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Case Report

# Bilateral Hydronephrosis in a Female with Advanced Pelvic Floor Prolapse and Normal Renal Function

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## Abstract

Bilateral hydronephrosis in elderly women with advanced pelvic floor prolapse may cause serious medical problems or may be an incidental finding. The downward descent of the bladder due to pelvic floor prolapse may cause narrowing of the lower parts of the ureters on both sides resulting in bilateral hydronephrosis with dilatation of the renal pelvis and calyces which may or may not be associated with significant decline in kidney function. We present the case of a 78 year old lady with bilateral hydronephrosis with pelvic floor prolapse with preserved renal function.

**Keywords**: Uterine Prolapse; Hydronephrosis; Kidney Function

## Introduction

In elderly population bilateral hydronephrosis may occur in both men or women. In male patients, compression on the urethra due to prostate enlargement if untreated causes gradual dilatation of the urinary tract down from the renal pelvis and calyces with worsening of renal function. In female patients, the downward descent of the bladder due to pelvic floor prolapse may cause stretching of the lower parts of the ureters on both sides resulting in bilateral hydronephrosis which can lead to significant drop in kidney function [1-3]. Occasionally, bilateral hydronephrosis may be an incidental finding as reported in the following case.

## Case Report

78 year old female African-American patient with history of diastolic congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), atrial fibrillation (A-Fib) and deep venous thrombosis (DVT) of lower extremities (chronic on right side, acute on left side) treated with Coumadin was brought to hospital for upper gastrointestinal bleeding and severe anemia (hemoglobin 5.2). She was admitted to Intensive Care Unit (ICU) and transfused several units of blood. Patient was stabilized and transferred to the general medical floor. On the patient's abdomino-renal ultrasound there was bilateral mild-to-moderate hydronephrosis (Fig-

ure 1), which appeared to be more advanced on the right and a 1.1 cm calculus in the left renal pelvis (Figure 2). Patient's blood urea nitrogen and creatinine (BUN and Cr) remained around 18 and 0.9 respectively during the course of hospitalization. Urinalysis showed white blood count (WBC) of 10-20 cells per high power field and red blood cells (RBC) 1-4 per high power field which progressed to WBC > 20 and RBC >20 after three weeks. Patient was of limited mobility and during physical therapy sessions she complained of discomfort and heaviness in the pelvis with sensation of burning on urination. Patient was status post-hysterectomy and had pelvic floor prolapse. Pelvis MRI showed no uterus or ovaries, infiltrative fluid in the presacral space, mild rectal mucosal enhancement with focal distension by stool and prolapsed bladder below the pelvic floor associated with anal prolapse (Figure 3). Urine culture yielded no growth. Gynecological consult was requested and the patient was diagnosed with stage IV pelvic floor prolapse (procidentia). Patient was discharged to subacute rehabilitation on oral Levaquin and instructed to follow up with urogynecology.


**Figure 1.** Ultrasound images of right and left kidneys showing bilateral mild hydronephrosis with dilatation of the renal pelvis and calyces.

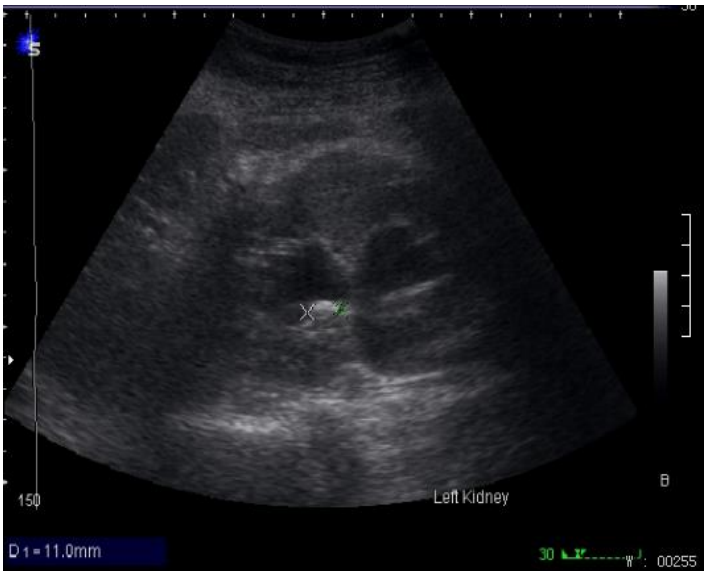


**Figure 2.** Ultrasound image showing a 1.1 cm calculus in the left renal pelvis.

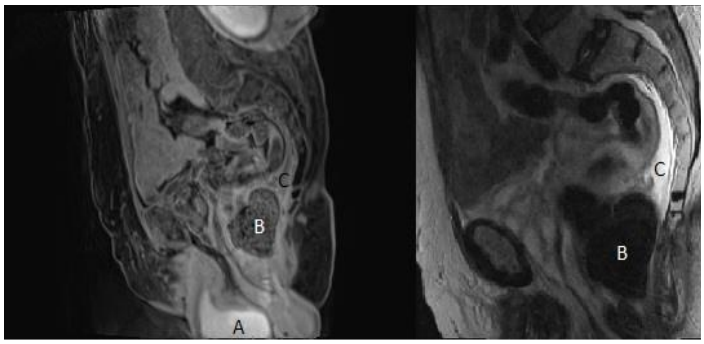


**Figure 3.** Pelvis MRI T1 (left) and T2 (right) images showing no uterus or ovaries, prolapsed bladder below the pelvic floor (A), focal rectal distension by stool (B) and infiltrative fluid in the presacral space (C).

## Discussion

Symptomatic pelvic organ prolapse can aflict up to 10% of women [4] and is one of the major indications for hysterectomy. In a Russian study by Mironov (2012) [5], bilateral ureterohydronephrosis was detected in 14 (12%) of 117 patients with pelvic floor prolapse. In patients with stage IV pelvic prolapse, the proportion of patients with hydronephrosis was much higher (22.6%). In an Italian study by Constantini et al. [6], an overall of 257 patients presented with pelvic organ prolapse and lower urinary tract symptoms and underwent repair; 13 (5%) suffered from hydronephrosis. The renal function at diagnosis was normal in 12 of these 13 patients. In a Chinese study by Hui et al. [7], the prevalence of hydronephrosis was 10.3% in patients with pelvic organ prolapse and patients with stages III and IV prolapse were at particular higher risk. In an Israeli study by Gemer et al. (1999) [8], of 189 patients with pelvic organ prolapse who underwent preoperative renal imaging studies 31 (17.4%) had hydronephrosis; of which 20 (10.6%) was mild, 7 (3.7%) was moderate and 4 (2.7%) was severe. In an American study at the Cleveland Clinic Foundation by Beverly et al. (1997) [9], of the 323 patients with pelvic organ prolapse who had preoperative renal ultrasounds and intravenous pyelograms, 25 (7.7%) had hydronephrosis, of which 13 (4.0%) had mild hydronephrosis, 9 (2.8%) had moderate hydronephrosis, and 3 (0.9%) had severe hydronephrosis. Two patients with hydronephrosis had evidence of renal insuficiency (creatinine> or = 1.6), and both had severe bilateral hydronephrosis and complete procidentia.

This is an interesting case because of the pathomechanism of hydronephrosis in this elderly frail lady with multiple comorbidites who does not have a clear organic cause for occlusion or obstruction with preservation of renal function. As a statistically significant association has been reported between pelvic floor prolapse and bladder outlet obstruction [10] we believe that the downward descent of the distended water-balloon-like bladder in a patient with pelvic floor prolapse and without

the support of a uterus causes stretching of the lower parts of the ureters on both sides resembling quasi-physiological narrowing (Figure 4) and resulting in hydronephrosis with dilatation of the renal pelvis and calyces that would not be present in a normal kidney (Figure 4).

**Figure 4.** The hanging water-balloon theory: Stretching and narrowing of the lower parts of the ureters due to pelvic floor prolapse and descending full bladder.

## Conclusion

Gynecologists and internists should be aware of the strong association of bilateral hydronephrosis with pelvic floor prolapse in female patients with normal renal function.

## References

1. B ae EJ, Kang Y, Seo JW, Hwang K, Cho HS et al. Obstructive uropathy by total uterine prolapse leading to end-stage renal disease. Ren Fail. 2012, 34(6): 807-809.

2. S anai T, Yamashiro Y, Nakayama M, Uesugi N, Kubo N et al. End-stage renal failure due to total uterine prolapse. Urology. 2006, 67(3): 622e5-7.

3. Moslemi MK, Abedinzadeh M, Nazari A. Obstructive uropathy due to prolapsed lower ureters and bladder in patients with severe procidentia: A report of two cases. Int J Surg Case Rep. 2013, 4(3): 348-350.

4. Ahmed F, Sotelo T. Management of pelvic organ prolapse. Can J Urol. 2011, 18(6): 6050-6053.

5. Mironov VN. [Ureterohydronephrosis at pelvic prolapse in women]. Urologiia. 2012, 21-23.

6. Costantini E, Lazzeri M, Mearini L, Zucchi A, Del Zingaro M, et al. Hydronephrosis and pelvic organ prolapse. Urology. 2009, 73(2): 263-267.

7. Hui SY, Chan SC, Lam SY, Lau TK, Chung KH. A prospective study on the prevalence of hydronephrosis in women with pelvic organ prolapse and their outcomes after treatment. Int Urogynecol J. 2011, 22(12): 1529-1534.

8. Gemer O, Bergman M, Segal S. Prevalence of hydronephrosis in patients with genital prolapse. Eur J Obstet Gynecol Reprod Biol. 1999, 86(1): 11-13.

9. Beverly CM, Walters MD, Weber AM, Piedmonte MR, Ballard LA. Prevalence of hydronephrosis in patients undergoing surgery for pelvic organ prolapse. Obstet Gynecol. 1997, 90(1): 37-41.

10. López González PA, López López AI, López Cubillana P, Escudero Bregante F, Doñate Iñiguez G et al. [Does cystocele have a role in bladder outlet obstruction]. Actas Urol Esp. 2010, 34(2): 189-193.