Urinary Drainage after Hypospadias Repair: Urethral Stent or Bladder Catheter

Amin M. Saleh, Wesam A., Amr A., Salah M.

General Surgery department, Faculty of medicine, Zagazig University

**Purpose:** for urine diversion after hypospadias repair, some surgeons use catheters and other use urethral stents. Catchers cause bladder spasm and contractions due to irritation, on the other hand stents may be accidentally dislodged or cause urine retention. This study aims at comparing the use of catheters versus urethral stents for urine diversion after hypospadias repair.

**Materials & Methods:** An 8FG urinary catheter introduced in the urinary bladder in 20 patients (group I). In another 20 patients (group II) a shortened catheter of the same size was used as urethral stent. The two groups were compared regarding postoperative pain, straining at voiding, time of catheter removal, accidental removal of catheter/stent, hospital stay, and complications.

**Results:** All stented patients strained at first voiding, 15 showed pain, only 5 voided in the first 8 hours. The catheterized group had no such problems. Hospital stay was the same. Meatal stenosis and fistulae developed more in the urethral stent group.

**Conclusion:** Stenting led to significant patient irritability with voiding problems, accidental removal of stents resulted in increased incidence of fistula and meatal stenosis. Bladder catheterization avoids these complications.

**Index Word:** Hypospadias, catheter, stent

**INTRODUCTION**

There is a great controversy about urine diversion after hypospadias repair, many pediatric urologists use either supra pubic or transurethral drainage to prevent complications from urine leakage at the suture line. Some surgeons who use the urethral pathway prefer to introduce the catheter to enter the urinary bladder, other surgeons place the tube in the urethra distal to the external sphincter of the bladder.

This study aims to compare the postoperative results of patient comfort, hospital stay, and complications in patients who underwent surgery for hypospadias, and had either urethral stent or bladder catheter after surgery.

**PATIENTS AND METHODS**

This is a randomized prospective study done on 40 consecutive patients with hypospadias, inclusion criteria were patients with distal or mid penile hypospadias of any age in pediatric age group. Exclusion criteria included hypospadias proximal to the mid penile area and recurrent cases.

The patients were randomly divided randomly into 2 equal groups. After explaining to the parents and taking necessary consents, randomization was done by the closed envelope method, where the patient had to choose an envelope out of 40 envelopes had "group I" or group II" written inside.
In group I (20 patients), we used an 8FG urinary catheter that passed into the urinary bladder for drainage of urine after hypospadias repair. In group II (20 patients) we used a shortened catheter of the same size and placed as urethral stent, placing its proximal tip distal to the external sphincter of the bladder.

The catheter/stent were fixed to the glans penis with a single 4/0 silk suture, and then connected to a drainage bag and left in place for 7 days in patients of both groups.

Both groups were compared for time of catheter/stent removal, accidental removal of catheter/stent, length of hospital stay, and early and late complications. In the stent group we observed the time of first postoperative voiding, and any pain and straining at first voiding.

**RESULTS**

In the catheterized patients (group I), there were no problems with urinary drainage, nor any complaints of bladder spasm. All patients with stent (group II) exhibited various degrees of straining at first voiding, 15 patients (75%) of this group had pain caused by bladder distention that required administration of analgesics.

In group II only 5 patients (25%) voided in the first 8 postoperative hours, 2 patients (10%) did not urinate for more than 16 hours (Table1).

In patients of group I, all catheters were removed on the 7th postoperative day. In patients of group II, the time of stent removal ranged from 0 to 7 days, the stent was dislodged accidentally in 4 patients, 2 immediately after operation and 2 in the first postoperative day, these patients had experienced marked straining at their first postoperative voiding. We observed no problems with catheter displacement in patients of group I.

During follow up, 2 patients (10%) of group I and 5 (25%) of group II had meatal stenosis that required dilatation. Fistulae developed in 1 patient (5%) and 3 (15%) patients in group I and II respectively. All patients of group II whose stents were withdrawn accidentally had meatal stenosis and 2 of them developed fistula.

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<thead>
<tr>
<th>Table 1. Table shows results of both groups</th>
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<tbody>
<tr>
<td>Data</td>
</tr>
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<tr>
<td>Accidental dislodgement of the device</td>
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<td>Time of first voiding : &lt; 8 h.</td>
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<td>9-16 h.</td>
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<td>&gt;16 h.</td>
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<td>Pain at first voiding</td>
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<td>Straining at first voiding</td>
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<td>Time of catheter removal</td>
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<td>Hospital stay</td>
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<tr>
<td>Complications: Meatal stenosis</td>
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<td>Fistula formation</td>
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**DISCUSSION**

Many authors stated that urine diversion after hypospadias repair maintain the site of anastomosis dry and reduce post operative complications such as fistula formation.\(^{1,2}\)

McCormack et al.\(^{3}\) stated that urinary diversion after hypospadias repair has no proven beneficial effect on surgical outcome but it prolongs the hospital stay of corrected patients. Further studies have found that urethral drainage by catheter or stent does not reduce the risk of postoperative complications after hypospadias repair such as fistula formation.\(^{4}\)

Urethral drainage is the preferred mode of urine diversion for distal penile hypospadias.\(^{5,6}\) When the proximal tip of the catheter is positioned inside the bladder, urine flows well, and the patient has no
difficulty in voiding. The most common complication in these cases is bladder spasm owing to irritation of the detrusor muscle by the tip of the catheter. Although stents obviates this complications, the main disadvantages of this method is discomfort at voiding and high possibility of stent dislodgement either accidental or during voiding. All our patients with stents (group II) experienced straining at their first voiding, only 5 patients (25%) voided in the first 8 hours after surgery, a similar results was reported by Serdar and Murat. All patients of group II needed analgesia after operation to relieve irritability, discomfort fear of micturition and pain of bladder distention. The stents had high risks of dislodgement (20%), this increased the incidence of postoperative complications such as meatal stenosis (25%) and urethral fistula (15%).

In patients of group I, the tip of the catheter was present inside the bladder, the catheter allowed urine to drain spontaneously, and all patients of this group were relatively comfortable. The was no incidence of accidental dislodgement of the catheter in patients of this group and this lowered the incidence of fistula and meatal stenosis as compared to patients of group II. Hospital stay was the same in both groups.

CONCLUSION

We conclude that any urethral drainage device used in hypospadias repair should be extended into the urinary bladder.

REFERENCES

9. Serdar IA, Murat MA. Urethral catheterization in hypospadias surgery: should the device enter the bladder or be made a urethral Stent? J Ped Surg. 36:1829-1831, 2001