Editorial

Infected Urine and Suprapubic Prostatectomy: The Urological Equivalent of 'Dirty and Infected' Surgery

Bruce H. Hamory, MD

The article in this issue by Richter et al outlines a prospective observational study of patients undergoing suprapubic prostatectomy.' Patients had urine cultures performed 48 to 72 hours before scheduled surgery, but the presence of infected urine was not considered to be a contraindication to surgery. Antimicrobial therapy was initiated at the time of prostatectomy with either oral trimethoprim sulfa or another specific antibmicrobial agent chosen according to the antimicrobial susceptibilities of the urinary pathogen. The authors documented a high rate of postoperative incisional wound infection (23.5%) among patients with infected urine, as compared to an 8.7% rate among individuals with clean urine at the time of surgery. The difference was both statistically ($p = .028$) and clinically significant.

The authors note that, "The direct relationship between infected urine before surgery and the onset of postoperative wound infection has not yet been reported." There is a body of literature that documents an increased rate of wound infection for elective surgery at other sites when infected urine is present.[2,3] Additionally, the incisional infection rates for those surgical procedures that enter areas of purulence (i.e., abscesses) are known to be substantially higher than those in areas that do not transsect infected tissue.[2] Since catheter-associated cystitis is associated with microbial invasion of the bladder tissue, it is not surprising that this study documents a substantially higher rate of incisional infection in open surgical procedures done in an area contiguous with infected urine.

Because of accepted practice in the United States, this study could not have been performed here. Elective urologic surgery in the United States is generally performed only after individuals with bacteriologically positive urine have received at least five days of appropriate antimicrobial therapy and there is documentation of response. Elective procedures are not performed in the presence of untreated bacteriuria unless there is a residual nidus of infection, such as a stone, which is the indication for the surgery. In that instance, parenteral antimicrobial agents are chosen that provide high tissue levels of antibiotic in an attempt to reduce the occurrence of infection. Since suprapubic prostatectomy is an uncommonly performed procedure in the United States, our experience with incisional wound infection is limited.

The apparent ineffectiveness of the antimicrobial agents used by Richter et al to prevent surgical wound infections might be explained by the fact that trimethoprim sulfa, the most commonly used drug, achieves high levels in urine but lower tissue levels[4] when given orally. Second, treatment/prophylaxis was begun shortly before or during the surgical procedure; thus, even serum levels of drug were probably low to non-existent. This adds to the case for the treatment of urinary tract infection well before anticipated urologic surgery. I agree with Richter and his colleagues that delaying elective

From the Department ***of Medicine, Division of Infectious Diseases and Epidemiology, The*** Pennsylvania ***State University, Milton S. Hershey Medical Center, Hershey, Pennsylvania.***

Address reprint requests to Bruce H. Hamory, MD, Pennsylvania State University, The Milton S. Hershey Medical Center, Department of Medicine, Division of Infectious Diseases and Epidemiology, ***500 University Drive, Hershey, PA 17033.***

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surgery until the urinary tract is free of infection is necessary.

A number of other septic complications have been reported among patients undergoing instrumentation of the infected urinary tract. The chief among these is gram-negative sepsis. The authors do not report this complication in their patients, nor do they note any instance of cutaneous fistula developing in association with infection.

In conclusion, this study has validated the principle of avoiding elective surgery on the prostate until identified foci of urinary infection have been treated. Given the rates of urinary tract infection among patients with chronic indwelling catheters, additional emphasis must be placed on appropriate outpatient preoperative evaluation to enable this therapeutic intervention to be performed when necessary.

This article should serve as a stimulus for each hospital epidemiologist and each urologist to carefully review current practices to ensure that the following steps are in place in their institutions: routine culture and susceptibility tests of the urine are performed in all patients who are to undergo prostatectomy (either suprapubic or transurethral); and an antimicrobial agent effective against any significant organism isolated is given well before the procedure is scheduled. Based on Richter's study, one also might add that, when the urine has not been rendered sterile using an oral agent, a parenteral agent capable of producing adequate tissue levels at the operative site should be used. It should be given long enough before surgery to attain adequate levels in tissue. Each of these steps has defined benefit and is subject to objective verification. The study by Richter et al, therefore, can provide a stimulus to achieve improved "infection control" practices in urology by using quality assurance methods in the hospital and clinic.

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