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Cystoscopy-guided insertion of Amplatz sheath in percutaneous cystolithotomy for large burden bladder stone

A. Al-Naimi, T. Gul, A.A. Majzoub

Department of Urology, Hamad Medical Corporation, Doha, Qatar

Introduction: Bladder stones account for approximately 5% of urinary calculi.¹ Currently, surgical treatment options include open or percutaneous cystolithotomy (PCCL) and transurethral cystolitholapaxy.^{2,3,4,5} The transurethral approach can be traumatic to the urethra resulting in stricture formation, especially if instruments larger than 25F are used.⁶ PCCL spares the urethra thereby eliminating iatrogenic injury.^{7,8}

Objective: The aim of this video is to describe PCCL for large bladder stones under cystoscopic guidance.

Materials and Methods: The procedure was done under general anesthesia with the patient in dorsal lithotomy position. A preoperative dose of intravenous antibiotics was given.

Cystoscopy was done using a 22F sheath, 30-degree angle lens (Karl Storz™, Tuttlingen, Germany) and served as a guide during all the steps of the percutaneous puncture.

After bladder filling, a midline stab incision was made over the anterior abdominal wall about 2 cm above the symphysis pubis. A Trocar needle (Cook Medical™, USA) was advanced, which helped in inserting a 0.038in guide wire into the bladder. The track was then dilated with balloon catheter to accommodate the 30F Amplatz sheath (NephroMax kit, Boston Scientific™, Miami, USA).

A 25F nephroscope (Karl Storz™, Tuttlingen, Germany) could be introduced into the bladder through the Amplatz sheath. The stone was fragmented by ultrasonic lithotripter (Swiss Lithoclast™, EMS, Dallas, USA) and all the fragments removed by stone forceps. During all the steps of the procedure, no fluoroscopy was used.

Results: The patient was 25 years old and had a 4cm bladder stone. The operative time was 45 minutes. Postoperative bladder drainage was achieved via a suprapubic 14F Nelaton catheter and a 16F Foley catheter. No peri-operative complications were noted. The patient stayed in the hospital for a total of 3 days. The suprapubic catheter was removed on second day and foley catheter on third day.

Conclusions: Cystoscopy-guided PCCL is a safe, effective⁴, and minimally invasive procedure for large bladder stones.

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