Analysis Of Post-Operative Early Vs Delayed Removal Of Indwelling Catheter In Urethrocutaneous Fistula Repair In Hypospadias Patients

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Abstract: Introduction: The commonest complication following hypospadias repair is occurrence of urethrocutaneous fistula. The smaller fistulas (<2 mm) are easier to close with a simple closure but are not free from recurrence, so we had tried to draw attention and evaluate the correlation of duration of post-operative catheter retention and fistula recurrence. Aims: Comparative study of effect of early vs delayed removal of Catheter in cases of <=2mm Urethrocutaneous fistula secondary to Hypospadias repair. Materials and Methods: In this study we have evaluated a total of 20 patients operated during the period of July 2016 to Oct 2018 in whom the size of urethrocutaneous fistula was <=2mm and the effect of indwelling per-urethral catheter on the fistula recurrence post operatively. Results: The overall fistula recurrence following early removal of catheter was 10% only where as in the group of patients with delayed removal of catheter was 40% at first attempt. Conclusions: The treatment plan for a fistula must be individualized based on variables which has an effect on the outcome of repair and to an extent dictates the type of repair to be performed. A simple methodology of early removal of catheter may increase the chance of successful fistula repair.[Ghelani N Natl J Integr Res Med, 2019; 10(2):44-47]

Key Words: Hypospadias fistula, Catheterization, Recurrence.

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Introduction: Hypospadias is defined as an incomplete virilization of the genital tubercle leading to an ectopic opening of the urethra on the ventral aspect of the penis, anywhere from the glans to the perineum with or without ventral curvature and a ventral preputial defect. Hypospadias, a common congenital anomaly whose reported incidence is between 1-4.1 per 1000 population of western countries[1], so a common complication that arises out of hypospadias surgery is urethra-cutaneous fistula followed by edema and penile torsion.

Urethrocutaneous fistula formation is the commonest complication of hypospadias repair, with a reported incidence of 4-25%[2]. Which lead to failure of our surgical goal of achieving a single stream of urine. Ultimately patients suffer a great deal of mental and social problem, so to achieve a 100% success rate a lot of technical modification have been tried till date, of which waterproofing significantly reduces the recurrence rate of the fistulas[3,4]. Even after advent of multiple surgical techniques, still recurrence of fistula remains a great concern post-operatively. To prevent recurrence, it has been undoubtfully thought that a kind of urinary diversion is a must to prevent any kind of wetting to the dressings and secondary infection of the suture margin due to urinary spillage.

So, in our series, we had tried to draw attention and evaluate the correlation of duration of post-operative catheter retention and fistula recurrence by doing Comparative study of effect of early vs delayed removal of Catheter in cases of <=2mm Urethrocutaneous fistula secondary to Hypospadias repair

Material and Method: We have operated on a total of 20 patients whose fistula size was <=2mm only, who underwent total 32 procedures for repair of urethrocutaneous fistulas following hypospadias surgery. Informed consent was obtained from the patient's parent before including them in to the study. The patient who were operated more than once for hypospadias fistula were excluded from the study. The age at fistula repair ranged between 3&1/2 to 17 years (mean age 10 years).

All the patients were divided in to group 'A' & 'B'. In group 'A' the IFT was removed immediately/day 2 after the repair, whereas group 'B' IFT was removed on day 10. Urethral calibration was routinely done intraoperatively with a urethral sound to exclude any distal stenosis, thereafter presence, location, number of fistulas was assessed, probing every pit under loupe magnification. In every cases methylene blue was injected under pressure from the terminal portion of neourethra while a tourniquet was applied at the base of the penis to occlude the proximal urethra. The fistulas were measured with calipers in the antero-posterior length of the penis routinely and

patients whose fistula size was <=2 mm were included in ours study(Fig 1 &2). An infant feeding tube of suitable size was inserted into the urethra and the fistulous tract excised by circumferential incision around the fistula(Fig 3).

Figure 1 & 2: Showingfistula sizeof <=2 mm

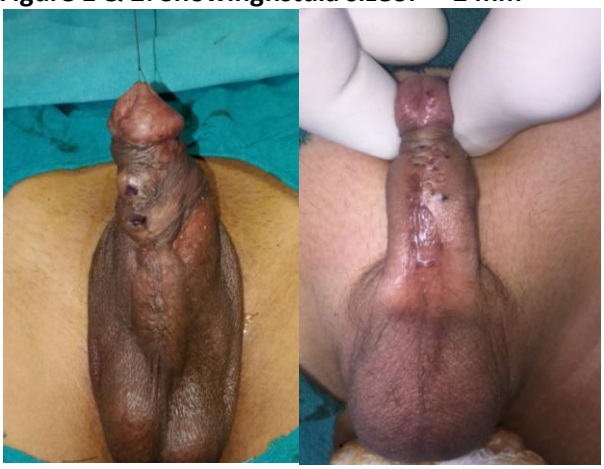


Figure 3: circumferential incision around the fistula showing fistula excision

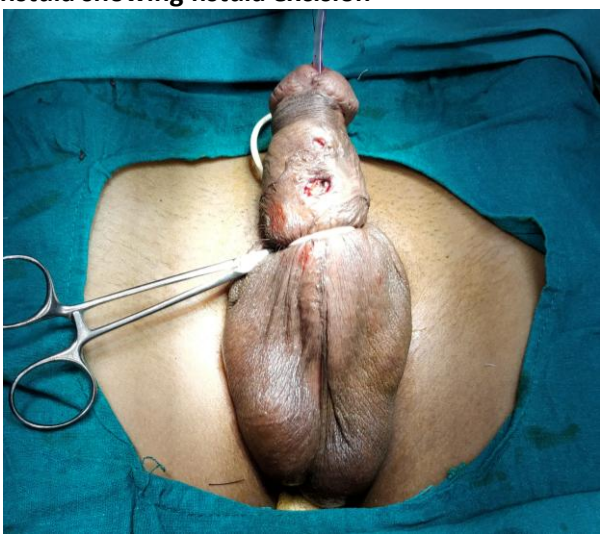
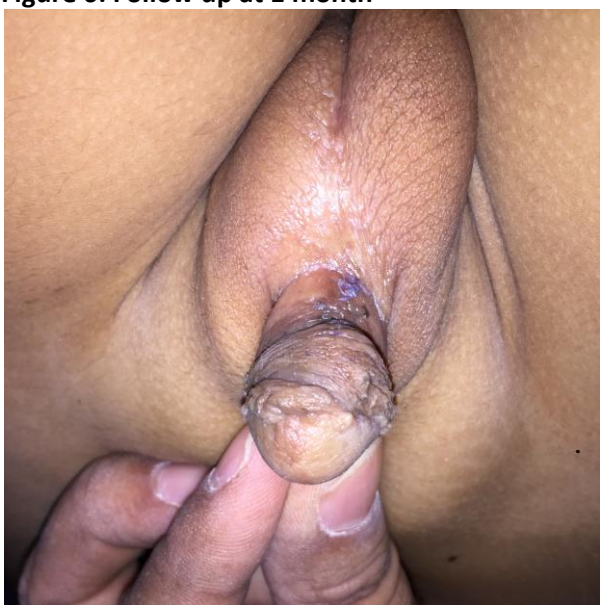


Figure 4: Multiple small fistula joined to form large fistula

If the fistulas were located adjacent to each other they were joined into a single larger fistula and then repaired(Fig 4). The number and site of fistula are shown in Table 1 and Table 2. Suture material used in our fistula repair was Vicryl 6-0 with tapered cut needle. fistulas were repaired using simple closure technique with interrupted inverting suture line(Fig 5). The subcutaneous tissue flaps were closed. The patients were followed up every weekly for 1 month(Fig 6) and then asked to visit on OPD basis as and when needed.

Figure 5: Simple closure technique with interrupted inverting suture

Figure 6: Follow up at 1 month



Result: In our study out of 20 patients, we observed only 10% (1/10) fistula recurrence in Group 'A', in comparison to Group 'B' in which recurrence was 40% (4/10).

Recurrence rate of 25% was observed in Group 'A' with multiple fistula, in comparison to 50% recurrence rate in Group 'B' with multiple fistula.

The overall Fistula Recurrence following early Removal of Catheter(<=2days) was (1) 10% compared to late removal of Catheter(> 10days) that is 40% which was found to be statistical significant (X2=1.06, df= 1, P < 0.05) (Table 1, 2, Figure 7)

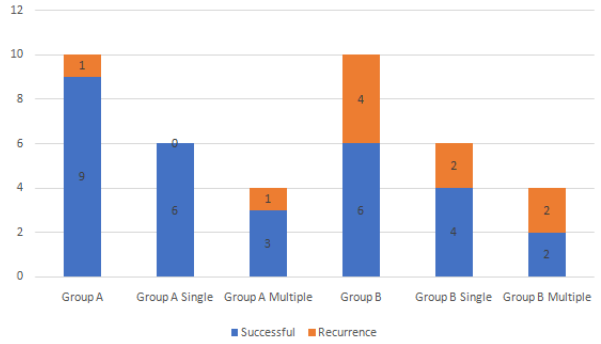
Table 1: Number of patients in each group

	Number	Recurrence	
		Group A	Group B
Pt with Single fistula	12	0/6	2/6
Pt with Multiple fistula	8	1/4	2/4

Table 2: Showing the frequency of location of fistulas

Level of fistula	Number
Coronal	06
Subcoronal	07
Distal penile	10
Midpenile	06
Proximal penile	02
Penoscrotal	01
Total	32

Figure 7: Chart showing Fistula Recurrence following early Removal of Catheter



Discussion: In our institute we have seen many pediatric patients complaining of painful bladder contraction mimicking micturition, peri catheter leak, accidental catheter dislodgement and partial catheter withdrawal approximately starting day 2 onwards which causes great discomfort to the patient and the parents. The pericatheter leak is of great concern since the dressing is to be changed frequently is order to keep the suture line dry.

The thing of concern is that though we might try to prevent the suture margin from soiling due to urine, it inadvertently gets exposed to it due to pericatheter leak, failing our motive of urinary diversion. In our practice we came to acknowledge that keeping the catheter in such cases is cumbersome and trouble for the patient, then we started removing the catheter for such cases.

Till date there are no statistical data available which may suggest that longer duration of indwelling catheter may help in preventing fistula recurrence. In our study we made an attempt to analyze the outcome of early removal of catheter post urethrocutaneous fistula repair.

Cromie and Bellinger[5] suggested that urethral catheterization is favorable method of diversion but Ducket and Baskin[6] do not favour this type of diversion citing potential infection from bacterial migration or damage to the repair by inadvertent removal.

Rabinoweitz[7] in 1987 described a catheter less Mathews repair in 59 children with distal hypospadias and suggested that urinary diversion may not be necessary. Wheeler et al[8] supported the conclusion of Rabinoweitz in 1993 and again suggested catheterless repair. Hakim et al[9] in 1996 suggested that the fistula rate and overall complication rate in the stented and not stented were not significantly different.

In 1997 Steckler and Zaontz[10] reported the findings of stent free Snodgrass repair and there was no significant post operative complication in patients where urinary diversion was not done.
On the other handBuson et al[11] in 1994 and Demirbilek and Atayurt[12] in 1997 concluded that some form of urinary diversion is associated with lower rate of complication post hypospadias repair.

So a concensus is not established on whether the urinary diversion should be done or the duration of indwelling catheter.

Later with experience and analysis our study found that there could be correlation in the outcome of the fistula repair with early removal or keeping the catheter insitu.

Conclusion: In our series, we had tried to draw attention that there is decreased chance of fistula recurrence when catheter removal was done early or no catheter was kept in post-operative period then the patient who had prolonged catheterization for urethrocutaneous fistula repair after hypospadias corrective surgery. We

concluded that the longer duration of catheter retention may adversely affect the outcome of successful fistula repair.

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