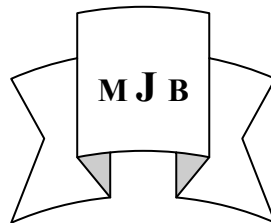


Factors Affects Two Stage Repair for Severe Type of Hypospadias

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Abstract

Aim of the Study: To determine factors affecting the repair of the two stage repair for severe type of hypospadias

Patients and Methods: Forty male patients age between 2-12 with mean 5 years, operated for penoscrotal(20) patients, scrotal(12) patients and perineal(8) patients hypospadias in Hilla teaching Hospital between 2003-2008. All patients underwent two stage repair including correction chordee in the first stage and neourethra formation with meatal advancement in second stage.

Results: Twenty patients(50%) had penoscrotal, 12(30%) had scrotal and 8(20%) had perineal hypospadias. Twelve patients(30%) had undescended testis and 7(17.5%) had inguinal hernia. The chromosomal analysis was XY in 35(87.5%), 3 patients(7.5%) had XYIX mosiasim and 2(5%) patients had XYIXO while UIS result, 2(5%) had female internal organ (uterus). Androgen in form of testosterone given in 15(37.5%) patients for lengthening the phallus in dose of 100 mg single dose in 7 patients, two doses in 5 patients and three doses in 3 patients. The most common complications were local edema occurring in all patients, local hematoma in 6(15%) patients, urethrocutaneous fistula in 18 (45%), meatal stenosis in 8(20%) and local infection in 3(7.5%).

Conclusions: The main factors which help in getting optimal result of hypospadias repair include the preparation of the phallus with testosterone therapy in selected cases, use of water proof dressing, refined suture material and above all, tissue respect and meticulous surgical technique inspite of these precaution still the incidence of urethrocutaneous fistula carry high incidence in our patients because all our patients had severe type of hypospadias which expected to carry this incidence of fistula.

الخلاصة:

دراسة ٤٠ مريضاً يشكون من مبال تحتاني وكانت فتحة الادرار في ٢٠ مريضاً منهم تقع بين القضيب وكيس الصفن، ١٢ مريضاً في كيس الصفن و ٨ مريضاً في منطقة السرج.

وقد اجريت لهم عمليات تقويم القضيب في مرحلتين : المرحلة الاولى تعديل الاعوجاج في المرحلة الاولى وتصنيع الاحليل في المرحلة الثانية. كانت نسبة المضاعفات جيدة ومتطابقة مع دراسات اخرى ماعدا حدوث ناسور مابين الاحليل والجلد بنسبة اعلى من الدراسات الاخرى وقد يكون السبب في ان الحالات التي تمت دراستها من الحالات الصعبة والمعقدة والمتوقع حدوث هذه النسبة

Introduction

Surgery for hypospadias repair has been refined over the past two decades initially the incidence of complications very high. The success of surgery after hypospadias repair can be attributed to the technique used and the level of hypospadias and whether associated chordee is present or not in case of severe chordee ; one staged repair or

tabularized flap gives better result but the incidence of fistula is much higher as several repairs are performed at one time[1,2].

Other factors that play a significant role in the success of surgery are availability of fine suture material, use of dartos pedicle flap to cover repair and use of waterproof dressing. This has been proved by objective scoring system for evaluation of result of

surgery as described by Holland et al [3], and by uroflowmetry evaluation as described by Hammoda et al [4].

Classifications of hypospadias: Most physicians use the classification proposed by Baracat and modified by Duckett, which described location of meatus after correction of any associated chordee[5].

Anterior (glandular,coronal) 50%
Middle (distal penile, midshaft and proximal penile) 20%

Posterior (penoscrotal, scrotal and perineal) 30%

Associated anomalies: undescended testis and inguinal hernia are most common associated anomalies, in 1981 Khuri, areview of over 1000 patients with hypospadias reported that the incidence was 9% for each undescended testis and inguinal hernia with more severe forme of hypospadias the incidence of undescended testis is 30% and the incidence of inguinal hernia approach 20% (6).

Disorder of sexual (DSD) or intersex: In 1999 a study by Kaefer et al, DSD state were identified in approximately 30% of patients with unilateral or bilateral undescended testis and hypospadias and more proximal carried a higher association of DSD states than more distal meatal location, if any gonad was non palpable the incidence rose to 50%, if both gonads palpable the incidence was only 15%(7).

Patients and Methods

Forty male patients age 2-12 years with mean 5 years, operated for penoscrotal(20 patients), scrotal(12 patients) and perineal(8patients) hypospadias in Hilla Teaching Hospital between 2003 -2008

Full maternal history, pregnancy and birth record, any drug taken during pregnancy or any other complication occur

Physical examination includes general examination and local examination (penis to see the size of the phallus , type of hypospadias, severity of chordee), bifid scrotum and look for undescended testis and inguinal hernia.

All patients was sent for Chromosomal analysis to determine sex of the patient especially patients with small phallus, undescended testis or impalpabable testis and patients with female internal organ on ultrasound.

All patients sent for abdominal ultrasound to see internal genital organ especially for uterus and gonads were also to see other parts of urinary tract

Blood and urine examination done for all patients ,other radiological tests sent according to the result of ultrasound.

Surgical technique: All operation done were under general anesthesia in two stages, first stage include complete correction of chordee by excision of all fibrous tissue followed by mobilization of dorsal skin and the prepuce to cover ventral aspect with straightening of penis. The type of suture material used were 04 cat gut, bladder drainage by Foly's catheter (8-10) French for 5 days.

second stage repair by neourethra formation using Snodgrass technique the suture material used were 04 catgut in first 12 patients and polyglycolate 04 suture in other patients this is because not all the time any suture material available.(the type of suturing used were continuous subcuticular for first layer using magnification by ophthalmological loop, second layer covered by interrupted dartus flap the third layer by interrupted suturing of the skin).

Dressing used were guaze soaked with povidon iodine covered with plaster for 2 days then change the

dressing to open method using sofratule for seven days. catheter drainage used 8-10 F Follys catheter for bladder drainage and suprapubic catheter used 10F catheter. The urethral catheter left for 7 days and suprapubic catheter removed after 10 days. The antibiotic cover by cefotaxime 50 mg/kg for three days then change to oral cephalixin for 2 weeks.

Follow up for both stages were after first week, 2 weeks, one month and 3 months until complete healing occur and satisfactory result obtained.

Results

Forty patients with hypospadias their age 2-12 years mean 5 years had severe type hypospadias 20(50%) peno scrotal, 12(30%) scrotal and 8(20%) perineal) underwent repair in two stages first stage correction chordee with straightening of penis and second stage neourethra formation .

Twelve patients(30%) had undescended testis and 7(17.5%) had inguinal hernia. The testes were impalpable in two cases bilaterally, one patient had only right impalpable testis other 9 patients had undescended testis in inguinal area in 4 in the right side and 2 in the left side and remaining 3 had bilateral testes.

The chromosomal analyses were xy in 35(87.5%) patients other 3(7.5%) patients had xylxx mosiasim and 2(5%) patients had xylxo.

Ultrasound result, two (5%) patients had female internal organ(uterus).

Table 1

Type of hypospadias	Number of patients
Penoscrotal	20
scrotal	12
perineal	8

Table 2 Associated anomalies with hypospadias

Type of anomaly.	Number of patient
Undescended testis	15

Androgen in a form of testosterone given in 15(37.5%) patients for lengthening of phallus in dose 100mg single dose in 7 patients, two doses in 5 patients and three doses in 3 patients.

Complications of first stage: local edema in all cases and treated conservatively. local hematoma occurs in 6(15%) patients also treated conservatively. the result of chordee correction were excellent in all cases with complete excision of all fibrous tissue and straightening of the penis and no residual chordee left.

Complications of second stage: early complications of local edema occur in all cases and hematoma in 3 patients treated conservatively. late complications , the most important one is urethrocutaneous fistula occur in 18(45%) patients treated after 6 months by excision of the fistula tract with suturing in 2 layers using polyglycolate 04 with catheter drainage for 14 days all did well except one patient who need second operation for fistula repair.

Meatal stenosis occurred in 8(20%) patients treated by serial dilatation of the meatus. Infection of the wound occur in 3(7.5%) patients 2 end in fistula formation and one end in complete disruption of the wound need reoperation. One patient developed diverticulum needed revision and did well post operatively. No urethral stricture was reported in our patients.

Indirect inguinal testis

7

Table 3 Chromosomal analysis

Type of chromosome	Number of patients
XY	35
XYIXX	3
XYIXO	2

Table 4 Complications of second stage

Type of complications	Number of patients
Local edema	40
local hematoma	6
Urethrocuteaneous fistula	18
Meatal stenosis	8
local infection	3

Discussion

The repair of penoscrotal transposition is often performed as one stage procedure but excessive chordee especially if transection of urethral plate is required poor skin availability and small phallic size may be better approach in a staged manner; the chordee is repaired; the skin is mobilized to ventral penile shaft during first stage, and urethroplasty and glanuloplasty are repaired after first stage has completely healed; in addition some authors have been disappointed by the result of repair for the severe form of hypospadias and have turned back to the two stage repair Bayars or Durham Smith technique [8]. this is our approach to the patients due to severe degree of hypospadias in all our patients, small size phallus, severe chordee need complete excision and one stage repair were difficult in our patients so we prefer the two stage procedure although in this approach the complications of fistula was high.

The preparation of phallus for surgery with androgen increases the size of the phallus and its vascularity which helps in better flaps construction and wound healing we use testosterone i.m in 15 patients preoperatively which help in

lengthening of the phallus and easier repair of hypospadias.

Khuri and coworker 1981 found 32% incidence of undescended testis with third degree hypospadias while inguinal hernia associated hernia in 17%[6] in our study the incidence of undescended testis was 12 patients, in 2 patients the testes were impalpable bilaterally, one patient had only right impalpable testis, in 4 patients had right testis in the inguinal area and 2 patients had left inguinal testis remaining 3 had bilateral inguinal testes .the incidence of inguinal hernia in 7 patients all had right side hernia.

The presence of severe hypospadias is thought by some to be a form of intersex and the diagnosis of intersex must be ruled out in more severe type of hypospadias especially in those with cryptorchidism[7].

In the present study 3 patients had bilateral cryptorchidism, perineal hypospadias and chromosomal analysis showed xylxx while two patients had impalpable testis, uterus and chromosomal analysis showed xylxo the gonad was ovotestis in one side and testis in other side. These patients treated by hysterectomy and removal of the mixed gonad and biopsy from the testis.

Urethrocutaneous fistula is a major concern in hypospadias repair the rate of fistula formation is 10-40% depending on the severity of hypospadias [9,11], surgical technique, suture material, and type of dressing. in our patients the incidence of fistula was 18(45%) this high incidence was because our patients had severe type hypospadias with severe degree chordee need full correction which can not be done in one stage, second factor the first cases the type of suture material used was catgut 04 because the only available suture at that time in addition the anastomosis not cover by dartos flap, but with the time and growing experience and use polyglycolate suture with subcuticular watertight suturing using ophthalmological loop for magnification gave better result and the incidence of fistula much reduced.. other factors like the way of dressing and drainage of the bladder by urethral catheter and suprapubic catheter also play role in the repair.

Meatal stenosis is a complication due to technical error by over enthusiastic closure of the meatus this can easily treated by serial graduation of new urethra or dilatation [12]. Meatal stenosis occur in 8(20%) of our patients due to over closure of the meatus simply treated by serial dilatation

Conclusion

The main factors which help in getting optimal result of hypospadias repair include, preparation of phallus with testosterone therapy in selected cases, use of waterproof dressing, refined fine suture material and above all, tissue respect and meticulous surgical technique In spite of these precautions still the incidence of fistula is high and this may be due to the selected cases had severe type of

hypospadias and the incidence of fistula is expected to be high.

Prognosis

With modern anesthetic instrument, suture material, dressing material and antibiotic, hypospadias repair has become quite successful. Long term studies on the outcomes of hypospadias using current practice are limited although some earlier studies have been discouraging. These reflect an era with poorer technical outcomes, increased number of operations, and a lack of appreciation for the psychological morbidity associated with intervention at an older age [13].

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