

The outcome of posterior urethral incision technique for urethrocutaneous fistula repair following hypospadias surgery

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Abstract:

Objective: In this study our main goal is to evaluate the outcome of posterior urethral incision technique for urethrocutaneous fistula repair following hypospadias surgery.

Method: this prospective interventional study was carried out at the Department of Paediatric Surgery, Mymensingh Medical College Hospital, Mymensingh from January, 2017 – April, 2018. A total number of 20 patients with urethrocutaneous fistula following hypospadias surgery who were admitted in paediatric surgery department in Mymensingh Medical College on routine basis were included in the study.

Results: During the study, 11(36.7%) patients were present with fistula at coronal site, 6(20%) patients at distal penile, 8(26.7%) patients at mid penile and 5(16.7%) patients at proximal penile site. 10(41.67%) patients were anterior hypospadias, 8(33.33%) patients were middle and 6(25%) patients were posterior variety hypospadias. Mathieu urethroplasty had been performed in 11(45.83%) patients. Onlay island flap urethroplasty done in 5(20.84%) patients and Tubularized incised plate (Snodgrass) urethroplasty had been performed in 8(33.33%) patients.

Conclusion: from our study we can conclude that, the choice of technique of repair for UCF, which develops after repair of hypospadias, depends on several factors including the penile skin condition and the complexity of the previous operations for hypospadias and UCF repair attempts. Further study is needed for better outcome.

Keywords: posterior urethral incision technique, urethrocutaneous fistula repair, hypospadias surgery.

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I. Introduction

Urethrocutaneous fistula (UCF) is one of the most frequently seen complications of hypospadias surgery requiring reoperation. Urethrocutaneous fistula formation is the commonest complication of hypospadias repair with a reported incidence of 4–25%.¹ Unfortunately, there is no one single perfect technique to repair an urethrocutaneous fistula. Various techniques have been described for fistula repair but with disappointing results. Simple closure, although technically easy²⁻⁴, bears the potential risk of overlapping suture

lines and recurrence rates. During the last decade, many principles of an ideal repairing technique have been clarified. Delicate tissue handling, inversion of the urethral mucosa after excising the epithelialized tract of the fistula, a multilayer repair with well-vascularized tissues, avoiding overlapping sutures and non-absorbable or thick suture materials, a tension-free closure, use of optical magnification, and bipolar diathermy for coagulation are currently considered mandatory.⁵ UCF after hypospadias repair remains a significant challenge for pediatric surgeons despite the advances in surgical techniques. The incidence of UCF varies from 4 to 28%.⁶

In this study our main goal is to evaluate the outcome of posterior urethral incision technique for urethrocutaneous fistula repair following hypospadias surgery.

Objective

General objective:

To assess the outcome of posterior urethral incision technique for urethrocutaneous fistula repair following hypospadias surgery.

Specific objective:

- To detect site of fistula.
- To identify per operative findings of the patients.

Type of study:

- It was a prospective interventional study.

Place and period of the study:

This study was carried out at the Department of Paediatric Surgery, Mymensingh Medical College Hospital, Mymensingh from January, 2017 – April, 2018.

Sample size:

A total number of 20 patients with urethrocutaneous fistula following hypospadias surgery who were admitted in paediatric surgery department in Mymensingh Medical College on routine basis.

Sampling method:

Purposive sampling

Inclusion criteria

- Patients admitted with UCF after 6 months following urethroplasty for all variants of hypospadias surgery with no other complications and comorbidity.
- Age range up to 12 years of age.
- Both primary and recurrent fistula.

Exclusion criteria

- Patients admitted UCF with <6 months after primary surgery.
- Patients having UCF with comorbidity for urethroplasty.
- Patients having UCF local infection.

Study design:

- A total number of 20 patients who were admitted in Pediatric Surgery department in Mymensingh Medical College Hospital (MMCH) as routine admission in outpatient department (OPD) with the complaints of urine come through ventral aspect of phallus in spite of tip of neoglans or both tip of neoglans and any site of ventral aspect of phallus having history of urethroplasty were selected for this study. All the patients included in this study were evaluated through proper clinical history, careful physical examination and relevant investigations.

Data Collection:

- In each case information about the patients was obtained in predesigned questionnaire after obtaining written consent of the parents / guardians in the consent form. Detail information was collected from patient's mother or accompanying guardian. All these information were gathered systematically and put into the questionnaire. After obtaining detailed history of each patient, diagnostic work-up was done by through clinical examination and relevant investigations.

II. Results

In table-1 shows age distribution of the patients where most of the patients belong to 5-8 years age group, (36.7%). The following table is given below in detail:

Table-1: Age distribution of the patients

Age group	%
1 to 4 years	28%
5 to 8 years	36.7%
9 to 12 years	35.3%

In table-2 shows site of fistula where 11(36.7%) patients were present with fistula at coronal site, 6(20%) patients at distal penile, 8(26.7%) patients at mid penile and 5(16.7%) patients at proximal penile site. The following table is given below in detail:

Table-2: Site of fistula

Site of fistula	%
Coronal site	36.7%
Distal penile	20%
Mid penile	26.7%
Proximal penile	16.7%

In table-3 shows types of hypospadias where records of previous operations found only in 24 patients. Among the 24 cases 10(41.67%) patients were anterior hypospadias, 8(33.33%) patients were middle and 6(25%) patients were posterior variety hypospadias. The following table is given below in detail:

Table-3: Types of hypospadias

Site of fistula	%
Anterior hypospadias	41.67%
Middlehypospadias	33.33%
Posterior variety hypospadias	25%

In table-4 shows distribution of the patients according to procedure of urethroplasty where mathieu urethroplasty had been performed in 11(45.83%) patients. Onlayiland flap urethroplasty done in 5(20.84%) patients and Tubularized incised plate (Snodgrass) urethroplasty had been performed in 8(33.33%) patients. The following table is given below in detail:

Table-4: Procedure of urethroplasty

Procedure of urethroplasty	%
Mathieu urethroplasty	45.83%
Onlayiland flap urethroplasty	20.84%
Tubularized incised plate (Snodgrass) urethroplasty	33.33%

In figure-1 shows per operative findings of the patients where (16.7%) patients developed recurrent urethrocauteneous fistula and (83.3%) patients did not develop. The following figure is given below in detail:

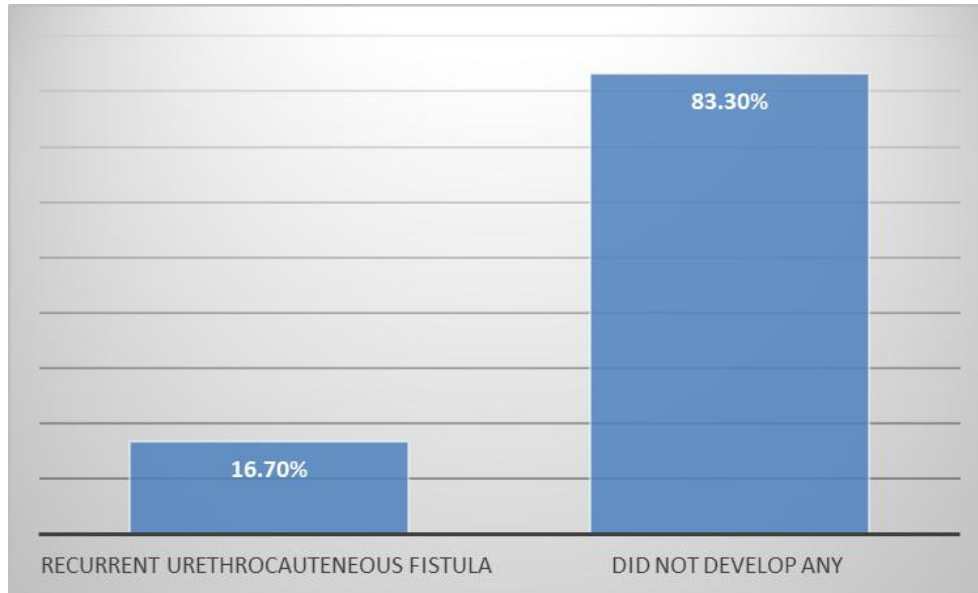


Figure-1: Per operative findings of the patients

III. Discussion

Fistula formation is the commonest complication after hypospadias repair. Surgery for hypospadias fistulas has remained a challenge for the treating surgeons and several surgical procedures have been described each claiming good results. With refined surgical techniques, fine suture materials, and special dressings, the results of surgery after hypospadias repair have improved significantly.⁴

Distal narrowing and infection are important factors to determine the surgical outcome.⁵ To avoid fistulae after hypospadias repair one study recommends the use of scrotal dartos flap as a well vascularized and long flap to envelop the neourethra after TIP operation for the prevention of the urethrocutaneous fistula.⁶

We reported in our study that, most of the patients belong to 5-8 years age group, (36.7%). Which was supported by one study where out of the 67 patients, 18 patients (26.8%) were aged 2 years or below, 14 patients (20.8%) were aged above 6 years, and 35 patients (52.2%) were aged between 2 and 6 years.⁷

In our study we found that, 11(36.7%) patients were present with fistula at coronal site, 6(20%) patients at distal penile, 8(26.7%) patients at mid penile and 5(16.7%) patients at proximal penile site. Whereas in one study reported that twenty-one patients (31.3%) had developed anterior penile fistulae.

In one study reported that, ten patients (14.9%) underwent direct double-layer closure of the fistula, and 57 patients underwent fistula closure with dartos flap coverage. Meatotomy for meatal stenosis was performed in 12 patients (17.9%). Successful fistula closure was achieved in 56 patients (83.5%), whereas recurrence of UCF was seen in 11 patients (16.5%).⁶ Whereas in our study Mathieu urethroplasty had been performed in 11(45.83%) patients. Onlay island flap urethroplasty done in 5(20.84%) patients and Tubularized incised plate (Snodgrass) urethroplasty had been performed in 8(33.33%) patients. Also, 16.7% patients developed recurrent urethrocutaneous fistula and (83.3%) patients did not develop.

IV. Conclusion

The choice of technique of repair for UCF, which develops after repair of hypospadias, depends on several factors including the penile skin condition and the complexity of the previous operations for hypospadias and UCF repair attempts. Further study is needed for better outcome.

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