



## NON-TRAUMATIC PERFORATIONS OF THE UPPER URINARY TRACT

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[From the Second Surgical Service]

Although it is well recognized that after injuries from without, perforation of the upper urinary tract may develop, it is not fully appreciated that occasionally, as a result of intrinsic disease, such perforations may take place and lead to more or less severe local suppuration, owing to the fact that communication is thus established between the lumen of the pelvis, calices or ureter and the extra-renal or extra-ureteral tissues. During recent years, since pyelography and ureterography have been regularly employed, it has been possible to discover these lesions more regularly, and the object of this paper is to put on record a number of such experiences. The accompanying illustrations show rather clearly the condition found in the pyelographic study of these cases.

### CASE REPORTS

*Case I.* Uric acid stone in the lower calyx of the left kidney and in the lower left ureter. The patient had passed stones repeatedly, which proved to be uric acid. In the pyelo-ureterogram (fig. 1) the left kidney is found filled, moderately dilated and the calices blunted. Directly opposite the lowest calyx, there is an extravasation of the iodide into the tissues beyond the calyx. At operation, in a field corresponding to this area, there was found a small perinephritic abscess communicating with the calyx which was filled with uric acid stones.

*Case II.* The patient with bilateral polycystic kidneys was suffering from high temperature with an acute infection of the right kidney. The pyelo-ureterogram (fig. 2) shows a typical bizarre picture of a polycystic kidney, more or less dilated calices, and, opposite the upper pole of the right kidney, an extravasation of iodide into the perirenal tissues. At operation this area was exposed, and an abscess was discovered in the perinephric space communicating with the uppermost calyx.

*Case III.* The patient had had definite left lumbar pain and pyuria. Pyelogram (fig. 3) shows a most bizarre picture, with iodide running in all directions from the left pelvis, down along the ureter and through the

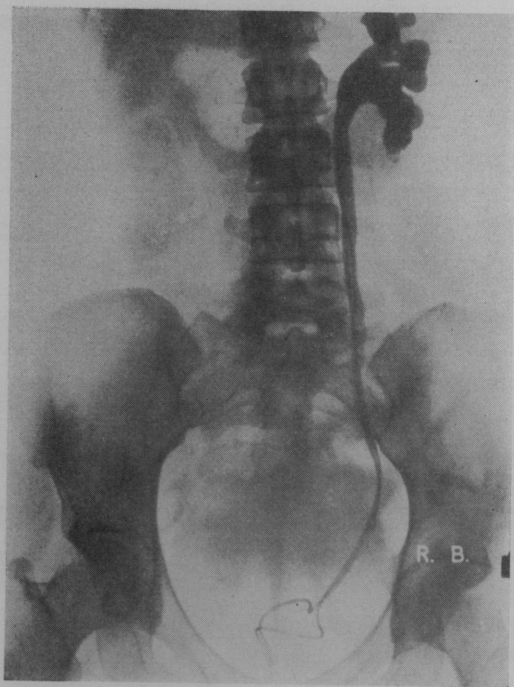


FIG. 1. Case I. R. B. Uric acid stones lowest calyx, perforation into perinephric tissue.

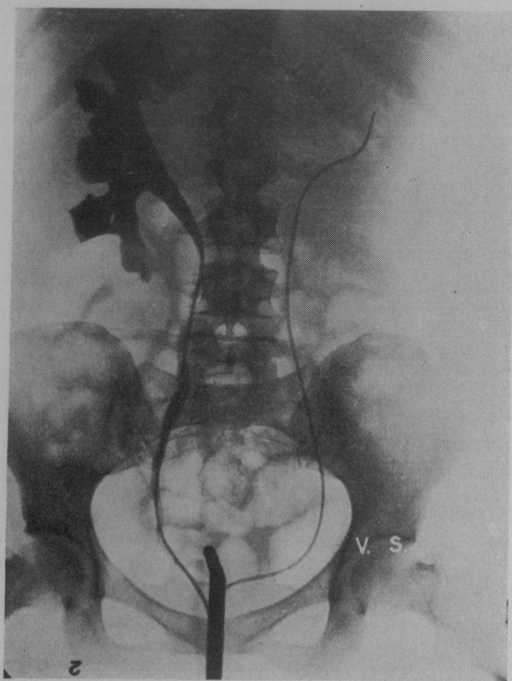


FIG. 2. Case II. V. S. Bilateral polycystic kidneys with infection and rupture of the upper calyx producing perinephric suppuration.

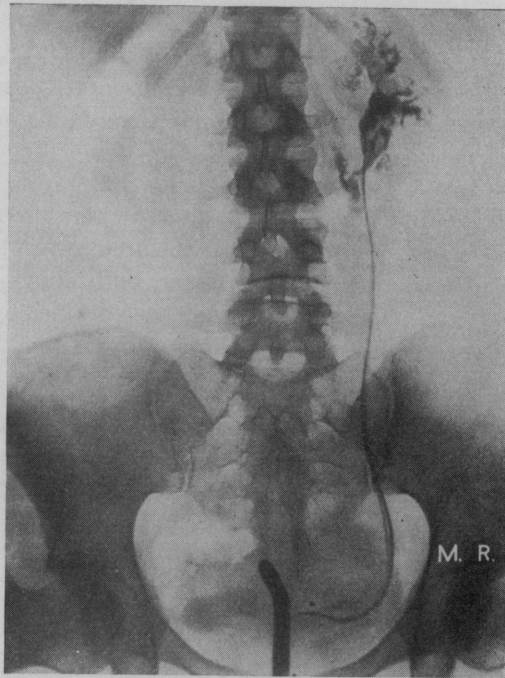


FIG. 3. Case III. M. R. Chronic renal suppuration with perinephric abscess communicating with the caliceal system.



FIG. 4. Case IV. I. J. Stone in lower pelvic ureter. Perforation at junction of pelvis of kidney and ureter.

cortex. At operation an old perinephric suppuration was found. It communicated through the cortex of an extensively inflamed kidney.

*Case IV.* The patient had pains in the left flank for four days. His temperature was high. The left kidney urine was turbid and contained pus. A roentgenogram showed a small stone in the lower left ureter; a pyelogram (fig. 4) showed perforation near the uretero-pelvic junction with extravasation of iodide in the lumbar gutter, both above and below the uretero-pelvic junction. The kidney having been drained by an indwelling catheter, the patient's temperature became normal, and the patient was free of pain.

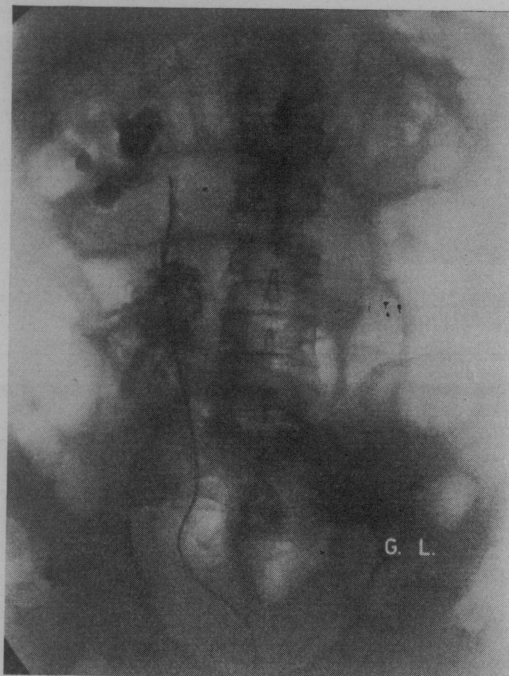


FIG. 5. Case V. G. L. Rupture of ureter, probably at site of previous ureterolithotomy. Extensive extravasation of iodide into lumbar gutter.

*Case V.* The patient had been suffering from stones in the right kidney. Right lumbar uretero-lithotomy had been done in 1929. In 1931 some small concretions were seen in the lower pole of the right kidney, and the patient passed gravel and blood. As symptoms continued, the patient was re-admitted to the hospital. A uretero-pyelogram (fig. 5) showed extensive extravasation in the lumbar region, apparently communicating with the ureter. As symptoms did not abate, the patient was operated upon and a lumbar abscess was drained. No urinary leakage was encountered; the patient healed up without any untoward effect.

## COMMENT

In three of the cases reported, stones were present which, with the superimposed infection, apparently led to the perforation. In the other two cases, stones could not be in any way blamed. In addition to these five cases, there have been several others showing the same or similar conditions.

In those cases in which the kidney function is still maintained, excretory urography may show the extravasation. However, owing to the fact that many of these cases have defective function and defective propulsive force, one should not expect to get satisfactory pictures by excretion urography, and a negative picture obtained by this method should not be regarded as conclusive evidence against perforation of the upper urinary tract.

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