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PEDIATRIC UROLOGY

Inflammation of the Testis and Epididdymis in an Otherwise Healthy Child: Is it a True Bacterial Urinary Tract Infection?

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Purpose: The exact etiology of acute gonadal inflammation (EO) in children is unknown. Bacterial infection and underlying urological abnormalities are thought to be the main causes, and hence antibiotic treatment and further invasive urinary tract imaging studies are usually recommended. The purpose of this study was to assess the role of bacterial infection in pediatric acute EO.
Materials and Methods: We retrospectively searched our electronic medical archive for children under the age of 18 years with the diagnosis of acute EO between 1997 and 2002. Patients' charts were retrieved and reviewed for clinical and laboratory data.
Results: During 1997–2002, 193 patients with acute EO were treated. There were two subgroups according to the results of urinary cultures: 182 children (94.3%) had negative urine cultures and 11 (5.7%) had positive cultures. In the negative culture group, the mean age was 9.8 ± 3.2 years (0.5–17). Medical history for urological disease was negative in all patients. Presenting symptom was scrotal pain in 165 (90.7%), and only three patients (1.6%) had accompanying urinary symptoms. Physical examination was normal besides tender gonad. Urinalysis was completely normal in 169 (92.9%) patients. Scrotal Doppler ultrasound (US) demonstrated nonspecific inflammatory process in 146 patients (80%), in nine (5%) torsion of the appendix testis was documented and in 27 (14.8%) scrotal US was normal. Follow up was available in 40% all of whom had an uneventful recovery with normal physical examination. In the positive culture group of 11 patients, the mean age was 11 ± 6.7 years (3 months to 16 years), and eight patients (73%) had a known congenital urological abnormality. Presenting symptom was pain in five (45.4%) and pain with swelling in six (55.6%). Accompanying dysuria, frequency and urgency occurred in eight (72.7%) patients. Urinalysis was abnormal in 10 (90.9%). US demonstrated increased blood flow to the gonad in 10 (90.9%).
Conclusions: Negative history for urological disease, absence of urinary symptoms and normal urinalysis make the diagnosis of bacterial EO unlikely. In this setting, once testicular torsion was excluded, there is no justification for antimicrobial treatment or further imaging of the urinary tract.

Editorial Comment

This manuscript looks at patients under 18 years of age, between 1997 and 2002. They presented with the diagnosis of inflammation of the testis and epididymis. Charts were reviewed from children under the age of 18 from 1997 to 2002 and 193 patients were evaluated. They were divided into two groups, positive cultures and negative cultures. Hundred and eighty-two patients had negative cultures with a mean age of 9.8. The most common symptom in the culture negative group was scrotal pain and only 3 patients in this group had any urinary symptoms. Nearly 93% of these children had normal urinalysis with the other 13 children having scattered red cells or white cells. None was positive for protein, nitrites or leukocyte esterase. 80% of these culture-negative patients had ultrasounds of the scrotum with 9 patients having torsion of the appendix testis and follow up in 40% of the patients showed a normal physical exam. Eleven patients in the second group had positive urine cultures with a median age of 11 years. Five patients presented with pain and 6 with testicular swelling. The urinalysis was positive including red cells, white cells, protein nitrites and leukocyte esterase in 10 of the 11 patients with cultures being positive in all 11.

The authors rightly point out that only a minority of patients have positive urine cultures when epididymo-orchitis is suspected and question whether antibiotics should be included as part of the treatment of patients whose urinalyses are negative.

The conclusion was that patients with a non-bacterial epididymo-orchitis are usually pre-pubertal children without positive history for urologic disease. Their presentation is without urinary symptoms yet there is no justification for antibiotic therapy or urinary tract imaging. They did caution that non-verbal children and infants might need to be excluded.

A few decades ago, urology textbooks suggested that epididymo-orchitis was due to urologic abnormalities such as ectopic ureters and that the entire urinary tract needed to be imaged. It is becoming more and more clear that the majority of epididymo-orchitis is not bacterial in origin and probably has a significant viral component. Somekh et al. (1) had a nice manuscript suggesting that a viral etiology may often be the cause. It is recognized that anti-inflammatory medications should be the main stay of treatment rather than antibiotics in epididymo-orchitis in kids.

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Ureteroscopy In Children: Is There a Need for Ureteral Dilation and Postoperative Stenting?

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Introduction: Ureteroscopic stone manipulation and extraction is the standard of care for distal stone disease in the adult population. Recently, with refinements in instrumentation, these standards have been applied in pedi-

atrics. Here, we investigate the role of ureteral dilation and the need for postoperative stenting after ureteroscopy.
Materials and Methods: Twenty-nine children (21 male, eight female) with a mean age of 11.0 (2.5–17.5) years underwent 34 ureteroscopic procedures (21 right, 13 left) to address ureteral stones in 27 (23 distal, 3 mid and 1 proximal), surveillance of the upper tract in six and a retained stent in one. Active ureteral dilation was not required in any of these patients. A Wolff 4.5-F or 6.5-F tapered semi-rigid ureteroscope was passed alongside a previously placed guidewire to access the upper collecting system. Proximal ureteral surveillance was performed after completion of the procedure; all but two patients had a diagnostic ureterogram. Four patients had preoperative placement of a JJ stent. Postoperative stents were placed in six patients, two had stents placed preoperatively for infection associated with either autonomic dysreflexia or stone impaction, two for extravasation or perforation, one for edema and one for subsequent ESWL.
Results: Mean follow up after ureteroscopy was 16.2 (0.3–48) months. Of the 27 procedures for stone disease, 15 (55%) stones required laser litholipaxy and 12 (45%) were managed with stone basket extraction. The overall re-treatment rate for stone disease was 4%. Diagnostic ureteroscopy was normal in six procedures. None of the procedures managed without a post-ureteroscopy stent required subsequent intervention.
Conclusion: Ureteroscopy is a safe, effective method to manage ureteral stones. Refinements in instrumentation allow its application to the pediatric population. Ureteroscopy including laser lithotripsy can be performed without ureteral dilation or postoperative stenting.

Editorial Comment

This article reviews a four-year consecutive series of ureteroscopies performed in children under the age of 18. Thirty-four ureteroscopic procedures were performed, 27 for renal stones, 6 for upper tract surveillance and 1 to remove a retained ureteral stent. All procedures were done under general anesthesia utilizing a guide wire, followed by a 4.5F or 6.5F tapered semi-rigid ureteroscope without the use of ureteral dilatation or a sheath. Twelve patients had stone basket extraction, while the remaining stone patients required Holmium: YAG laser and/or electrohydraulic litholapaxy with a retreatment rate of only 4%. Seventy-nine percent of the patients were managed as outpatients. Twenty-one percent were inpatients due to pre-operative pain or infections or a planned secondary procedure. The 23 (79%) patients who were managed as outpatients did not have a ureteral stent after the procedure. Two complications occurred. One was a small amount of extravasation from the perforation of the tip of a stone basket. The second had perforation migration and then impacted distal ureteral stone. The authors conclude that ureteroscopy in children is safe without ureteral dilatation and postoperative stenting.

Technology continues to bring improvements to pediatric urologic stone management. It has allowed for ureteral surgery that previously was not thought possible. This study shows a very low complication rate and a low stent usage rate demonstrating that with the refinements in the technology ureteral stone disease can be treated very similarly in children as is currently done for adult patients.

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