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## Obstructive uropathy due to prolapsed lower ureters and bladder in patients with severe procidentia: A report of two cases

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## ABSTRACT

**INTRODUCTION:** Pelvic organ prolapse is not uncommon in multi-parous or elderly women. It is one of the rare but important causes of obstructive uropathy. Herein, we report two cases of severe procidentia that were referred with obstructive uropathy due to prolapsed bladder and ureters.**PRESENTATION OF CASE:** The first case was a 78-year-old woman, with severe pelvic organ prolapse and secondary bilateral hydronephrosis and post-renal failure. She was treated successfully by bilateral nephrostomy insertion and then pessary insertion. The second case was a 75-year-old woman who referred with the same presentation, but treated surgically with burch colposuspension and synchronous bilateral ureteral stent insertion.**DISCUSSION:** Pelvic organ prolapse is not uncommon in old women. In addition to physical problems of procidentia, it may cause acute renal failure (ARF), chronic renal failure (CRF), and finally end stage renal disease (ESRD) if undiagnosed.**CONCLUSION:** In every aged female case with obstructive uropathy and/or bilateral hydronephrosis with unknown causes, gynecologic examination should be performed for early detection of possible pelvic organ prolapse. Appropriate management is necessary to prevent renal failure from uterine prolapse (UP).© 2013 Surgical Associates Ltd. Published by Elsevier Ltd. Open access under [CC BY-NC-ND license](http://creativecommons.org/licenses/by-nc-nd/3.0/).

## 1. Cases report

## 1.1. Case 1

A 78-year-old woman was presented to emergency room by nausea, vomiting, malaise and a visible significant protruded mass in the external genital examination (Fig. 1).

The general physical examination was unremarkable. The patient body mass index (BMI) was 27. In pelvic examination, the bladder was empty and Foley urethral catheterization was impossible. Early laboratory examinations were performed. She had a serum BUN of 126 mg/dl, and creatinine level was 14 mg/dl. Further evaluations by abdomino-pelvic ultrasonography revealed severe bilateral hydronephrosis with un-detectable bladder. Emergency hemodialysis was done for her by peripheral temporary access.

After evaluations of patient's coagulation status with serum PT, PTT, INR, and injection of single dose prophylactic intravenous antibiotic,<sup>1</sup> bilateral percutaneous insertion of nephrostomy tubes were done successfully under local anesthesia. Appropriate urinary drainage was occurred. Urine output was 8 L in the first 24 h.

Appropriate fluid infusion was done with replacement of two thirds of urinary output for the management of the post obstructive diuresis. In the fourth day the serum creatinine level was decreased to 1.2 mg/dl after nephrostomy.

In the fifth day, bilateral nephrostography via nephrostomy tubes were done, and bilateral hydronephrosis with prolapsed bladder was detected (Fig. 2).

Preoperative urodynamic study (UDS) was not possible due to disturbed bladder anatomy.

The patient was referred for gynecologic consultation. Vaginal pessary was inserted and UP was treated successfully. Two weeks later nephrostomy tubes were removed uneventfully.

For the follow up, 6 months later, the renal function tests (RFT) were normal and renal ultrasonography was unremarkable.

## 1.2. Case 2

The patient was a 75-year-old grand multiparous woman who was referred due to bilateral hydronephrosis. She complained about weakness and malaise since few months ago. Physical examination was unremarkable except generalized pallor due to mild anemia. Her BMI was 23. Gynecologic examination revealed severe procidentia that bothered patient since years before. In laboratory examination, Hg was 10 g/dl and creatinine level was 3 mg/dl. In abdominopelvic ultrasonography, bilateral moderate hydronephrosis with near normal renal cortical thickness

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**Fig. 1.** Severe procidentia causing obstructive uropathy.

was reported. The patient underwent burch colposuspension with pafannen-steil incision with synchronous cystoscopic bilateral double J stent insertion. Post-operatively, the procidentia was relieved, renal hydronephrosis alleviated and creatinine level decreased to the near normal state. The double J stents were removed 1 month after operation. Due to improvement of lower urinary tract symptoms (LUTS), further evaluations such as UDS were not requested.



**Fig. 2.** Bilateral nephrostography in which bilateral hydronephrosis with bladder prolapse is evident.

Three months later the RFT and renal ultrasonography were unremarkable.

## 2. Discussions

Pelvic organs prolapse or uterine prolapse (UP) can be associated with minor or major urologic complications, depending on its severity. These may include UTIs,<sup>2–4</sup> urinary incontinency, renal dysfunction and hydronephrosis.<sup>5</sup> It may cause acute renal failure (ARF),<sup>6</sup> chronic renal failure (CRF),<sup>2–8</sup> and finally end stage renal disease (ESRD).<sup>9–12</sup> The incidence of obstructive uropathy in pelvic organ prolapse is between 4% and 13% or 80% in severe cases.<sup>13,14</sup> One of the major complications of pelvic organ prolapse is disturbed drainage of ureters due to procidentia. The reported incidence of urinary tract obstruction is 5% for first-degree prolapse and about 40% for procidentia.<sup>15</sup> Hydronephrosis due to uterine prolapse was the major cause of acute renal failure in the case reported by Yanik et al.<sup>6</sup> It seems that any patient with moderate to severe pelvic organ prolapse is at risk of renal failure.<sup>3</sup>

A possible mechanism of renal failure in the presence of pelvic organ prolapse may be compression of the ureters by the uterine blood vessels,<sup>9</sup> and pelvic organ prolapse might cause obstruction of the lower ureters, in addition to disturbing the bladder drainage due to bladder outlet obstruction.<sup>6</sup> In the presented first case, complete prolapse of both ureters and bladder caused the bilateral hydronephrosis and creatinine rise by obstructive uropathy. In our patients it seems that complete synchronous prolapse of the bladder trigone with the uterus occurred. Also, fixing the pelvic prolapse by means of vaginal pessary or a type of surgery (Colposuspension or hysterectomy) may correct the elongation that has happened in both ureters by pushing of prolapsed organs.

Sometimes and in chronic obstructed cases, even repair of prolapsed uterus cannot improve the renal function and patients needs renal replacement therapy (hemodialysis).<sup>12</sup>

## 3. Conclusions

Severe pelvic organ prolapse may cause obstructive uropathy by means of infra-vesical obstruction or supra-vesical obstruction. In any aged female patient with post-renal failure pelvic organ prolapse should be evaluated with full gynecologic examination.

## Conflict of interest

None declared.

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None.

## Ethical approval

We have obtained written consent from the patients and we can provide this consent upon editor request.

## Author contributions

Mohammad Kazem Moslemi is the first author of the manuscript and corresponding surgeon of the second case. Mehdi Abedinzadeh is the corresponding author and operating surgeon of the first case and he managed and followed the case. Alireza Nazari was the assistant surgeon and he prepared the figures.

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