

## PEDIATRIC UROLOGY

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### **Nerve sparing robotic extravesical ureteral reimplantation**

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**Purpose:** Laparoscopic transvesical ureteral reimplantation with or without robot assisted surgical devices is being developed as an alternative to open surgery. We sought to review our experience with an extravesical robotic technique, to determine whether postoperative voiding dysfunction might be avoided with pelvic plexus visualization and to evaluate the overall feasibility of this approach to ureteral surgery.

**Materials and Methods:** A total of 41 patients underwent robotic extravesical reimplantation for bilateral vesicoureteral reflux. The patients were divided into groups based on bladder capacity as measured by voiding cystourethrogram. The operation was performed via a transperitoneal approach with robotic assistance using the da Vinci Surgical System.

**Results:** Operative success rates were 97.6%. There were no complications. There were no episodes of urinary retention documented by bladder scanning.

**Conclusions:** Robotic extravesical reimplantation is in its infancy, and visualization of the pelvic plexus appears to be paramount in avoiding postoperative voiding complications. This approach appears to be a feasible and reasonable option for vesicoureteral reflux correction.

### **Editorial Comment**

Forty-one patients underwent retrospective chart review after robotic extravesical reimplantation for vesicoureteral reflux grades III-V regardless of duplication anomalies. Indication for surgery was breakthrough pyelonephritis despite prophylactic antibiotics. Voiding diaries, uroflow, post-void residual measurements and constipation issues were addressed pre-operatively. All patients underwent cystoscopy with ureteral catheters placed in the aid of the dissection. One camera port and two other robotic ports were used. The authors were careful to do a nerve-sparing technique and felt that the robot with its better visualization allowed the nerves to be easily spared. All patients had an overnight catheter. The average operating time was 2.33 hours with an average length of stay of 26.1 hours. Post-void residual urines were checked by bladder scan and all patients voided after the catheter was removed and there was a mean residual of 13 mL of urine in the bladder. One patient had reflux on a three month VCUG and no patients had hydronephrosis on the ultrasound at 3 and 6 months postoperatively.

The authors should be congratulated on a study well done with good and careful follow up of the pre- and post-op bowel and bladder management. This shows that extravesical nerve-sparing robotic reimplantations can be done safely with excellent results. Always the question for endoscopic procedures in children: "is it an improvement over the open surgical techniques and does it offer patient benefit?" I believe those answers will in time become clear but as yet it remains to be seen.

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**Unilateral vesicoureteral reflux: does endoscopic injection based on the cystoscopic appearance of the ureteral orifice decrease the incidence of de-novo contralateral reflux?**

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**Objective:** In patients with unilateral vesicoureteral reflux (VUR), it has been suggested that injection of a non-refluxing but cystoscopically abnormal contralateral ureteral orifice (UO) with dextranomer/hyaluronic acid (Dx/HA) should be performed to prevent the development of de-novo contralateral VUR. We evaluate the effectiveness of this practice.

**Patients and Methods:** Patients with primary unilateral VUR undergoing injection of Dx/HA from 2002 to 2005 at two institutions were eligible. Patients with unilateral VUR with cystoscopically abnormal contralateral UOs were injected with Dx/HA, while patients with normal appearing UOs received no treatment. Multivariate logistic regression models were used to estimate the impact of prophylactic injection on the development of de-novo contralateral VUR.

**Results:** In total, 101 patients with unilateral VUR and an abnormal appearing contralateral UO underwent prophylactic injection of Dx/HA while 45 patients with a normal appearing contralateral UO were untreated. In patients receiving prophylactic Dx/HA, 9% (9/101) of the previously non-refluxing ureters developed de-novo VUR. Similarly, 13% (6/45) of patients with a normal appearing UO treated by observation alone developed de-novo VUR (P=0.55). The overall incidence of 10% (15/146) de-novo contralateral VUR matches published results where this protocol was not followed.

**Conclusions:** Our findings suggest that cystoscopic assessment and prophylactic treatment of an abnormal appearing, non-refluxing contralateral UO with Dx/HA is of little clinical benefit and should be abandoned.

**Editorial Comment**

This research was done at both the Mayo Clinic and the Division of Urology in Minneapolis, Minnesota. It was noted that 7-20% of patients undergoing unilateral endoscopic injection therapy or ureteroneocystostomy will develop de-novo contralateral vesicoureteral reflux. The authors cystoscopically evaluated 146 patients on the contralateral side during a 3½ year period with unilateral reflux before the refluxing side underwent Deflux® therapy. If the ureteral orifice was deemed abnormal by the pediatric urologists, either from orifice appearance or from hydrodistention appearance, the contralateral ureter was treated with Deflux® also. The average age was approximately six years with 91% of the patients being female. 69% were judged to have an abnormal appearing ureteral orifice and were injected with Deflux®; while 31% of the patients were judged to have a normal orifice and were not injected. Cyclical voiding cystourethrograms or nuclear cystograms were performed at three months and de-novo vesicoureteral reflux developed in 9% when the orifice was prophylactically treated with Deflux® and in 13% when the orifice was judged normal and no Deflux® was treated. This was not statistically significant. The author's conclude that prophylactic treatment of abnormal ureteral orifices should not be performed since it showed no benefit over no treatment at all.

Decades ago, urologists spent significant time cystoscopically judging ureteral orifice and position and eventually studies showed that the results correlated very well with radiographic vesicoureteral reflux grading and the practice was generally abandoned. With new information about hydrodistention of the ureter, this concept has been revisited and this manuscript suggests that there is no benefit in this evaluation or in the prophylactic treatment of these ureters and yet again this practice can be laid aside.

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