CASE REPORT

Urolithiasis in primary obstructive megaureter: a management dilemma

Arvind Kumar, Apul Goel, Manmeet Singh, Satya Narayan Sankwar

Department of Urology, King George Medical University, Lucknow, Uttar Pradesh, India

Correspondence to

Dr Arvind Kumar,
dravindg4@gmail.com

Accepted 8 May 2014

SUMMARY

Megaureter with urolithiasis is an uncommon entity. These stones may be located in the kidney, ureter or both. Management of these cases is difficult due to free mobility and stone multiplicity. As there are no guidelines about the management, the surgeon usually manages according to her/his experience, stone location or burden. The goal is to remove the stones and reimplant the ureters in the same session, if possible. We describe single-stage management of one such patient who presented with bilateral multiple ureteral and left renal stones. The left ureteral stones were first flushed into the kidney by the ureteroscope. Percutaneous nephrolithotomy was then performed and stones were removed intact. The patient was then turned supine and the location of right ureteral stones was confirmed by fluoroscopy in the same location (right lower ureter). The patient underwent successful bilateral ureteroneocystostomy with simultaneous removal of right lower ureteral stones.

BACKGROUND

Primary or congenital megaureter, initially described by Caulk,¹ is a relatively common finding in children but rare in adults. Rarely, it may be associated with urolithiasis. Management options of urolithiasis in such patients include ureteroscopy (URS), shock wave lithotripsy, percutaneous nephrolithotomy (PNL) or open stone removal depending on the stone burden and location.² Definitive management of megaureter should be carried out to prevent recurrence of stones or further renal damage.

CASE PRESENTATION

A 14-year-old boy presented with colicky, intermittent, bilateral flank pain for 2 years. There was no fever, haematuria or weight loss. There was no family history of any urological problem. On clinical examination there was no palpable flank mass or tenderness.

INVESTIGATIONS

The patient's serum creatinine was 1.1 mg, serum sodium 141 mEq/L and serum potassium 4.1 mEq/L. Urine culture was sterile.

X-ray of the kidneys, ureters and bladder (figures 1 and 2) showed multiple, mobile left renal and bilateral lower ureteral stones.

Intravenous urography showed bilateral hydronephrosis (figure 3) with normal excreting kidneys.

Figure 1 X-ray of the kidneys, ureters and bladder showing single left renal and multiple bilateral ureteral calculi.

Figure 2 X-ray kidneys, ureters and bladder showing multiple mobile left renal calculi and bilateral ureteral calculi.

CrossMark

To cite: Kumar A, Goel A, Singh M, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-204210

Figure 3 Intravenous urography showing bilateral dilated ureters and pelvicalyceal systems.

Micturating cystogram ruled out lower urinary tract obstruction or vesicoureteral reflux.

TREATMENT

Under general anaesthesia, left-sided semirigid URS was performed using 8/9.8 Fr instrument with the head end of the table lowered. The stones were pushed into the kidney by URS irrigation. An olive tip ureteral catheter was then placed at the ureteropelvic junction (UPJ) to prevent stone migration down the ureter. The patient was then turned prone and left PNL (through infracostal, superior-calycal approach) was completed with removal of all the stones (*figure 4*). In the same session, the patient was turned supine and right lower ureteric stone

Figure 4 Intact stones removed by left percutaneous nephrolithotomy and right ureterolithotomy.

location was confirmed by fluoroscopy. Right open ureterolithotomy followed by excision of obstructed ureteral segments, ureteral tapering and bilateral ureteral reimplantation was performed through pfannenstiel incision. The entire procedure was completed in two and half hours. The tapered ureters were stented for 2 weeks.

OUTCOME AND FOLLOW-UP

Postoperative recovery was uneventful and the child was discharged on day 5 with urethral Foley catheter in situ. The urethral catheter and stents were removed after 2 weeks.

DISCUSSION

Megaureter includes a spectrum of anomalies in which the ureter is wider than 7–8 mm with or without upper tract dilation. Exact incidence of stone disease in megaureter is unknown and only few cases of megaureter with urolithiasis have been reported in English literature.^{3–5} Hemal *et al*² reported 20 (36%) cases of symptomatic primary obstructive megaureter complicated by urolithiasis. Most of them had ureteral stones; only 5.5% had renal and ureteral calculi.

The management of concomitant, multiple renal and ureteric stones in megaureter is a challenging task because the stones are mobile. PNL followed by URS is difficult due to the risk of stone migration and need to change the patient position intraoperatively. Similarly, URS and flushing of stones in the pelvicalyceal system followed by PNL is an alternative but again there is the risk of down-migration of stones during PNL. Combining these minimally invasive treatments (URS and PNL) with ureteric reimplantation is a viable alternative because correction of the underlying abnormality is necessary to prevent recurrence of symptoms or urolithiasis. Laparoscopic pyelolithotomy for left renal stones and laparoscopic bilateral ureterolithotomy and ureteric reimplantation with or without URS may be considered for this patient as well, but one should be well trained in laparoscopic surgery.⁶

Our patient had multiple left renal calyceal and bilateral ureteral calculi with megaureters. We successfully managed the patient with left PNL (after pushing the ureteral stones into the kidney) followed by right ureterolithotomy and bilateral ureteric reimplantation in a single session. To prevent the stone migration certain manoeuvres were carried out by us such as placing an olive tip ureteral catheter at the UPJ and lowering down the head end which helped us to remove all the stones in the same session.

Learning points

- ▶ Urolithiasis can be a clinical presentation of megaureter.
- ▶ Management of such cases is difficult due to stone mobility and multiplicity.
- ▶ Management of each case should be individualised.
- ▶ Correction of the underlying abnormality can also be conducted in the same session.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Caulk JR. Megaloureter: the importance of the ureterovesical valve. *J Urol* 1923;9:315–19.
- 2 Hemal AK, Ansari MS, Doddamani D, *et al*. Symptomatic and complicated adult and adolescent primary obstructive megaureter—indications for surgery: analysis, outcome, and follow-up. *Urology* 2003;61:703–7.
- 3 Al-Marhoon MS, Venkiteswaran KP, Shareef OW. Urolithiasis in an adult with primary obstructive megaureter: a case report. *Oman Med J* 2013;28:357–9.
- 4 Rosenblatt GS, Takesita K, Fuchs GJ. Urolithiasis in adults with congenital megaureter. *Can Urol Assoc J* 2009;3:E77–80.
- 5 Moslemi MK. Primary obstructive megaureter with a giant lower ureteral stone synchronous with ipsilateral staghorn kidney. *Case Rep* 2012; 3:520–2.
- 6 Chen Z, Zhou P, Yang ZQ, *et al*. Transperitoneal mini-laparoscopic pyeloplasty and concomitant ureteroscopy-assisted pyelolithotomy for ureteropelvic junction obstruction complicated by renal caliceal stones. 2013;8:e55026.

Copyright 2014 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow