



An unusual case: right proximal ureteral compression by the ovarian vein and distal ureteral compression by the external iliac vein

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ABSTRACT

A 32-years old woman presented to the emergency room of Bozok University Research Hospital with right renal colic. Multidetector computed tomography (MDCT) showed compression of the proximal ureter by the right ovarian vein and compression of the right distal ureter by the right external iliac vein. To the best of our knowledge, right proximal ureteral compression by the ovarian vein together with distal ureteral compression by the external iliac vein have not been reported in the literature. Ovarian vein and external iliac vein compression should be considered in patients presenting to the emergency room with renal colic or low back pain and a dilated collecting system.

Keywords: Distal ureteral compression; proximal ureteral compression; ovarian vein; external iliac vein

INTRODUCTION

The ureters are a pair of tubular structures that carry urine from the kidneys to the bladder with peristaltic movement. The ureters are about 25-30 cm long and 3 mm in diameter. In the abdominal cavity, several anatomical structures are neighboring to the ureters. If a complication occurs in one of the neighboring structures, it can cause an obstruction of the ureter. This includes complications related to the renal artery (1), retrocaval ureter (2), pregnancy (3), and

the testicular vein (4). In addition, abdominal mass, ovarian vein syndrome (5-7), and iliac artery aneurysm (8) are also associated with ureteral obstructions.

CASE REPORT

A 32-years old woman presented to the emergency room of Bozok University Research Hospital with right renal colic. Written informed consent was obtained from this patient.

The medical history of the patient showed that she had dysuria, urinary frequency, hematuria, intermittent urinary tract infection, and lower abdominal, pelvic, and right flank pain for 3 years. In addition, the women had no family history of congenital disease.

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The ultrasound (US) examination showed mild dilatation in the right collecting system. Urinary stone was not detected in the US results nor in the radiographs. Intravenous pyelogram (IVP) showed mild dilatation of the right proximal ureter and pelvicalyceal structures. The multidetector computed tomography (MDCT) urography revealed marked compression of the proximal ureter on the anterolateral aspect by the right ovarian vein (Figure 1). Right ureteral dilatation (8.6 mm) and grade 1 pelvicalyceal ectasia occurred due to the compression. In addition, the right distal ureter was compressed by the right external iliac vein (Figure 2) (Figure 3). A short segment ureteral dilatation (9.3 mm) was observed proximal to the compression. The results of the blood chemistry tests were normal (creatinine: 0.69 mg/dL, potassium: 4.1 mEq/L, blood urea nitrogen: 16.3 mg/dL). According to the urinalysis, the number of red blood cells was 7/HPF and the number of white blood cells was 2/HPF. Required analgesia for the patient was provided. The patient's renal function was not affected and follow-up was suggested. After 3 months, the examination showed no pain and recurrent urinary tract infection was not observed. In the US examination mild dilatation in the right kidney was observed.

DISCUSSION

Causes of ureteral compression include the renal artery (1), retrocaval ureter (2), pregnancy (3), the testicular vein (4), abdominal mass, ovarian vein syndrome (5-7), and iliac artery aneurysm (8). The present case shows a right proximal ureteral obstruction due to the ovarian vein and a distal ureteral obstruction due to the external iliac vein.

First Hodgkinson, and later Southwell and Bourne, reported that increased venous pressure causes dilation of the ovarian vein. As the result, the vein compresses the ureter. Dilated ovarian veins can cause dysuria, urinary frequency and urgency, gross hematuria, renal colic, lower back pain, and lower abdominal and pelvic pain. A chronic ureteral obstruction can occur repeatedly in patients, resulting in suffering from the disease for a long time, requiring several surgical procedures, or developing renal dysfunction (9). The renal function of our patient was not affected. In addition, no urinary tract infection was observed and the laboratory test results were normal.

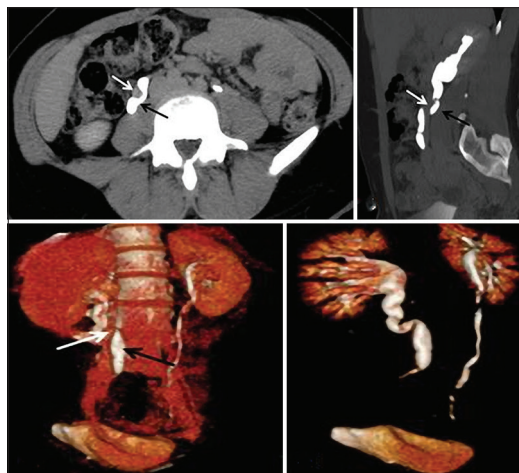


FIGURE 1. In late venous phase contrast-enhanced CT, axial, sagittal-oblique maximum intensity projection (MIP), and three dimensional volume rendering (3D-VR) images show the right proximal ureteral compression (black arrow) by the right ovarian vein (white arrow).

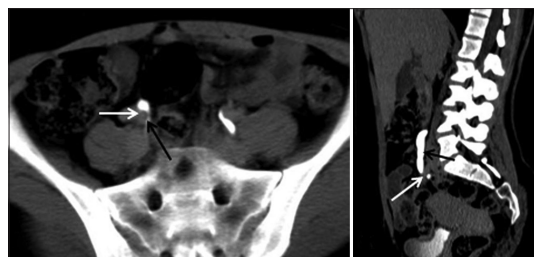


FIGURE 2. In late venous phase contrast-enhanced CT, axial and sagittal-oblique images show the right distal ureter (black arrow) compressed by the right external iliac vein (white arrow).

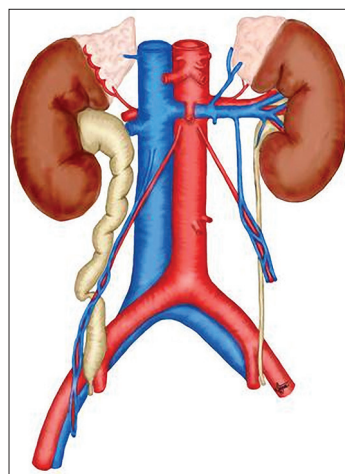


FIGURE 3. An anatomic illustration of right ureteral compression by the right external iliac vein.

To our knowledge, a ureteric obstruction with the external iliac vein has not been reported in the literature. However, cases of a ureteral obstruction caused by external iliac artery aneurysms have been showed (8). In addition, Singh et al. reported external iliac artery aneurysms as the cause of a ureteric obstruction in a solitary kidney in four cases (10).

CONCLUSION

To the best of our knowledge, this is the first report of right proximal ureteral compression by the ovarian vein together with distal ureteral compression by the external iliac vein. MDCT urography can provide information in the case of vascular compression. Ovarian vein and external iliac vein compression should be considered in patients presenting to the emergency room with renal colic or low back pain and a dilated collecting system.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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