

transection in Sprague-Dawley rats in developing a model for stress urinary incontinence in the female rat. It is pointed out in the discussion that developing a model of stress urinary incontinence that avoids the use of pudendal nerve injury may help analyze nulliparous women who suffer with stress urinary incontinence. Much appreciation should go to the researchers in our field who help develop the models upon which to expand our ability to treat affected patients. Of note is that the support of structures of the female urethra including the pubo-urethral ligament had been reviewed in this journal in the past with some anatomic researchers noting that the pubo-urethral ligament may not be a ligament but instead mostly tissue containing smooth muscle cells (1). This is food for thought especially when quoting continence rates after suprameatal transvaginal urethrolisis which takes down the attachments of the urethra to the underside of the pubic bone (2). In a contrary view, this may also explain the rate of incontinence that is noted in patients after therapeutic pubectomy (3).

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PEDIATRIC UROLOGY

Long-term follow up of enteric bladder augmentations: the risk for malignancy

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Objective: To determine the risk of bladder cancer following enteric bladder augmentation.

Materials and Methods: Patients followed for care after an enteric bladder augmentation have been entered into a registry; individuals followed for a minimum of 10 years were evaluated.

Results: The study criteria were met by 153 patients. Indications for bladder augmentation were neurogenic bladder in 97, exstrophy in 38 and posterior urethral valves in 18. There was a median follow-up interval of 27 years (range 10-53). A total of seven cases of malignancy developed. Median time to tumor development following augmentation was 32 years (range 22-52). Two patients with neurogenic bladder developed transitional cell carcinoma; both were heavy smokers (> 50 pack per year history). Two patients with a history of posterior urethral valves and renal transplantation developed adenocarcinoma of the enteric augment. Three patients with bladder exstrophy developed multifocal adenocarcinoma of the augmented bladder. Two patients remain alive, 5 and 6 years following radical cystoprostatectomy; five died of cancer-specific causes.

Conclusions: Malignancy following enteric bladder augmentation arose in 4.5% (7/153) of our patients and was associated with coexisting carcinogenic stimuli (prolonged tobacco/chronic immunosuppressive exposure), or alternatively with the inherent risk of malignancy existing with bladder exstrophy.

Editorial Comment

From 1986 to 2007, 153 patients who had greater than 10 years follow up for enterocystoplasties were studied. No patient in the study had a mixture of feces and urine prior to the enterocystoplasty, only patients who were augmented due to neurogenic bladder, exstrophy/epispadias complex or posterior urethral valves were included. The mean follow up was 27 years with a range of 10-53. Seven cases of malignancy occurred. There was no correlation with malignancy and recurrent urinary tract infections. There was no difference in cancer in the ilia or colonic segments. The incidence of asymptomatic bacteriuria did not reach statistical significance. 2 patients who developed cancer had heavy smoking histories. 2 patients developed cancer after prolonged immunosuppression after renal transplantation, and 3 patients in the exstrophy/epispadias group developed multi-focal adenocarcinoma involving the bladder and enteric segments. The study points out that in other countries where schistosomiasis or tuberculosis are common, enterocystoplasty cancers are found frequently. Most of the previous studies do not have a long enough follow up to have any tobacco use history be a significant risk factor. The cancer risk demonstrated in this paper is 4.5%, which is greater than the previous series of 0.6%-2.8%.

This paper reminds us that these patients need continual follow up throughout their adult lives. It was cancer risk in this same range that discouraged urologists from performing ureterosigmoidostomies and I believe this same risk will produce new solutions to the bladder dysfunction that has been an indication for enterocystoplasties in the past.

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Risk assessment of incidentally detected complex renal cysts in children: potential role for a modification of the Bosniak classification

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Purpose: Incidentally detected complex renal cysts in children are a rare but worrisome occurrence due to the perceived potential risk of malignancy. We examined the natural history of such cysts in a cohort of children. **Materials and Methods:** We obtained access to a database containing all radiology reports generated at a single institution from 1996 to 2004. We used key words to limit our search, subsequently reviewing charts and images to confirm the diagnosis of a complex renal cyst and to collect clinical data. Cases were categorized according to a modification of the Bosniak classification, using ultrasound in most patients and computerized tomography or magnetic resonance imaging when available.

Results: Complex renal cysts were identified in 39 children. Mean patient age at presentation was 7 years. Mean cyst size was 1.6 cm. A total of 18 cases diagnosed by ultrasound only were observed with serial imaging. Additional contrast enhanced computerized tomography or magnetic resonance imaging was performed in 21 of 39 patients (54%). Surgical resection was performed in 5 patients and pathological evaluation revealed benign cyst in 3 (modified Bosniak class II in 2 patients and class III in 1) and renal cell carcinoma in 2 (III in 1 and IV in 1). All other patients had modified Bosniak class II cysts, which remained essentially unchanged during a mean follow-up of 26.8 months (range 9 to 70).

Conclusions: While not validated in children, our data suggest the modified Bosniak classification appears useful as a guideline to direct the management of complex renal cysts in the pediatric population.

Editorial Comment

At Hospital for Sick Children in Toronto, radiology reports from 1996 to 2004 were reviewed looking for renal cysts, including those that were complex and septated. Patients were excluded if they had evidence of cystic kidney disease, prior renal trauma, previous kidney surgery or insufficient data. A minimum of six months follow up was required for inclusion. 39 patients with complex renal cysts were identified with the average age of 7 years and range of 4 months to 14 years, with a mean cystic size of 1.6 cm and a range of 0.4 to 5 cm.

Initial diagnosis was made in 36 patients by ultrasound and 3 patients were discovered by CT scan. Of the 36 cases discovered by ultrasound half had a CT or MRI scanning, while 18 only had ultrasound follow up. Interestingly in these children 7 simple cysts on CT scan clearly had septations on sonographic imaging, some of which even had Doppler flow in the septations on the ultrasound.

Five patients had surgical resection and 2 of these patients had renal cell carcinoma in the specimen. All the patients had follow up with a mean of 26.8 months and a range of 9 to 70 months. The cysts were classified according to the adult Bosniak classification.

Even though these numbers don't reach statistical significance, the authors recommend for patients with Class II cysts on the Bosniak scale, 3-6 month follow up with ultrasound for the first year and annual ultrasounds thereafter. They did not have a recommendation for how long the annual studies should continue once the cyst has stabilized.

There is no data in children correlating the predictability of risk factors in the Bosniak classification. However in this study of 39 patients, the worrisome cyst with enhancing margins or septa on CT scan, were the 2 that had renal cell carcinoma found in the specimen. The authors suggest that if there is a concern about an ultrasound cyst, a CT scan should be obtained with contrast to help in classification.

Bosniak risk classifications are based on renal cell carcinoma incidence in adults. In children, renal cell carcinoma is not the most common tumor and so it's hard to know how one should think about complex cysts in children. This manuscript suggests that similar concerns of the adult Bosniak classification may very well be worthwhile and that children with cysts certainly should have follow up until the cysts have stabilized, and perhaps for years after that.

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