



IATROGENIC RENAL TRAUMA FOLLOWING URS: A LESSON LEARNT

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<p>Article Info <i>Received 15/03/2015</i> <i>Revised 27/04/2015</i> <i>Accepted 2/05/2015</i></p> <p>Key words: Ureteric stones, Iatrogenic Renal Trauma.</p>	<p>ABSTRACT</p> <p>The surgical management of ureteric stones has changed over the past few decades because of advances in instruments and techniques. During the past 20 years, ureterorenoscopy (URS) has dramatically changed the management of ureteral calculi. We report a case of iatrogenic renal trauma following URS. A 53 years male with CKD presented with Right ureteric colic. USG revealed 12mm upper ureteric calculus with hydronephrosis/more in upper calyx. URS done using pneumatic lithotripter. Patient had gross hematuria in recovery. USG revealed significant perirenal collection around upper pole. Inview of unstable condition, patient explored, large perirenal hematoma and approx 3cm ragged tear in dilated upper pole seen. Parenchyma sutured & gelfoam placed to achieve adequate hemostasis. Currently, URS is the main stay in ureteric stone management. Normal renal pelvic pressure varies between 5-15 mmHg. The pressure can rise to approximately 410 mmHg during URS. This pressure is affected by the type of surgical instrumentation used, the height of the medical irrigation pouch, use of manual injection syringe or mechanical cylindrical pumping device, or the fullness level of the bladder during the operation. Commonly encountered complications included fever and/or sepsis, transient hematuria, stone migration, ureteral mucosal injury, ureteral perforation, and ureteral avulsion. Renal rupture is extremely uncommon but still a possible complication, which should be kept in mind in persistent gross hematuria. Ureteroscopy is an invasive procedure. One should be extremely watchful during procedure to avoid complications. High & persistent irrigation pressure should be avoided with intermittent drainage.</p>
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INTRODUCTION

The surgical management of ureteric stones has changed over the past few decades because of advances in instruments and techniques. During the past 20 years, ureterorenoscopy (URS) has dramatically changed the management of ureteral calculi. Extracorporeal shock wave lithotripsy (ESWL) and URS are currently the most common treatment options in clinical practice. We report a case of iatrogenic renal trauma following URS.

CASE REPORT

A 53 years old patient presented to us with

complaints of dull aching pain in right flank since one year. There was history of high grade fever on several occasions for which patient took treatment on OPD basis. Patient was a known case of Diabetes Mellitus with Chronic kidney disease (CKD). Abdominal sonography (USG) revealed right upper ureteric calculi (12mm) with hydronephrosis/ more in upper calyx. After all routine investigations and pre-anesthetic check up patient was posted for right sided URS. Retrograde pyelography (RGP) revealed upper ureteric stricture just below the stone. URS was done on right side using pneumatic Lithoclast.



Patient was shifted to recovery room. After 2 hours, patient complaint of severe pain abdomen in the right upper quadrant with significant hematuria. Examination revealed tenderness in right hypochondriac region with local guarding. Patient was having tachycardia (PR-110/min), and hypotension (100/56mmHg). Emergency USG revealed perinephric collection measuring approx 200cc and patient was shifted to ICU immediately. Blood transfusion was given (2 units whole blood) as volume replacement.

Re-evaluation after two hours revealed persistent gross hematuria, tachycardia (PR-120/min), hypotension (BP-90 mmHg systolic) with increase in peri-renal collection (300ml). Hence, patient was planned for emergency exploration under high risk with due consent of nephrectomy. Intra-operatively there was an evidence of large peri-renal hematoma limited within Gerota's fascia. After evacuation of hematoma, further exploration revealed a parenchymal tear of about 3cm near the upper pole. The tear was sutured using vicryl 2'0 and absolute hemostasis achieved before closure. Abdominal drain kept in situ. Postoperative period was uneventful and patient recovered well.

DISCUSSION

Ureterorenoscopy was introduced to the clinical practice in the 1980s and since then it has become a widely accepted and reliable method for ureteral stone treatment with few complications [1]. It is the method that fully meets the main principle of minimally invasive surgery – to achieve full recovery with minimal surgical trauma [1,2,3]. Since it uses a smaller working-channel caliber, continuous irrigation, and application of video carts, ureterorenoscopy enables a more thorough exploration and optimal approach to all stones throughout the ureter's full

length. The success rate (stone-free rate) of ureterorenoscopy in the proximal, middle, and distal ureter is around 80%, 90%, and 95%, respectively [1].

Complications included fever and/or sepsis, transient hematuria (lasting less than 4 days), proximal stone migration, ureteral mucosal injury (abrasion and false passage formation), ureteral perforation, and ureteral avulsion [4]. Overall complication rate after URS is 9-25%, majority being minor complications and do not require intervention. Ureteral avulsion and strictures used to be greatly feared, but nowadays are rare in experienced hands (<1%) [1].

Normal renal pelvic pressure varies between 5-15 mmHg. The pressure can rise to approximately 410 mmHg during URS. This pressure is affected by the type of surgical instrumentation used, the height of the medical irrigation pouch, use of manual injection syringe or mechanical pumping device, or the fullness level of the bladder during the operation [5].

Rise in renal pelvic pressure can result in rupture of collecting system, as well as intrarenal, pyelovenous, pyelolymphatic backflow leading to urosepsis. High irrigation flow should be avoided specially in a documented case of thin renal parenchyma.

CONCLUSION

Renal rupture is extremely uncommon complication but should be kept in mind in a patient with gross hematuria following URS. Pre-operative nephrostomy might be useful in dilated pelvi-calyceal system in a case of URS. One should remain aware about possible renal rupture specially while negotiating stenotic ureter and thin renal parenchyma.

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