

## Renal Stone Disease

The past decade has seen a virtual revolution in the management of patients with renal calculous disease. Appropriate medical evaluation and treatment now allow control of recurrent disease in the vast majority of cases. Paralleling these advances in medical treatment has been the evolution of totally new modalities for “nonoperative” surgical management of patients requiring removal of calculi.

This “minisymposium” on renal calculous disease contains articles from widely diversified areas within the Cleveland Clinic. However, they all have in common the application of recent medical or technical advances to the daily care of the patients. In the first article, Drs. Borkowski, George, and O'Donovan, from the Department of Radiology, review the applications of nonurographic imaging in the diagnosis and management of renal stones. It is obvious that ultrasound and computed tomography are excellent alternative imaging techniques in selected cases. These procedures are noninvasive and may yield diagnostic information previously obtainable only with invasive techniques such as retrograde pyelography, brush biopsy, or even surgical exploration. Drs. Musselman and Kay, from the Section of Pediatric Urology, present their personal experience with an uncommon problem—urinary calculi in immobilized children. In this article, current thoughts regarding the pathophysiology of the disease are presented. Just as importantly, a reasonable proposal is made for the prevention and treatment of this problem. Drs. Zelch, Risius, Geisinger, and I present our initial experience with percutaneous extraction

of renal calculi. We now believe that percutaneous stone extraction is applicable to the vast majority of patients requiring removal of renal calculi and that this procedure can be performed more safely and efficiently than a standard “open” operation. This experience has now been extended to more than 100 patients, with a success rate exceeding 95%. Dr. Novick, from the Department of Urology, lists the indications, techniques, and practical applications of bench surgery and autotransplantation for patients with complicated stone disease. While advances in medical treatment and percutaneous modalities have lessened the number of patients requiring such procedures, they continue to hold an important place in our therapeutic armamentarium. Finally, Dr. Steinmuller, from the Department of Nephrology, presents some current concepts in the treatment of an extremely difficult group of patients: those with end-stage kidney disease resulting from hyperoxaluria. While it was previously thought that renal transplantation was unsuitable for such patients, newer insights into the pathophysiology of oxalate deposition may now allow its application to previously “non-transplantable” cases.

With this group of papers, we hope to share with our readers at least some of the practical aspects of the management of renal stone disease as it is currently practiced at the Cleveland Clinic.

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