

CASE REPORT

Giant ureteric calculi; report of three cases and management in the era of endourology

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ABSTRACT

Giant ureteric calculi are rarely seen these days because of early diagnosis of ureteric calculi and subsequent effective treatment by non-invasive and minimally invasive procedures. These giant calculi can cause a significant and irreversible compromise of renal function if not treated in time. Here we report three such cases where ureteric calculi were measured to be more than 5centimeters fulfilling the criteria to be named as giant ureteric calculi and managed successfully using the open method of ureterolithotomy.

Key words: giant calculi, ureteric calculi, open ureterolithotomy.

INTRODUCTION

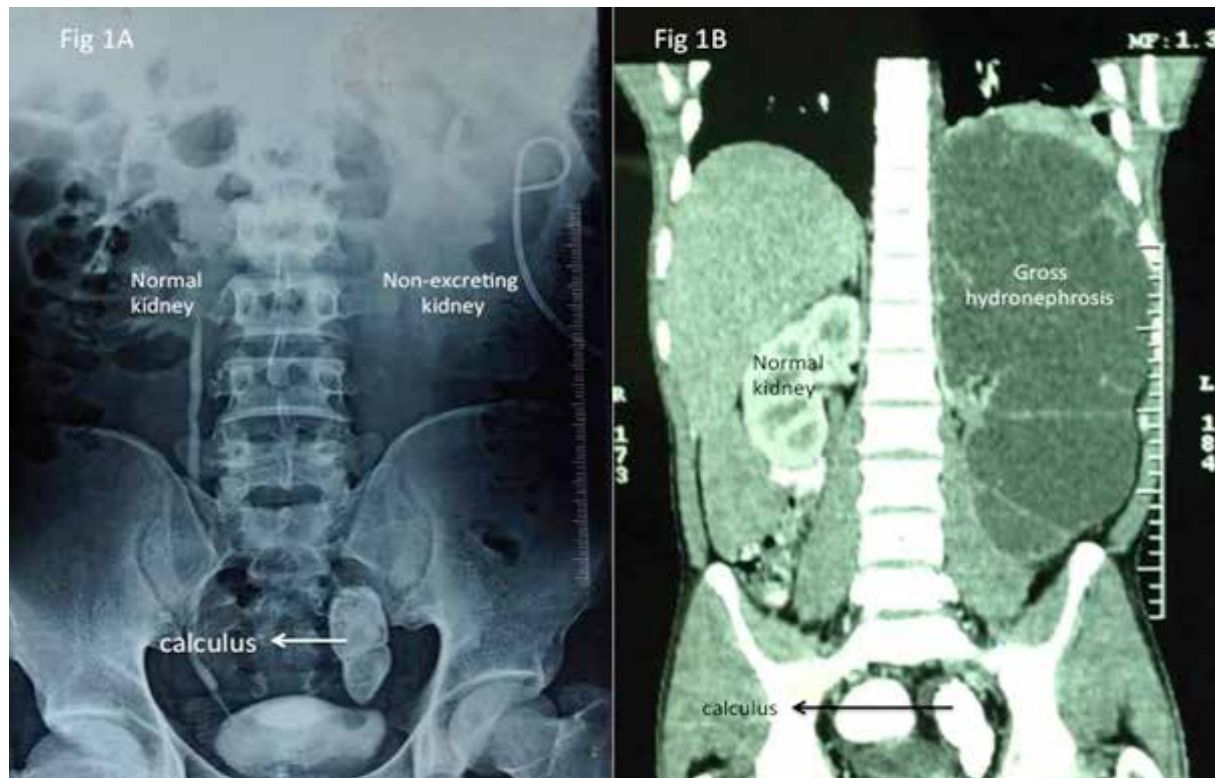
Giant ureteric stones are defined as ureteric stones measuring more than 5cm or weighing more than 50grams.¹

In this modern era, even though incidence of ureteric stones is increasing, giant ureteric stones are rare. In fact, giant ureteric stones are so rare that only few case reports are found in literature.²

Most of the ureteric stones are <0.5cm and pass with-

out any intervention.³ In this era of endourology, most of ureteric stones are treated by minimally invasive or non-invasive procedures.⁴ But these giant ureteric stones, because of their high stone load and hardness, open or laparoscopic ureterolithotomy still remain the procedure of choice.

Here we present three such cases where ureteric calculi were more than 5cm and treated by open ureterolithotomy.



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Figure 1A, IVP showing left non-excreting left kidney with left lower ureteric calculus and normal left kidney

1B, NCCT showing left gross HDN with lower ureteric calculus

CASE REPORT

Case 1: A 30-year-old man presented to out patient department (OPD) with complaints of pain from loin to groin on left side since 3 months. Ultrasound showed

hyper echoic shadow measuring 5.6cm suggestive of left lower ureteric calculus and gross hydronephrosis and thinned out cortex on the same side. His kidney function test showed Blood Urea Nitrogen (henceforth BUN) - 23 and creatinine- 1.1milli gram%. He underwent emergency per-cutaneous nephrostomy (henceforth PCN) on the same day. Post PCN, intra-venous pyelography (henceforth IVP) revealed non-excreting left kidney with hyper echoic shadow in the region of left ureter indicating giant ureteric calculus with normal excreting right kidney (Fig. 1A). It was decided to proceed with a non-contrast computed tomogram (henceforth CT scan) of kidney-ureter-bladder (henceforth KUB) region. CT scan showed a calculus measuring approximately 5.8 cm



Figure 2, left gross HDN with lower ureteric calculus extracted giant lower ureteric calculus

in the left lower ureteric region and resultant gross hydro-ureteronephrosis (Fig. 1B). He underwent left open ureterolithotomy as he was unwilling for nephrectomy (Fig. 2).

Case 2: A 43-year-old man was referred to urology OPD with history of fever, pain in both flank and decreased urine output for last 2weeks. He had history of pyelolithotomy on right side 9 years back. X-Ray (KUB) showed bilateral multiple ureteric stones the largest measuring 5cm on right and 4cm on left side with multiple small fragments in right renal pelvis (Fig. 3A).

The same was correlated on ultrasonography (Fig. 3B). In view of deranged kidney function (serum creatinine - 3.2, BUN- 73) IVP could not be done. He underwent open ureterolithotomy and removal of both ureteric and renal pelvic stone on right side. Post-op KUB showed complete clearance on right side. He is waiting for open ureterolithotomy on left side.



Figure 3A, KUB X-Ray showing bilateral multiple ureteric stones with right renal calculi



Figure 3B, USG showing multiple right ureteric calculi

Case 3: A 56-year-old woman presented with pain in supra pubic region since 2 weeks. Urinary tract sonography showed a hyper echoic shadow measuring > 4cm in right lower ureter suggestive of ureteric calculus. IVP showed poor excretion in right kidney and normal IVP pattern on left side.

The patient underwent right ureterolithotomy. The extracted stone measured 5.1 cm in length (Fig. 4).



Figure 4, Extracted stone measuring 5.1 cm in largest dimension

All the patients underwent a serum calcium and phosphorous estimation which were within normal limits.

DISCUSSION

In this part of Indian subcontinent, ureteric calculi are the most common cause of consultation in urology clinic. Their incidence is gradually increasing because of various factors like industrialisation, decreased water intake, increased meat consumption, high caloric diet.⁵ Manipur has alarmingly high incidence of renal stones. It is said that at least one person from each family is suffering from renal stones.⁶ The factors for such high incidence are fair skin, geographic location and dietary habits. X-ray image of kidney-ureter-bladder region (KUB), intravenous pyelography, urography, computed tomography or magnetic resonance imaging can diagnose these stones.

These patients presented with colicky pain abdomen, fever with chills, and history of similar episodes in the past. Most of the patients with ureteric calculi have small stones varying from 0.5-1 cm⁴ which are effectively treated by endourologic procedures or medical expulsion therapy or noninvasive modalities like extracorporeal shock wave lithotripsy (henceforth ESWL).³

Due to increased use of ultrasound on acute abdomen and good as well as prompt referral system, ureteric calculi are diagnosed and treated in early stages not giving enough time for these small stone to form giant ureteric calculus.⁷

Very rarely we encounter ureteric stones, which are very big, and measure more than 5cm, known as giant ureteric stones. Since these stones can remain silent without producing any symptoms for long duration, and found accidentally on abdominal radiograph taken for some other reason, hence leading many times to permanent renal damage. Many times, patients having a lower ureteric calculus may present with features of bladder irritation and suprapubic pain and discomfort, as seen in our third case, which may be mistaken as cystitis, especially in female patients. These giant ureteric stones are usually found associated with congenital malformations like ectopic ureter.¹¹

The endourologic procedures like ureteroscopic lithotripsy or non-invasive procedures like ESWL are deemed to fail because of large stone burden and hardness.⁸ European association of urology guidelines for ureterolithiasis state that laparoscopic or open surgical stone removal may be considered in rare cases where extracorporeal shock wave lithotripsy, ureteroscopy and percutaneous stone removal fail. So in cases of giant ureteric stones, open or laparoscopic ureterolithotomy is the procedure of choice.^{9,10,12} In fact, increased stone burden as in giant ureteric stones is one of the most common cause of open ureterolithotomy.¹³ There are few reports of giant ureteric stones treated successfully by ESWL.¹⁴ Nowadays combined treatment modalities are be-

ing tried like, ESWL followed by mini access ureterolithotomy where small incision is being made on ureter and fragments of stone being extracted through those small incision.

CONCLUSION

In this modern era where ureteric stones are extremely common, giant ureteric stone are rarely encountered because of the effective use of health care system as well as increased patient awareness. However, whenever such cases are encountered by the urologist, the now somewhat redundant but highly reliable technique of open ureterolithotomy is still considered the management of choice.

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