RENAI TRANSPALNTATION IN CIIILDREK WITH 
POSTERIOR URETHRAL VALVES—REVISION, A 10 YEAR 
FOLLOW-UP

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Background: Renal transplantation is a safe and effective treat­
ment of end stage renal disease in children with posterior urethral 
valves. We have previously reported a 5 year experience showing 
a favorable outcome compared to matched controls. However, 
there was a trend of increased serum creatinine. None of the boys 
had pre-transplant urinary urodynamic evaluation or bladder re­
construction, we speculated that these boys would suffer progress­
ive renal insufficiency due to unfavorable lower urinary tract 
dynamics. This review was prompted to determine if our concern 
was substantiated.

Methods: This is a retrospective analysis of clinical case records 
and the computerized transplant data base of 268 children less 
than 19 years of age undergoing renal transplantation between 
May 1968 to November 1988 at our institution. 18 children had 
the sole diagnosis of PUV. These children were matched to a nonob­
structed cohort comparing age, time and number of transplants, 
donor type, and immunotherapy. The same children used in the 
original 5 year report were reevaluated. All children have at least 
a 10 year follow up (range: 10–19).

Results: PS = patient survival; GS = graft survival

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>PUV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>12yrs.</td>
<td>5yrs.</td>
</tr>
<tr>
<td>5yr PS</td>
<td>100%</td>
<td>94%</td>
</tr>
<tr>
<td>10yr PS</td>
<td></td>
<td>94%</td>
</tr>
<tr>
<td>5yr GS</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td>10yr GS</td>
<td></td>
<td>54%</td>
</tr>
<tr>
<td>Creatinine</td>
<td></td>
<td>2.3mg%</td>
</tr>
<tr>
<td>p value</td>
<td>0.06</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>0.97</td>
<td>0.37</td>
</tr>
<tr>
<td></td>
<td>0.35</td>
<td>0.66</td>
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</tbody>
</table>

Chronic rejection was the leading cause of graft failure in both 
groups (8 & 11 respectively).

Conclusions: Our ten year follow-up of renal transplantation in 
children with PUV is equal to children with renal failure due to 
nonobstructive causes. Five and 10 year graft survival was better 
but not statistically significant in children with PUV. Our concern 
regarding transplanting into a ‘valve bladder’ was not substanti­
ated. We are continuing with pre-transplant urodynamic evaluation 
and look forward to comparing the outcome in those children 
to this data.

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LONG TERM OUTCOME IN CHILDREN FOLLOWING 
ANTENATAL INTERVENTION FOR OBSTRUCTIVE 
UROPATHY.

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Background: The use of fetal intervention for obstructive urop­
athy remains controversial and little is known regarding the long­
term outcomes of antenatally treated children. In order to better 
define the results of fetal intervention, we reviewed the long-term 
follow-up in children who underwent vesicoamniotic shunt place­
ment with attention to growth, development, and renal and blad­
der function. METHODS: From a series of 68 patients evaluated 
for presumed antenatal obstructive uropathy we identified 17 
children who underwent vesicoamniotic shunt placement and are 
 survivors greater than two years of age. Follow-up evaluation 
included family interviews and a review of available medical 
records. RESULTS: Of 68 patients evaluated, 23 are alive at greater 
than two years of life of whom 17 underwent shunt placement and 
form the basis of this review. The mean age at follow-up was 54.3 
months (range 25–114). The diagnosis was prune belly syndrome 
(8), posterior urethral valves (5), urotelial atresia (1) and other in 3. 
Recent height was available in 11 children, 5 of whom are below 
the 5th percentile, 4 are between the 10–25th percentile, 1 between 
25–50th percentile and 1 is above the 75th percentile. Of the 13 available 
weights, 4 are below the 5th percentile, 4 are between 5–25th, and 
5 between 25–50th percentile. Seven require daily nutritional or 
metabolic supplements. One child has developmental delay and 2 
require speech therapy. The children underwent a total of 58 
operative procedures including 44 major procedures. Three pa­
tients with valves have required bladder augmentation and 4 
children have undergone renal transplantation. Six are fully con­
tinent during the day, one of whom with polyuria has occasional 
metastatic night. Toilet training has not yet begun due to parental 
choice in 5 and has failed in one who requires diapers at age 3.5 years. 
The continence status is unknown in 5. Ten children void sponta­
neously per urethra, 3 also perform intermittent catheterization 
due to residual urine and 2 are dependent on catheterization via a 
appendicovesicostomy. No child remains diverted. Nadir serum 
creatinine in the first year of life was available in 15: it was < 0.8 
in 9, between 0.8–1.0 in 2, and >1 in 4. 4 with nadirs > 1.0 have 
all progressed to renal failure and required renal transplanta­
tion. Of the 2 with a nadir creatinine between 0.8–1.0, both have 
developed renal insufficiency with a creatinine clearance < 50 
ml/min. Of the 9 with nadirs < 0.8; 1 is in renal failure, 1 has renal 
sufficiency and 7 have normal renal function. The majority of 
children with renal impairment had a history of frequent febrile 
urinary infections while most of those with stable renal function 
had few or no infections. CONCLUSIONS: Antenatal intervention 
seems to help children with the most severe forms of obstructive 
uropathy, those usually associated with a fatal outcome, achieve 
long-term results comparable to those diagnosed postnatally. Na­
dir creatinine in the first year of life is a useful predictor of 
long-term renal function. Most children achieve acceptable void­
ing and continence though some with valves may require future 
agulation. Aggressive treatment of urinary tract dysfunction, 
prevention of infection and early nutritional support plays an 
important role in preserving renal function and ameliorating 
growth deficiency.

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FEASIBILITY OF INTRAUTERINE FETAL THERAPY FOR 
OBSTRUCTIVE UROPATHY IN A MONKEY MODEL.

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Background: Obstructive uropathy detected by prenatal ultra­
sound investigations has led to conservative as well as invasive, 
treatment strategies. The use of new intervention techniques and 
surgical instruments may decrease the high complication rate and 
offer early treatment possibilities. Methods: In three series of ex­
periments with five rhesus monkeys (Macaca mulatta) each, dif­
ferent endoscopic intra-amniotic access techniques, morbidity, 
mortality and possibilities for fetoscopy were evaluated. The preg­
nant primates were operated upon at midtrimester (90 to 110 days; 
full term 164 days). Different evaluation methods were used for 
uterine activity and fetal growth during pregnancy. Current avail­
nable minimal invasive techniques, instruments and scopes (Karl 
Storz) were used.

Results: In all 15 monkeys, adequate fetoscopy was possible 
with no maternal mortality. Eleven of the 15 pregnancies were 
completed with no early or late complications. Electric uterine 
activity showed no early postoperative contractions in the first 
five animals. Serial ultrasound investigations for fetal biometry 
showed no disturbances of the intrauterine growth patterns in one 
group. Technical improvements changed the intrauterine access 
techniques from open placement of trocars to the use of sedlunger
techniques and gun introduction of needles with small caliber sheets resulting in lesser amniotic membrane separation. Different rigid and flexible scopes could be used for fetoscopy and three canulas could be placed offering the possibility of intrauterine manipulation.

Conclusion: New techniques have led to the improvement of intrauterine fetal access. Morbidity is mainly depending on the disruption of amniotic membranes and plays an important role in preterm abortion. New scopes will offer the possibility for fetal retrograde cystoscopy for which evaluation this model seems to be suitable.

118 EXTRAVESICAL REPAIR OF THE OBSTRUCTED MEGAURETER DECREASES COST AND POSTOPERATIVE PAIN.

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Background: The pressure to provide low cost, high quality health care has led all surgeons to reevaluate the procedures performed. We have found the extravesical approach to anti-reflux surgery provides excellent results in both cost and efficacy. We have since expanded this procedure to include obstructed megaureter repairs with significant advantages over intravesical techniques. Methods: 44 patients (52 ureters) underwent extravesical tapered repairs of obstructed megaureters from 1992 to 1996 at our institutions. The patients ranged in age from 1 month to 9 years. Preoperative evaluation consisted of renal sonography, nuclear renography, and voiding cystourethrogram (VCUG). The surgical technique consists of the extravesical dissection of the megaureter to its stenotic insertion into the bladder. The detrusor is divided until the mucosa bulges through, muscle flaps are then created. At this point the ureter is dismembered and tapered (excisional) over a 10 Fr. catheter. A 5 Fr. ureteral stent is placed into the tapered ureter through a tiny bladder incision. The tapered ureter is anastomosed to the distal end of the bladder mucosa and the detrusor is then closed over the ureter to create a submucosal tunnel. The ureteral stents are removed early on postoperative day two and the Foley later that day. Results: Mean hospital stay was 3.2 days (range 2-5). The last twenty patients had a mean hospital stay of 2.8 days. Postoperative anti-cholinergic medication was not required. Postoperative evaluation consisted of a sonogram at 2 weeks, 3,6, and 12 months after surgery with a VCUG at 6 months postop. No patient demonstrated reflux or persistent obstruction at follow-up. Two patients with bilateral repairs had retention lasting five and ten days. Conclusion: Extravesical megaureter repair is a safe, effective procedure with significant benefits in both cost and postoperative discomfort over intravesical techniques. This procedure also allows for easy identification of the ureteral blood supply and observation of the course of the ureter after repair thus reducing the incidence of obstruction and ischemic injury.

119 LONG-TERM EFFICACY OF ORAL DESMOPRESSIN (DDAVP) IN CHILDREN WITH PRIMARY NOCTURNAL ENURESIS (PNE).

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Background: DDAVP nasal spray has proven safety and efficacy in the treatment of PNE. Oral DDAVP tablets would provide a vehicle more easily used and convenient to the patients and their parents. This study evaluated the effectiveness of oral DDAVP in reducing the number of wet nights in children with PNE over a 6-month period.

Methods: An open-label, ascending-dose titration, multicenter trial of oral DDAVP in children, ages 6–18 years with documented PNE was conducted. All children had previously participated in a double-blinded, placebo controlled study. Following a 2-week screening period, eligible patients (at least 3 wet nights per week) received 200 mcg/day for 2 weeks. The dose was titrated upward in increments of 200 mcg every 2 weeks until the patient remained completely dry over a 2-week period or had reached a maximum dose of 600 mcg/day. Patients who were not completely dry, but had ≥ 50% reduction in the number of wet nights after 2 weeks on 600 mcg/day could continue the study. Any patient who had < 50% reduction in the number of wet nights could be withdrawn from the study at the investigator’s discretion. The amount of fluids taken with the dose two hours before bedtime was restricted based on body weight. Treatment was continued for up to a total of 6 months. The primary efficacy variable was the mean reduction from baseline in the number of wet nights during the two week treatment period preceding each scheduled clinic visit. An excellent response was defined as ≤ 2 wet nights/2 weeks and an acceptable response was ≥ 50% reduction in wet nights.

Results: 231 patients from 29 centers were evaluated; 149 (64%) patients completed 6 months of treatment. Eighty-seven percent (87%) of the patients were titrated to 600 mcg/day. After 2 weeks of treatment with 200 mcg/day, a 30% mean reduction in wet nights was noted. An acceptable response was present in 31% of patients. Complete dryness was present in 8% of the children. After 6 months of treatment, patients receiving the highest DDAVP dose showed a mean reduction of 6 wet nights. An excellent response was noted in 58 patients (47%), of which 15% were completely dry. An acceptable response was seen in 73% of patients. Of 20 patients on lower dosage, 95% had an excellent response. At all dosages, 19% were completely dry.

Conclusion: Oral DDAVP at daily dosages up to 600 mcg/day for 6 months reduced the number of wet nights and was well tolerated in patients with PNE. This study was funded by an educational grant from Rhône Poulenc Rorer.

120 PSYCHOSOCIAL IMPACT AND PERCEIVED STRESS OF NOCTURNAL ENURESIS

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Background: Nocturnal Enuresis (NE) has been highlighted as the most prevalent ailment of childhood and from a strictly medical point of view considered to be a self-limiting disease, with no major health risks. Nevertheless, little research has been devoted to the psychosocial impact of NE. The present study focused upon patients’ own rating of NE in relation to critical life events and its psychosocial implications on social impediment, self-esteem and coping mechanisms, compared to a reference group.

Methods: 98 NE children (≥6 wet nights/14 days) and 124 controls (age 8–18 years) entered this questionnaire-based study, subdivided into two groups: primary school children (8–12 year; mean: 10.2) and adolescents (12–18 year; mean: 13.5). The following questionnaires and methods of analysis were used: a. critical life event: Critical Life Events Picture Test (CLEPT), specifically designed to evaluate the child’s impact rating of NE in relation to other critical life events, adopted from previous studies. Based on five criteria, eleven severe events were selected: divorce, stringent parental fights, being teased, being left out of the group, moving, undergoing surgery, academic retention, having little money to spend, being extremely short and having to wear glasses. Differences in perceptions were evaluated by Thurstone’s method of paired comparison (mean ratings of ‘severity of psychological impact’ (MRS) indicating how often an event is chosen above an