techniques are MAGPI, Mathieu, GAP, Snodgrass, Mustard, and Barcat, among which MAGPI, Mathieu and Snodgrass are the most commonly used techniques.

In the present study, the median age for primary hypospadias repair was 5.8 years (range from 2years to 13 years). The majority of boys (21patients) were above the age of 3 years, which is not preferable. Having observed disturbing behavioral changes in boys undergoing hypospadias repair between the ages of 2 and 6 years, Manley and Epstein reduced age at operation to 10 to 18 months, and noted marked improvement emotionally and psychologically compared to the older age group. (84)Also, boys undergoing staged hypospadias repair, did significantly better psychologically with one stage repair at age 6 months compared to those undergoing two stage repair at age 3 years. (10)

One of the major changes that have occurred over the past 2 decades is the recommendation for age of surgical correction of hypospadias, it is clear that the window between 6 and 18 months is the optimal time for hypospadias repair. This is due to better understanding the developmental, psychosexual, anesthetic and surgical factors involved in surgical decision (11).

In this study the suture material used for repair of all patients is polyglactin (vicryl). Fine 6/0 and 7/0 polyglactin absorbable suture (vicryl) are the standard sutures used in hypospadias repair. Several studies have shown that polydiaxanone (PDS) reacts with urine and causes a chemical reaction that increases the chances of fistula and complications. (12)

Ulman et al. (1997) found that in urethroplasty with 6/0 vicyrile exact fold continued repairing had higher fre¬quency of occurence fistula development, than in urethro¬plasty with 7/0 PDS subcuticular continued repairing.

Penile curvature associated with hypospadias may be caused by deficiency of the normal structures on the ventral side of the penis. (13)Distal hypospadias is the least type of hypospadias that associated with

chordee.Barcat(1973) reported 15% incidence of chordee in anterior hypospadias.

In the present study, penile curvature occurred in 19.4% (6 patients) of cases. This is in agreement with Barcat (1973) (14)

In the present study, the incidence of undescended testis and inguinal hernia is 3.2% for each and this is in agreement with that of John M Gatt-Andrew J they report 4.8% for undescended testis, and 7.1% for inguinal hernia with anterior hypospadias (15)

This study showed a complication rat of fistula 16.1%, and stenosis 6.5% (Table 7 and Fig 4). Our results are in agreement with those reported by Spence JR(16)who reported incidence of fistula 16.7% in patients underwent urethral advancement for distal hypospadias repair, and this figure is higher than Cakan et al.(17) who reported a frequency of fistula of 11% after TIPU for distal hypospadias repair.

Holland et al performed a study on 59 patients with a mean age of 13 months, using Snodgrass technique, and followed them for 9 months. Fistula and meatal stenosis were reported in 10%, and 5% of cases, respectively. Appearance and functional results were reported to be acceptable. (18).

Haq AU13 observed meatal stenosis in 5.5%, and low incidence of fistula in 3.3%, of patients operated with Snodgrass procedure.

Uygur et al. (2002) reported 7.7% of 91patients underwent MAGPI had meatel stenosis (19)

The best results for MAGPI procedure has been reported by the original authors (Duckett and Snyder, 1992) (20).They reported a complication rate of 1.2%, which, was much less than that in the remaining literature.

Elbakry and Snodgrass showed in their studies that regu¬lar urethral dilatation after Snodgrass surgery can decrease the development of narrow meatus and occurrence of fistulas (21) (22)

We checked our patients' urethral meatus calibre postoperatively in the 2nd week, and use nasogastric tube size 5 or 8 for dilatation of the urethral meatus.

V. Conclusion

Hypospadias is one of the commonest congenital anomalies of male children and distal hypospadias is the commonest type.

Undescended testis and inguinal hernia were the most common associated anomalies with distal hypospadias.

Distal hypospadias is the least type of hypospadias that associated with ventral curvature (chordee).

The MAGPI is an excellent choice for glandular and coronal hypospadias without chordee. Proper patient selection is mandatory for success.

TIP urethroplasty is an excellent technique for the majority of boys with subcoronal hypospadias.

Urethrocutaneous fistula remains the commonest complication after distal hypospadias repair.

There is no single ideal operation for all hypospadias, therefore, the urologists have to be proficient in performing a number of procedures in order to be prepared for all eventual possibilities.

Hypospadias surgery is still challenging, however, adherence to the basic principles of surgery and postoperative care can markedly reduce complications.

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