Case series – Uterine prolapse leading to acute kidney injury

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INTRODUCTION

KEY MESSAGES

- Given that approximately 50% of women are anticipated to encounter POP at some point in their lives, it is important to understand the potential complications (i.e., hydronephrosis, associated kidney damage, and voiding dysfunction
- The resolution of hydronephrosis and the reversal of associated damage are typically attainable through pessary insertion, with the critical determinant being the timeliness of the intervention

Population studies suggest 50% of women will develop pelvic organ prolapse during their lifetime.[1] While many of these are asymptomatic, up to 16% will require surgical intervention for their symptoms.[1] Hydronephrosis has been seen in 12-15% of cases of symptomatic uterovaginal prolapse.[2] In patients with uterovaginal prolapse and hydronephrosis, the rate of renal impairment is around 3%.[3] Women with POP frequently present with increased post void residual volume, a risk factor for recurrent UTI's, and rarely with renal impairment.[3] [2] With the rate of POP rising alongside an aging population, it is important to recognize the risk of renal impairment in these women.[1] This case series presents two cases of acute kidney injury (AKI) due to POP and highlights the importance of early recognition and treatment.

CASE REPORTS

Case 1

An 80-year-old G4P4 female with hypothyroidism, hypertension and long-standing anemia presented to the emergency department in urinary retention with an AKI and a serum creatinine of 320 μmol/L.

Cross sectional imaging with CT demonstrated an incidental finding of a small renal mass with no adenopathy or metastases and non-specific thickening of the uterus and posterior

bladder wall. There was severe bilateral hydronephroureterosis to the level of the bladder. Bimanual exam revealed a stage IV uterine prolapse.

The patient was taken to the operating room and a cystoscopy was preformed revealing turbid urine and debris in the bladder along with diverticula and trabeculation, findings which may have resulted from the patient's POP causing bladder outlet obstruction and elevated residuals. After intra-operative manual reduction of the uterine prolapse, the ureteric orifices were able to be visualized as they were prolapsed as well. Upon visualization of the ureteric orifices, bilateral ureteric stents were inserted.

One week after stent insertion, creatinine continued to trend down to 175 μmol/L. The patient convalesced and her POP was temporized with a pessary while awaiting gynecological intervention. The pessary also improved her voiding patterns with no further signs of urinary retention and post void residuals volumes were consistently less than 100 mL.

Case 2

A 70-year-old female with a history of uterine prolapse underwent an ultrasound to assess for fatty liver disease and was incidentally found to have severe bilateral hydronephrosis. Serum creatinine was 95 μmol/L compared to 67 μmol/L eight months prior, and she was referred to urology for further evaluation.

The patient denied lower urinary tract symptoms or hematuria however she did occasionally need to manually reduce her prolapse to initiate flow. She did complain of occasional mild bilateral flank discomfort. Uroflow in clinic showed a voided volume of 105 mL, maximum flow rate of 10 mL for one second and a residual volume of 30 mL.

External pelvic exam revealed a stage IV uterine prolapse with no suprapubic tenderness. Gynecology was consulted urgently and a pessary was inserted to temporize the prolapse and relieve the ureteric obstruction.

One week after insertion of the pessary, her creatinine improved to 73 μmol/L. Two months later she underwent a hysterectomy and prolapse repair. Her creatinine after surgery improved toto 66 μmol/L and a follow up renal ultrasound one month post op showed no residual hydronephrosis.

DISCUSSION

This case series highlights the potential for symptomatic uterine prolapse to cause ureteric obstructions, which can progress to AKIs, and highlights the need for clinical awareness of this complication. The interdisciplinary nature of this presentation between gynecology and urology makes it important to ensure adequate follow up and communication amongst physicians. With up to half of women experiencing POP during their lifetime, it is important for urologists to be aware of this silent cause of hydronephrosis.[1]

In uterine prolapse, hydronephrosis is typically due to mechanical obstruction of the ureters by the levator muscles in the pelvic floor.[4] Hydronephrosis is seen in approximately 15% of patients with stage IV prolapse.[4] Both surgical intervention and pessary use were shown to

reduce hydronephrosis, with the key factor being the time to intervention.[4] Up to 75% of patients treated solely with a pessary had improvement in the degree of hydronephrosis.[5 4] Elderly patients with pre-existing kidney impairments are especially susceptible to long term consequences due to their diminished kidney reserve.[6]

There are currently no recommendations or guidelines addressing the evaluation of the upper urinary tracts in patients with POP.[7] A retrospective case review looking at patients with uterovaginal prolapse highlighted the importance of considering renal ultrasound and renal function tests on all patients with a stage IV prolapse.[2] This contributed to the decision to expediate surgical repair of the prolapse and reduce the likelihood of irreversible kidney damage.[2] For the urologist, it is important to recognize that POP can be an asymptomatic cause of hydronephrosis and renal dysfunction, and there should be a low threshold to perform a pelvic exam and involve gynecology for pessary insertion once a POP suspected. [7 8]

In both of these presentations, POP was not recognized as a causative factor in the kidney injury until the time of intervention. This case series highlights the importance of close monitoring of patients with severe prolapse while awaiting intervention as well as the potential for irreversible kidney injury in this population.

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FIGIRES AND TABLES

Table 1. Key recommendations for urologists
1. Recognize that pelvic organ prolapse can be a silent cause of hydronephrosis and subsequent kidney injury.
2. Have a low threshold for performing a pelvic exam in unexplained hydronephrosis in elderly women.
3. Ensure timely involvement of gynecology for pessary insertion to mitigate risk of kidney damage.