Emphysematous pyelonephritis secondary to bilateral ovarian vein syndrome


ABSTRACT

Ovarian vein syndrome is a rare entity and therefore is not often diagnosed. It has no specific symptoms and so multiple imaging studies are available as part of the diagnostic protocol. The most useful are venography and tomography, the latter employed for its non-invasive quality. Treatment is basically surgical and laparoscopy is the indicated technique when the disease is symptomatic and/or presents renal repercussions. The principal goal is clinical improvement and complete morphological and functional regression. We present the clinical case of a patient with emphysematous pyelonephritis secondary to grade IV bilateral ovarian vein syndrome, a combination that is not described in the literature.

Keywords: Ovarian vein syndrome, emphysematous pyelonephritis, Mexico.

INTRODUCTION

Ovarian vein syndrome is a ureteral dilatation secondary to ovarian vein dilatation initially described by Clark in 1964 who defined it as ureteral obstruction secondary to ovarian vein dilatation. It can be classified as acute and chronic, caused by thrombophlebitis of the ovarian vein in the postpartum period, presenting months or years after childbirth, respectively.

The ovarian veins are multiple small venous channels that receive drainage from the uterus forming a single ovarian vein that passes the iliac intersection in...
front of the ureter and ends in the vena cava on the right side and in the renal vein on the left. It is this anatomic relation that makes obstruction possible.

The majority of cases are diagnosed during pregnancy, with a 70 to 90% predominance on the right side, and it is bilateral in only 11% of the cases. Although it is rare, it can be potentially fatal due to postpartum sepsis from vena cava and/or renal thrombosis or pulmonary embolism. It is more frequent in multiparous women. Its physiopathology includes the existence of an aberrant ovarian vein, a fibrous sheath, ovarian vein thrombophlebitis, or tumors invading the vena cava.

Clinical symptoms do not often present as recurrent urinary infection. Symptoms are related to hydronephrosis or pyelonephritis with flank pain, fever, malaise, or pyuria. Thrombophlebitis is a well-known condition that rarely causes ureteral obstruction. Nephroureteral crisis symptoms often present or become worse during menstruation. Position also plays a role in the presentation of symptoms and two pathologies should be differentiated: renal ponsis, in which the pain appears or increases when the patient is in the standing position, and ovarian vein syndrome, in which the pain appears in the decubitus position.

In order to make the diagnosis, the patient is initially studied through ultrasound and urography to show ureteropyelocaliectasis. Ureteral stricture or stop should be suspected at the site where the ureter and ovarian vein come into contact.

Diagnosis should include excretory urography accompanied with retrograde pyelography and the crossing of the gonadal vein should be demonstrated through tomography or venography. Partial ureteral obstruction at the L4-L5 or at the pelvic ring is characteristically found with imaging studies. Urerteropyelography is only indicated when the distal ureter cannot be seen. Histologically, the vessels are normal or present with mild fibrosis due to regional inflammation.

Treatment is surgical and when the process is symptomatic, traditional ureterolysis should be performed. The optimum approach is laparoscopic and can be transperitoneal or retroperitoneal. The latter is indicated in those patients that have undergone abdominal procedures and are at risk for visceral injury. Laparoscopy has the advantages of reduced morbidity and shorter hospital stay and convalescence. Open surgery is indicated in patients at high risk for pulmonary embolism (thrombophlebitis). The desired treatment result is the improvement in or disappearance of symptomatology, with images of residual ectasia, even though a complete morphologic and functional regression has been attained in some patients.

## CASE PRESENTATION

The patient is a 53-year-old woman with a past medical history of systemic lupus erythematosus of three-year progression treated with prednisone; type 2 diabetes mellitus of six-year progression managed with NPH insulin; stage 4 chronic renal failure of 15-year progression with no need up to the present of substitutive nephrology management; hepatitis B of six-year progression managed with antiviral medication; a 20-year progression of high blood pressure managed with telmisartan; and splenectomy 34 years prior due to idiopathic purpura thrombocytopenia. The patient is allergic to penicillins and has recurrent urinary tract infections.

She was admitted to the hospital with anemia-causing and amorphous clot-forming gross hematuria, bilateral nephritic colicky pain, nausea and vomiting, with a systemic inflammatory response manifested by a poor general health status and symptoms of hyperthermia and hyporexia. The laboratory workup revealed total leukocytes of 12 400, hemoglobin 10.3 g/dL, hematocrit 31.1, platelets 441 000, glucose 140 mg, urea 117.1 mg/dL, uric nitrogen 55.0 mg/dL, creatinine 3.0 mg/dL, chloride 106 mmol/L, potassium 4.5 mmol/L, sodium 130 mmol/L, and urine culture positive for *Escherichia coli*. A plain urinary tract x-ray showed the presence of gas in the ureteral topography that was more evident in the upper third of the right ureter. A tomography scan showed signs of bilateral emphysematous pyelonephritis characterized by a collection of gas in the left renal cavities, in the renal parenchyma of the right upper pole, and in both ureters. Bilateral ureteropyelocaliectasis with no hyperdense images related to stones was also observed. Coronal views displayed the bilateral ureteropyelocaliectasis in the zone where the ureter and the ovarian vein cross.

## DISCUSSION

We present the case of a patient with urinary tract infection that was a complication of bilateral emphysematous pyelonephritis secondary to obstructive uropathy due to bilateral ovarian vein obstruction. This puts our patient in the 11% of cases in relation to the general presentation of the pathology, given that the imaging studies showed no evidence of any other obstructive action conditioning the ureteropyelocaliectasis and consequent emphysematous process. Clinical presentation was very nonspecific and the patient was admitted to the hospital for complications due to emphysematous pyelonephritis. Figure 1 shows an emphysematous process in the proximal third of the right ureter. Figure 2 shows bilateral ectasia with gas in the right upper pole.
of the renal parenchyma and in the left renal cavities and the left ureter. A notch is barely visible in the left upper ureter and a bit in the right, just below the ureteropelvic junction, which is where it crosses with the ovarian vein.

Figure 3 reveals how the left ovarian vein enters into the ipsilateral renal vein, producing ureteral ectasia at the iliac intersection. This is the site where the ovarian vein and the ureter cross, and where the previously mentioned notch is situated. This figure also
displays the right ectasia with parenchymal gas at the upper pole. Figure 4 shows that ectasia is produced on the right side by the crossing of the ovarian vein and the ureter at the level of the aortic bifurcation into primitive iliac arteries, and on the left side it is produced when the ovarian vein and the ureter cross each other at the ureteral intersection with the iliac vessels.

Bilateral diversion of the urinary tract with bilateral double-J catheter was performed on the patient and she had very poor clinical progression due to the septic process and to her comorbidities. The patient’s status continued to worsen, leading to her death.

**CONCLUSIONS**

Ovarian vein syndrome is very uncommon and its clinical presentation is nonspecific. When a patient does present with the signs and symptoms of the disease, rarely do we relate a nephroureteral crisis with the stages of gestation or the ovulation cycle. Our patient did not present with simple colic, but rather already manifested a septic process due to superimposed grade IV emphysematous pyelonephritis that, added to the context of the other comorbidities, led to her fatal outcome. The importance of this report, aside from the fact that there are no reported cases of emphysematous pyelonephritis related to ovarian vein syndrome, is making us aware that when a patient presents with nephritic colic with no apparent cause of obstruction, and acute symptoms during pregnancy or menstruation, ovarian vein syndrome should be suspected, because if it coexists with factors of immunosuppression or a general poor state of health, complications can arise, as was the case with our patient. By taking this into account we can have early diagnosis and provide opportune surgical treatment.

**REFERENCIAS**