



CASE STUDY



Giant ureteric calculi: A series of five cases

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Abstract

This is a retrospective study of 5 cases of giant ureteric calculi. Majority of them presented with loin pain and haematuria. All of them had normal renal function, haemoglobin, serum calcium, serum phosphorus, 24 hour urinary calcium and serum electrolytes. All had intravenous urography which revealed prompt visualisation and no distal obstruction. Owing to large size these are best managed by UL either open or laparoscopic. If the kidney on affected side is non functioning, nephroureterectomy is indicated. Calcium oxalate was commonest constituent.

Keywords: Giant ureteric calculi

1 | INTRODUCTION

Ureteric calculi are usually small with lifetime risk of 5%.^{1,2} Spontaneous passage rate depends upon size of stone and location³. Small ones (5mm) may pass spontaneously. Distal stones are more likely to pass as compared to proximal ones. In contrast, stones larger than 1 cm may not come out and need intervention. Stones once impacted in ureter may continue to grow longitudinally rather than transversely with time and become elongated. B M Gali et al. used the term giant ureteric calculus for a stone with length more than 5 cm and/or weight 50 gm or more.² We report a series of 5 such patients with review of available literature.

2 | MATERIALS AND METHODS

This is a retrospective study of 5 cases of giant ureteric calculi reported to us from February, 2015 to January, 2019. Four patients underwent laparoscopic and one open ureterolithotomy (UL).

Under General anesthesia, patient was placed in 45° lateral position with the operating side up. Pneumoperitoneum was created using veress needle. Camera port (11mm) was placed near umbilicus. Using triangulation technique, additional two ports

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(11mm and 5mm) were placed depending upon the location of the stone. After reflection of colon, ureter was identified, stone located and UL performed by diathermy hook. After placing 5F double J (DJ) stent, ureterotomy was closed with 4-0 vicryl. Drain was placed and port sites closed.

In open UL under spinal anesthesia, patient was placed in supine position. Incision given depending on the location of stone and peritoneum reflected anteriorly. After stone was identified, the ureter was opened longitudinally. Ureterotomy was closed with interrupted sutures after placing 5F DJ and drain was placed. DJ was removed 3 weeks later.

3 | RESULTS

The age of patients ranged from 30 to 45 years (mean-38.8years) with female predilection (Table 1). Majority of them presented with loin pain and haematuria. None of them was diabetic or hypertensive. All of them had normal renal function, haemoglobin, serum calcium, serum phosphorus, 24 hour urinary calcium and serum electrolytes. All had intravenous urography which revealed prompt visualisation and no obstruction distal to stone. The stone location was variable but predominantly on left side. Urine culture of 3 patients was sterile and 2 received antibiotics based on their antibiogram. Size of ureteric stones varied from 5.8cm to 7.8cm (Mean size- 6.42cm). All underwent laparoscopic UL except one who had prior laparotomy. Post operative period was uneventful and all of them were discharged on day 3. Follow-up, ultrasonography showed resolution of hydro-ureteronephrosis.

4 | DISCUSSION

Ureteric stones exceeding 5 cm in length or more than 50 gm in weight are termed giant ureteric calculi and are rare². Mayer (1940) reported the largest ureteric stone weighing 286 gm⁴ while the longest stone (21.5 cm) was reported by Taylor⁵ (1934). Natami et al⁶ (2019) reported a ureteric stone of 14 cm. From India, Sabnis et al. (1992) published the largest ureteric stone (13 cm)⁷.

Ureteric calculi usually presents as colicky flank pain, frequency, urgency or haematuria. Ureteroscopic lithotripsy (URSL), Extracorporeal shock wave lithotripsy (ESWL), Retrograde intrarenal surgery (RIRS) or Pushback Percutaneous nephrolithotomy (PCNL) and medical expulsive therapy are the commonly used modalities of treatment for ureteric calculi. Giant ureteric calculi, owing to their size are best treated by laparoscopic or open UL. All cases were managed with laparoscopic UL except one female. She underwent open surgery owing to prior laparotomy for intestinal obstruction and broad puckered abdominal scar. Calcium oxalate was the commonest constituent in mixed stones on Fourier transform infrared spectrometry (FTIR) analysis. This is corresponding to the findings reported by others^{7,11,13}.

This part of India is included in stone belt with very high prevalence of urolithiasis. Such calculi are generally formed in patients who are reluctant to treatment with poor access to health facilities or low socioeconomic status. Underlying anatomic or functional obstruction favouring stone formation should be ruled out. These may be associated with ureteral duplication, ureteroceles, tuberculosis, megaureter, or prolapsed benign polyp of the ureter^{9,10,11,12,13}. Therefore a urinary tract abnormality or a metabolic defect may play an important role in the pathogenesis of these stones. In some cases like ours, no evidence of underlying abnormal anatomy was detected¹⁴. Treatment either nephroureterectomy or removal of stone are dependant upon function of the affected renal unit^{7,14}. Giant ureteric calculi are rare. The exact etiology and pathogenesis of these stones are not known⁸. In every case anatomical or functional obstruction distal to the stone should be ruled out. Owing to large size these are best managed by UL either open or laparoscopic. If the kidney on affected side is non functioning, nephroureterectomy is indicated. Calcium oxalate was commonest constituent. (1-14)

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TABLE 1: Clinical features, management and stone analysis of patients with giant ureteric stones (N=5)

S.N.	Age-Sex	Pre-sentation	Serum creatinine	Urine culture	Location of stone	UL(laparoscopic)	Stone Size	Stone analysis
1	30/	Loin pain, haematuria	1.2mg/dl	Sterile	Lower border of L4 vertebra to lower margin of sacroiliac joint left side	Left open UL	7.8cm	Calcium oxalate monohydrate (85%), Ammonium urate (15%)
2	32/F	Vomiting, Flank pain	1.1mg/dl	Sterile	Left sacroiliac joint to ischial spine	Left Laparoscopic UL	6 cm	Calcium oxalate monohydrate (97%), Carbonate apatite (3%)
3	42/	Loin pain, haematuria	1.2mg/dl	Proteus	Left sacroiliac joint to ischial spine	Left Laparoscopic UL	5.8 cm	Calcium oxalate monohydrate (55%), Calcium oxalate dehydrate (45%)
4	45/M	Vomiting, Flank pain	1.5mg/dl	E.coli	Right sacroiliac joint to below ischial spine	Right Laparoscopic UL	6.5cm	Calcium oxalate monohydrate (88%), Calcium oxalate dehydrate (12%)
5	45/	Vomiting, Flank pain	1.3mg/dl	Sterile	Left sacroiliac joint to ischial spine	Left Laparoscopic UL	6cm	Calcium oxalate monohydrate (10%), Calcium oxalate dehydrate (80%), Sodium urate (10%)



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FIGURE 1: X ray KUB showing giant ureteric stone.



FIGURE 3: X ray KUB show inggiant ureteric stone



FIGURE 4: X ray KUB giant ureteric stone



FIGURE 5: showing post operative giant ureteric stone

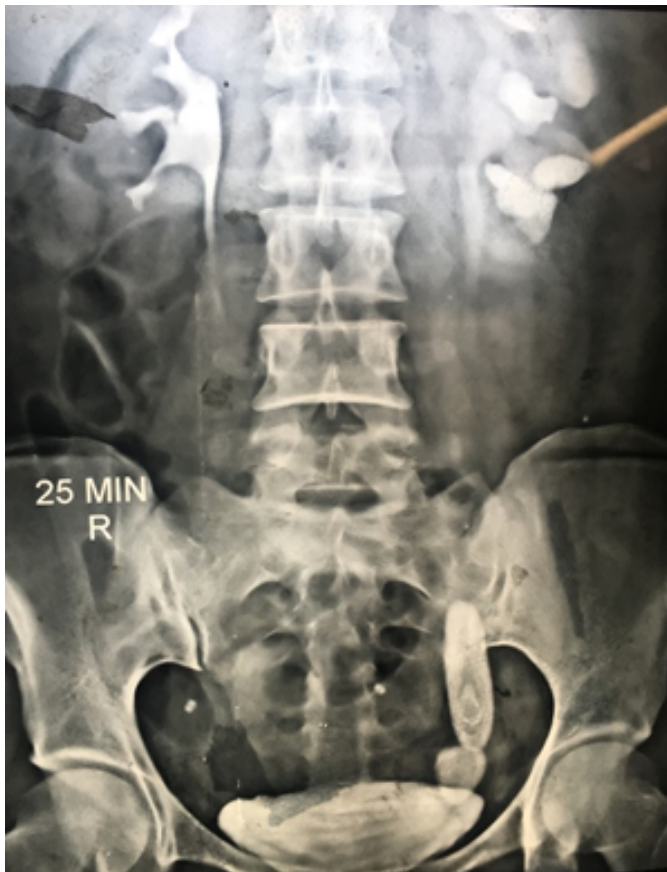


FIGURE 2: Intravenous urography showing left giant ureteric stone

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FIGURE 6: showing 7.8 cm stone

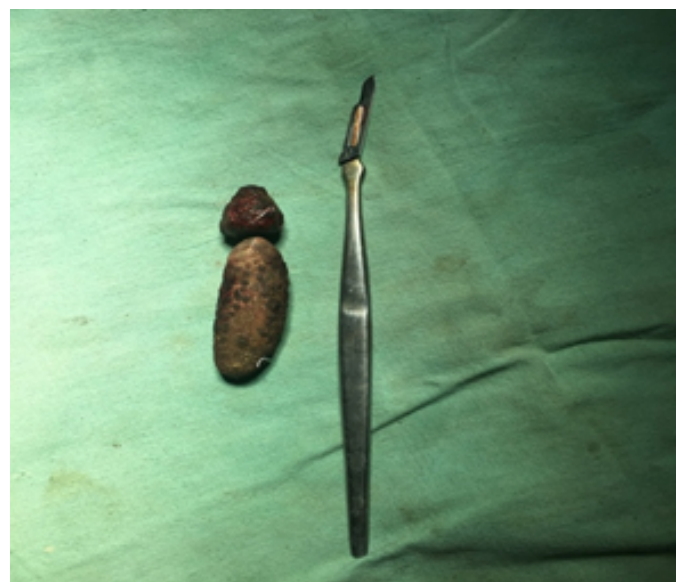


FIGURE 7: showing post operative giant ureteric stone

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