

Endo and Stone Disease

Laparoscopic Ureterolithotomy for Giant Ureteric Calculus: A Case Report



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ABSTRACT

We present a case of a 21 year old male who presented with symptomatic right upper ureteric calculus measuring 5 cm × 1.5 cm fulfilling the criteria to be named as giant ureteric calculus. Laparoscopic right ureterolithotomy was performed and the giant ureteric calculus was retrieved.

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Introduction

Giant ureteric stones are defined as ureteric stones measuring more than 5 cm or weighing more than 50 g.¹ Ureteral stones are usually small in size and, depending on their size, may pass spontaneously. However, stones larger than 1 cm in diameter are less likely to pass spontaneously.² An impacted calculus may continue to increase in its longitudinal diameter rather than the transverse diameter over a period of time and becomes oblong in shape. In this era of endourology, most of ureteric stones are treated by minimally invasive or non-invasive procedures.³ However in giant ureteric stones; open ureterolithotomy still remains the procedure of choice because of their high stone volume and hardness. We report a case of a giant ureteric calculus of 5 cm in length and 52 g in weight, which was removed laparoscopically.

Case report

A 21 year old male presented with complaints of episodic pain in the right lumbar region for a period of 1 year. Physical examination was unremarkable. Routine blood & urine reports were within normal limits. X-ray KUB revealed a radio opaque density measuring approximately 5 × 1.5 cm in the region of right upper ureter. IVU confirmed the presence of large upper ureteric calculus

causing mild to moderate hydronephrosis. There was prompt uptake & excretion of contrast from both the kidneys (Fig. 1). He underwent Trans-peritoneal laparoscopic right ureterolithotomy. Three ports, 10 mm umbilical port for telescope, 10 mm and 5 mm working port in the right mid-clavicular line at the level of anterior superior iliac spine and subcostal region were used. Incision on the ureter was made & stone was retrieved (Fig. 2). Stone was delivered out through the 10 mm umbilical port (Fig. 3). Ureter was closed over a DJ stent with 4.0 Vicryl. Post-operatively the patient had an uneventful recovery.

Discussion

Giant ureteric stones are defined as ureteric stones measuring more than 5 cm or weighing more than 50 g.¹ The largest calculus so far reported was by Mayer, which measured 11 cm × 5.5 cm and weighed 286 g while the longest stone was reported by Taylor, which was 21.5 cm in length.⁴ In 1992, Sabnis et al reported the largest ureteric stone measuring 13 cm in length and weighing 90 g.⁵ These patients normally present with colicky pain, fever with chills, and history of similar episodes in the past. Stone size and location are the most important factors used to predict the likelihood of spontaneous passage in patients with ureteral stones. The American Urological Association (AUA) guidelines, which are based on a meta-analysis of the literature, indicate that up to 98% of ureteral calculus 4 mm or smaller will pass spontaneously.⁶ Most of the patients with ureteric calculi of stone size varying from 0.5–1 cm are effectively treated either by endo-urolithotomy or medical expulsion therapy or non-invasive

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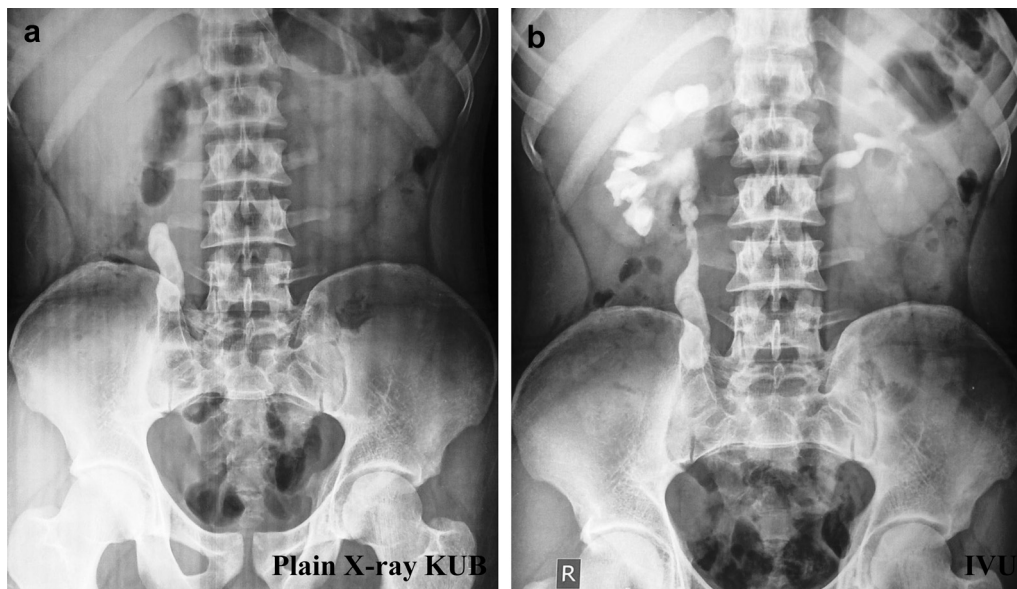


Figure 1. a) Plain X-ray KUB showing a large radio-opaque density in the region of Right upper ureter, b) IVU shows presence of right upper ureteric calculus with prompt uptake and excretion of contrast from both renal units.

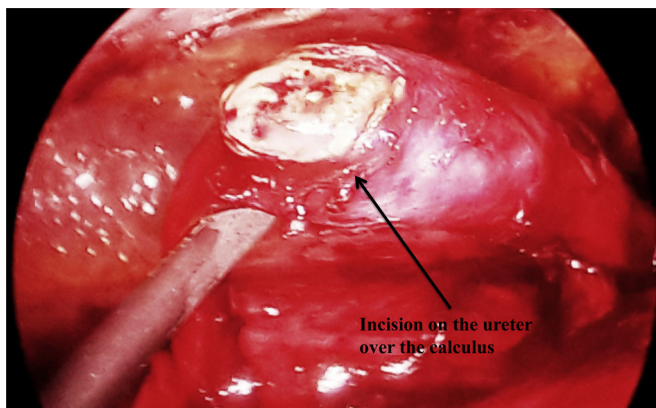


Figure 2. Trans-peritoneal laproscopic ureterolithotomy – incision on the ureter over the calculus.

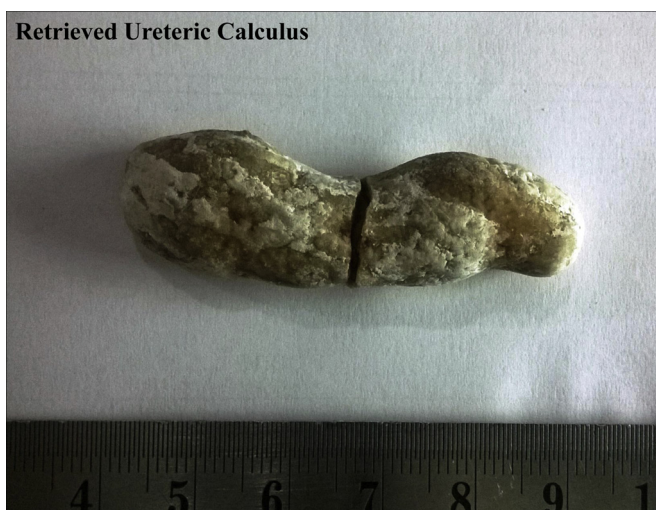


Figure 3. Retrieved ureteric calculus measuring 5 × 1.5 cm and 52 g in weight.

modalities like extracorporeal shock wave lithotripsy. Very rarely we encounter ureteric stones, which are very big, and measure more than 5 cm. Since these stones can remain silent they are found accidentally on abdominal radiograph taken for some other reason, hence leading to permanent renal damage/dysfunction. The endo-urologic procedures like ureteroscopic lithotripsy or non-invasive procedures like ESWL are deemed to fail because of large stone burden and hardness. European association of urology guidelines for ureterolithiasis state that laparoscopic or open surgical stone removal may be considered in such rare cases. In cases of giant ureteric stones, open or laparoscopic ureterolithotomy remains the procedure of choice.^{7,8} In fact, increased stone burden as in giant ureteric stones is one of the most common causes of open ureterolithotomy.⁹

Laparoscopic ureterolithotomy allows a minimally invasive approach to managing these cases as an alternative to open surgery for the treatment of large ureteral stones.¹⁰ The main advantages are decreased postoperative pain, shorter hospital stay and quicker convalescence in comparison to open surgery. It is not essential to reach the distal end of the stone during dissection. A small ureterotomy incision can be placed at the proximal end of the stone, followed by simple manipulation can retrieve the entire stone. For large, hard, long standing and impacted ureteric calculi, laparoscopic ureterolithotomy as initial therapy may be preferable to multiple endo-urological and ESWL procedures.¹¹

In this modern era where ureteric stones are extremely common, giant ureteric stone are rarely encountered because of the increased use of ultrasound, referral system and increased patient awareness. However, whenever such cases are encountered by the urologist laparoscopic ureterolithotomy is a minimally invasive option to open surgery.

Conflict of interest

The authors declare they have no conflicts of interest.

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