

Clinical Notes

Total endoscopic management of complicated urinary stone disease

Sir,

Currently, the treatment of multiple, bulky renal and ureteric calculi can be performed with relative safety and efficacy using an endourological method. There remains however, a proportion of stones that are associated with pyonephrosis and renal impairment besides the massive stone bulk, challenging the safety and efficacy of these methods and inviting arguments in favor of open surgical procedures. To these stones, a treatment strategy using the "staged procedure" to maximum advantage and safety must be applied. This article aims to review our experience in the management of these more complex urinary calculi.

We report a 28-year-old female patient who presented with fever and bilateral flank pain. X-ray of kidney, ureter and bladder (KUB) showed bilateral renal calculi with massive stone bulk and 2 big right lower ureteric calculi (**Figure 1**). Ultrasonography showed bilateral gross hydronephrosis with renal calculi and internal echoes on the left side suggestive of pyonephrosis. Serum creatinine was 4.6 mg% with normal electrolytes. Left percutaneous nephrostomy (PCN) was carried out



Figure 1 - X-ray of the kidney, ureter and bladder showing bilateral renal calculi with massive stone bulk and 2 big right lower ureteric calculi.

which initially drained purulent urine, which gradually cleared. The patient became afebrile within 24 hours and serum creatinine dropped to 3.2 mg% at one week. Subsequently, right PCN was carried out and creatinine further dropped to 1.9 mg% at the end of the 2nd week. Intravenous urography (IVU) carried out showed bilateral poorly functioning kidneys with multiple renal calculi. Renal scan (DTPA) showed 4% function on the right and 96% function on the left side. Anemia was corrected by oral hematinics and was helped by eradication of infection. The patient was subjected to bilateral percutaneous nephrolithotomy (PCNL) and right ureteroscopic (URS) stone removal. This required 2 sittings of PCNL on each side to clear the renal stones and 2 sittings of URS to remove ureteric stones and fragments. Postoperative x-ray KUB showed complete clearance on both sides. The patient is on regular follow-up at 3 monthly intervals. Last serum creatinine carried out at 6 months was 1.6 mg% with sterile urine culture.

The American Urological Association's report on the management of staghorn calculi, confirmed the importance of percutaneous lithotripsy, especially in the treatment of large branched renal calculi.¹ The first percutaneous renal access was described by Goodwin et al in 1955, and the subsequent development of improved radiographic imaging and endoscopic instruments established the modality as a standard means of renal access.² Over the years the indications for PCNL have expanded to include the stones in caliceal diverticulum and the stones in kidneys with compromised renal function.³ Staging a percutaneous procedure in patients with infected renal calculi is advantageous. Placing a percutaneous nephrostomy not only allows infection to settle but also allows a tract to mature around the drainage tube before subsequent stone debulking. Eradication of infection and improvement of renal function also allows correction of anemia and hematuria. Staging the percutaneous removal also minimizes blood loss, fluid absorption and ensures complete clearance of all fragments. It reduces both the risks as well as the morbidity associated with the surgery.

One might argue for the place of open surgery in such situations, especially in the wake of renal failure and pyonephrosis with massive stone bulk in the kidneys and lower ureter. Here, we feel that staged endoscopic management is a prudent and logical option for such patients once the kidneys are safely diverted before the definitive procedures. The excellent outcome in the present case with complicated urolithiasis in a

compromised patient offers a strong argument for the role of comprehensive "staged endoscopic procedure" in such situations.

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Abstract

One in 5 of all patients attending the Urology Clinic of King Abdul-Aziz University Hospital, Jeddah had urinary stones. Furthermore, out of 100 intravenous pyelographies (IVP's) performed, 24 showed urinary tract stones and 6-5% of surgical operations were for removal of a stone. This study evaluates some of the different factors thought to be contributory to the formation of a stone.