

transobturator approaches. The surgeons noted that their repeat suburethral sling procedure that was a re-do operation had a lower success rate than the initial operation success rate. This has been noted as well for patients undergoing re-do pubovaginal slings using autologous fascia for operative failures (1). The trend towards a lesser cure rate with a repeat transobturator procedure versus a retropubic approach could potentially be explained by both the urethral angle theory as discussed by the authors as well as the level of suburethral support that can be provided by the different techniques. The diminished efficacy of transobturator slings in patients with lower Valsalva leak point pressures is currently being explored in the literature (2).

#### References

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## PEDIATRIC UROLOGY

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### **Efficacy of combined anticholinergic treatment and behavioral modification as a first line treatment for nonneurogenic and nonanatomical voiding dysfunction in children: a randomized controlled trial**

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**Purpose:** This randomized blinded clinical study was designed to compare the efficacy of tolterodine treatment combined with behavioral modification, behavioral modification alone and behavioral modification plus placebo in children with nonneurogenic, nonanatomical voiding dysfunction.

**Materials and Methods:** A total of 72 children meeting inclusion criteria were randomly allocated to 1 of 3 groups. One group received tolterodine (1 mg twice daily) along with behavioral modification, 1 received behavioral modification only and 1 received placebo with behavioral modification. A dysfunctional voiding scoring system questionnaire was completed for all patients at the beginning of the study, and at 1 and 3 months of treatment.

**Results:** A total of 71 patients were evaluated. The groups did not differ with respect to age, gender and symptom score before study enrollment ( $p > 0.05$ ). Repeated calculations of symptom scores at 1 month of the treatment revealed a significant decrease in symptoms in all 3 groups, with a significant decrease in patients receiving tolterodine. In addition, at month 3 the symptom score of the tolterodine group was significantly lower compared to month 1, while scores remained steady in the behavioral modification and behavioral modification plus placebo groups.

**Conclusions:** Tolterodine combined with behavioral modification for voiding dysfunction in children without neurological or anatomical abnormality can be recommended as a first line treatment before invasive evaluation.

### **Editorial Comment**

This is an interesting prospective randomized controlled trial, which relied primarily on a dysfunctional voiding scoring system from Toronto Children's to evaluate the outcome of the treatment. 72 children were selected with equal number of boys and girls, allocated into one of three groups. Voiding dysfunction that qualified them for the study was incontinence, frequency, urgency or obstructive symptoms with or without recurrent non-febrile urinary tract infections in the absence of obvious anatomical or neurogenic disease. Patients were between 4 and 12 years-of-age. Anatomic disease was evaluated by ultrasound and not VCUG, and the patients were not selected by any urodynamics or uroflow criteria. All patients were trained in behavior modification, including timed voiding, double-voiding and relaxation of the pelvic floor during voiding.

Group 1 patients were started on tolterodine 1 mg twice daily and were maintained for three months. Group 2 had no medications and received only behavior modification training. Group 3 were patients who had a placebo administered along with behavior modification training. Dysfunctional bowel was noted and treated in 30 of the 72 patients. The dysfunctional voiding questionnaire was given at the beginning of the study, at end of one month and again at the end of three months.

The results showed that initial dysfunctional voiding symptom scores were not significantly different. All three groups showed significant decrease after one month of treatment with a greater statistical significance in the Tolterodine group. Interestingly, the behavior modification group that did not receive placebo had lower symptom scores at one month and three months. Gender adjustment did not affect statistical results of the groups. 41 patients had a history of afebrile UTI's and 15 patients had afebrile urinary tract infections at enrollment during the study. Urine cultures were monitored monthly with new UTI's in 18 patients relatively equally spread over the three groups.

This is an interesting study because of its prospective randomized nature. Tolterodine was tolerated in all the patients except one, with statistically beneficial effects combined with behavior modification. The patients chosen were patients similar to an office practice and were not particularly well screened with urodynamics or uroflow studies, so that this represents an "all-comers" group with very good outcomes. It will be interesting to see if other studies use the dysfunctional voiding scoring system and if it stands up under the test of other investigators scrutiny.

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### **Quality assessment of hypospadias repair with emphasis on techniques used and experience of pediatric urologic surgeons**

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**Objectives:** To assess outcomes in hypospadias repair at our institution, as compared with the literature, with repair technique and surgeon considered as risk factors.

**Methods:** The results of 299 primary hypospadias corrections were analyzed. All procedures were performed by three experienced pediatric urologists. Mean patient age at operation was 16.3 months. Follow-up was between 6 months and 5.5 years. Distal hypospadias repair was carried out in 242 patients, with tubularized incised plate reconstruction in 100 patients, advancement in 128, and the Mathieu technique in 14.

Results: During follow-up, complications occurred overall in 93 patients (31%). For distal hypospadias complications occurred in 59 patients (24%). The most common findings for distal hypospadias were urethral fistulas (14.4%). The complication rate depended on the severity of the anomaly (0 glanular, 28% pericoronal, and 63% proximal) and the chosen technique (16% advancement technique versus 60% tubular techniques). We found statistically significant differences in complication rates between operating surgeons.

Conclusions: Complications after hypospadias surgery are frequent. They are multifactorial and depend mainly on the type of the anomaly, the chosen technique, and the experience of the surgeon. More studies are needed to obtain an internationally accepted quality indicator for the outcome of hypospadias repair.

### Editorial Comment

These authors reviewed 299 primary hypospadias repairs over a five year period with a special emphasis on the technique used and the experience of the pediatric urologic surgeon, with a mean follow up of 29 months and with a very critical eye for complications. The mean age of surgery was 16.3 months.

Tubularized incised plate technique was used in 133 patients and advancement techniques not requiring sutures in the urethra were used in 128 patients with 38 patients having miscellaneous techniques. Prophylactic antibiotics were given. Stenting was left to the choice of the individual surgeons. All procedures were performed with loupe magnification.

The groups were analyzed according to technique used and with respect to the three operating pediatric urologic surgeons. All glanular hypospadias patients did uniformly well. 93 patients, or 31% of the patients had a complication after surgery. 7% have recurrent problems that required more than one surgical intervention. 18% were fistulas, partial dehiscence of the wound or glans resulting in meatal retraction was 7.4% and urethral stenosis was 2%. Complication rates were higher the further away from the tip of the penis that the hypospadias meatus was, which is not surprising. Advancement techniques had a complication rate of 16%, while tubular reconstructions had a complication rate of 56%. Tubularized incised plate urethroplasties had a complication rate of 27%. When tubularized incised plate was used for hypospadias on the shaft of the penis, the complication rate was 66% and when it was used for distal hypospadias, it was 35%.

The pediatric urologist who had the most experience had a statistically significant better success rate for hypospadias repairs than the pediatric urologist with the least experience. 24% complication rate was noted in the hands of the most experienced surgeon and 40% complication rate in the least experienced surgeon.

At first glance this manuscript seems to have a high complication rate, however all patients that had a single-staged hypospadias reconstruction were included and complication rates are higher in the studies that include all patients rather than those that deal with a single technique. The authors should be congratulated on their attention to the detail of the complications and their honest reporting.

Of note for students of hypospadias, when the tubularized incised plate urethroplasty was used for mild hypospadias, it was very successful, however when it was extended to more severe hypospadias patients it was not.

It has always been my belief that hypospadias complications are directly proportional to the length of the repair and this study seems to validate that relationship also. There is some speculation in the study about the learning curve, since the newest member of the faculty member had a higher complication rate than those who had been there for 5 and 14 years. In some respects, it is encouraging to note that within 5 years the experience seems adequate to have very good results.

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