PJSS Vol. 67, No. 1, January-March, 2012

PJSS PHILIPPINE JOURNAL OF SURGICAL SPECIALTIES

A Case Report on Ovarian Vein Syndrome

Rolley Rey P. Lobo, M.D., F.P.C.S.; Herman L. Sorongon Jr., M.D.; Glinard L. Quezada, M.D. and Katrina Jo T. Caballero, M.D.

Department of Surgery, Davao Doctors Hospital

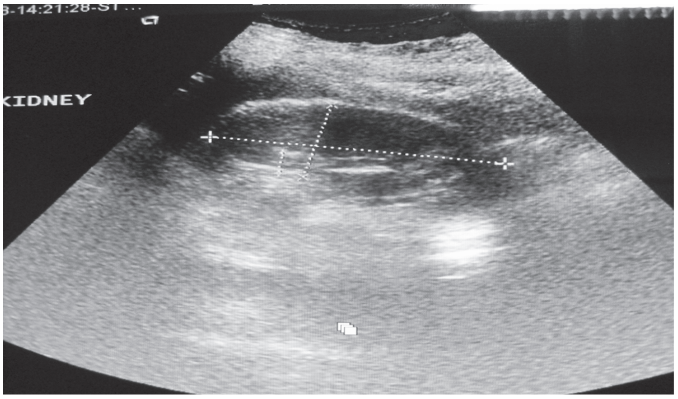
Ovarian vein syndrome is a rare condition of ureteral obstruction secondary to the normal overlying of the ovarian vein. The syndrome's existence is controversial and only a few cases worldwide had been reported. There are no documented cases in the Philippines. This is a case of a 23 year old female with ovarian vein syndrome. Presenting with hematuria associated with left flank pain, a dilated collecting system and proximal ureter on the left, with a vessel crossing over the point of obstruction, was documented on computed tomography. Ureterolysis and ligation of the offending ovarian vein were done via a laparoscopic approach. The postoperative course was unremarkable and on four-month out-patient follow-up, patient was symptom-free and had a complete resolution of his hydronephrosis.

Key words: ovarian vein syndrome

An initially asymptomatic 23 year old female was found to have microscopic hematuria on routine pre-employment medical examination. Review of her medical history revealed frequent urinary tract infections and occasional abdominal pain during her monthly menstruation. Her obstetric and gynecologic history were unremarkable. Ultrasonography of her kidneys showed renal parenchymal disease. (Figure 1A) She did not take any medications at that time and she was lost to follow-up. A year later, she began experiencing episodes of left flank pain of varying intensity.

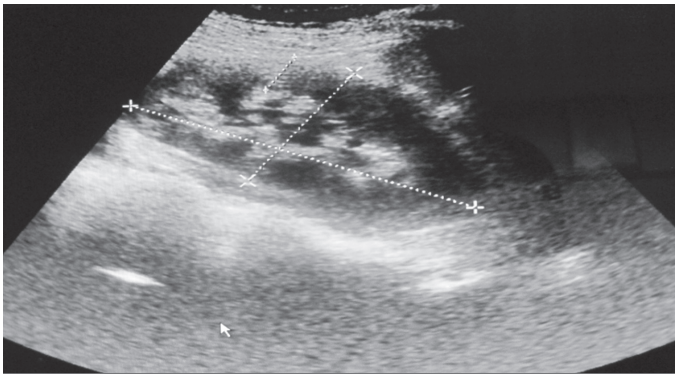
On physical examination, the patient was thin, with a BMI of 19.4. Abdominal findings were essentially normal. The ultrasonographic findings of her kidneys confirmed the previously noted parenchymal disease and this time showed hydronephrosis of the left kidney. (Figure 1B) Computed tomography showed a markedly dilated collecting system on the left, from the uretero-pelvic junction to the point of ureteral obstruction, where a vessel was noted to have crossed over. (Figures 2A & B) The vessel was assessed to be the left ovarian vein. There was no evidence of a mass nor a stone in the urinary tract. With the impression of Ovarian Vein Syndrome, the patient was counseled and advised laparoscopic surgical intervention.

The patient, on general anesthesia was positioned in a 45º right flank position for transperitoneal laparoscopy. A small incision was created on the umbilical area, carried down to the peritoneum. The Hasson's trocar was then inserted and fixed, allowing the passage of a 30º optic scope. Insufflation was initiated, and the pressure of the pneumoperitoneum was maintained at 12mmHg. The second (5mm) and third (10mm) trocars were inserted on the left midclavicular line in the hypochondrium and the iliac fossa, respectively. The descending colon was mobilized medially and the left ureter was carefully dissected in its entire length. The left proximal ureter was noted to be markedly dilated, from the uretero-pelvic portion down to the point where the left ovarian vein was seen to cross the ureter.



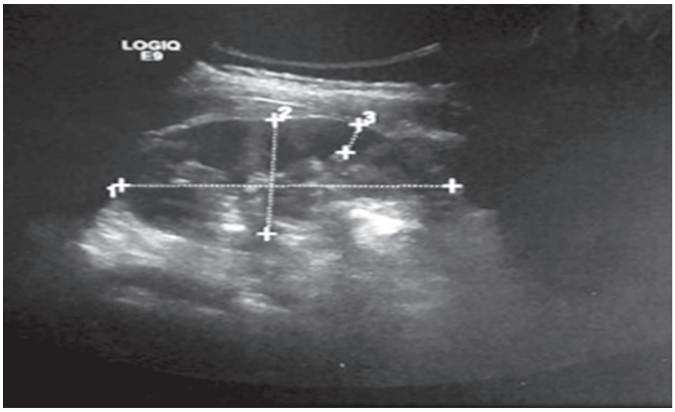
A

Sonography of the left kidney 1 year before consultation, showing renal parenchymal disease.



B

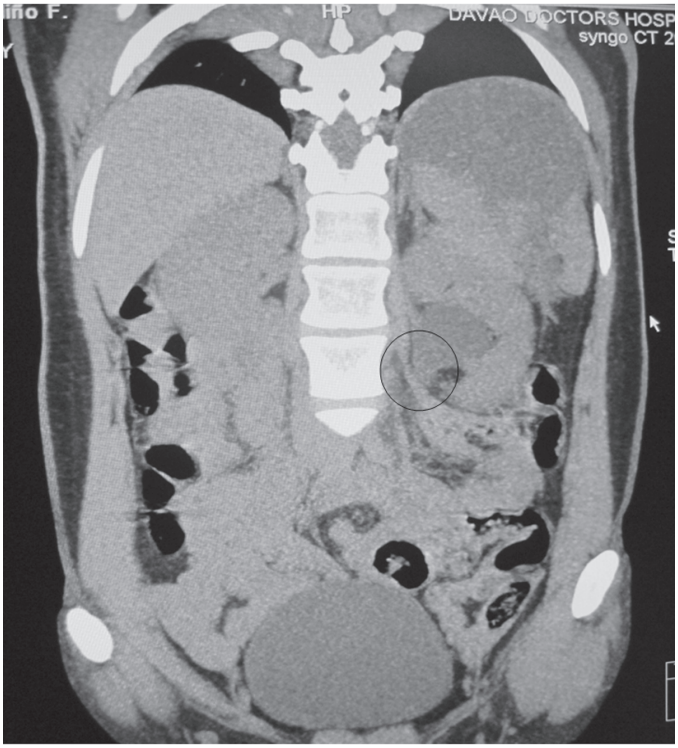
Sonography of the left kidney on consultation, showing renal parenchymal disease, with hydronephrosis.



C

Sonography of the left kidney, 4 months after the procedure, showing resolution of the hydronephrosis.

Figure 1. (A, B & C) Ultrasonography of the left kidney.



A

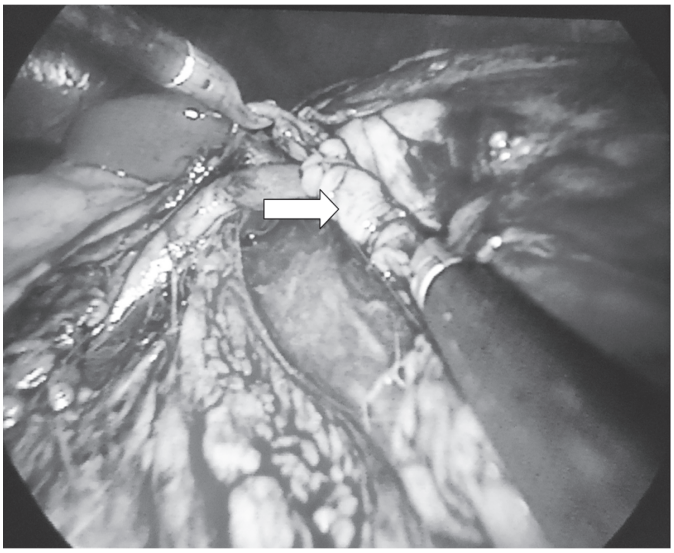
CT findings (coronal view), before surgery, showing ovarian vessel crossing below the dilated ureteropelvic junction and proximal ureter.

B

CT findings (axial view), before surgery, showing dilated collecting system and proximal ureter.

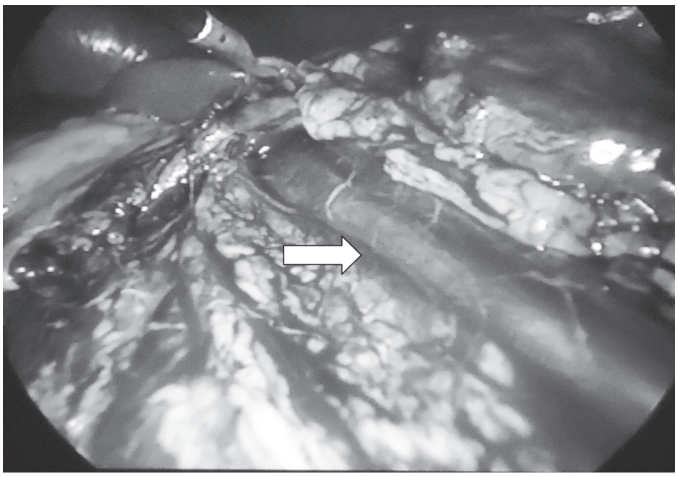
Figure 2.(A & B) Computed tomography findings.

Beyond this point, the left ureter had a normal diameter. Careful dissection to free the ovarian vein from its fibrotic attachments to the renal vein and the left ureter was done. (Figures 3A & B) The offending ovarian vein was then ligated using two Hem-o-Lok ligatures and separated about the point where it crossed the ureter. (Figure 3C)



A

Fibrous adhesion thickly surrounding the renal vein, ureter and ovarian vein.



B

After ureterolysis and ligation of the ovarian vein (Note the difference in the diameter of the ureter indicated by ➔)

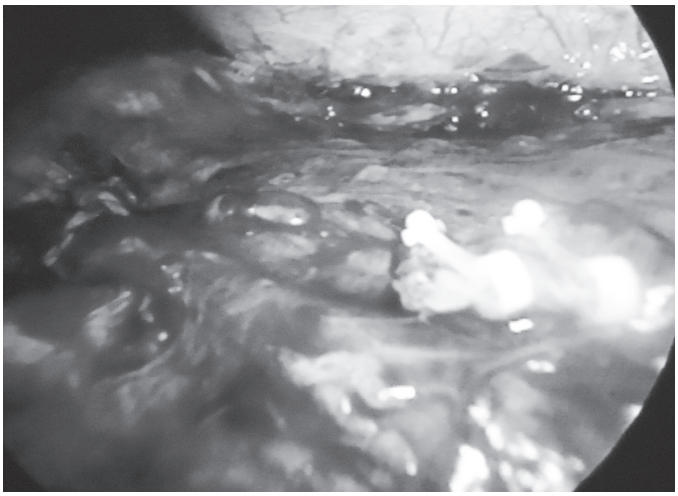
The postoperative course of the patient was uneventful, without any analgesic requirements in the immediate postoperative period. She was discharged 72 hours post-surgery.

On follow-up, the patient was asymptomatic, 4 months after the procedure. A repeat computed tomography of the kidneys showed complete resolution of the hydronephrosis with no evidence of ureteral obstruction. (Figures 2 C & D)

Discussion

The ovarian vein initially has its tributaries from the uterine region and merges to form a single vessel before it crosses the pelvic rim. In its course along the iliac vessels, the vein passes anterior to the ureter, and then crosses over it at the level of the fourth or fifth lumbar vertebral bone as the right drains in the inferior vena cava while the left ends in the renal vein. These anatomical relations are believed to be areas of possible areas for ureteral obstruction.

Ovarian vein syndrome was first reported by Clark in 1964[1], who attributed the rare ureteral obstruction, to the normal anatomic relationship between the ureter and



C

Distal stump of ovarian vein.

Figure 3. (A, B & C) Intraoperative findings.

the ovarian vein. Since this initial description, various authors have implicated different factors which may cause or contribute to the its pathogenesis: an increase in pressure of the dilated ovarian vein[2,3], presence of an aberrant ovarian vein[4], the existence of a fibrous sheath[1], an ovarian vein thrombosis[5], or tumors invading the vena cava.[2,6]

Anatomically, the gonadal vein passes superiorly and medially to enter the inferior vena cava or renal vein and causes minimal oblique indentation with medial deviation of the ureter in the L3-L5 region and same indentation is seen as it encounters the iliac arteries at the S1 level, as reported by Dure-Smith[4]. A dilated ovarian vein will result in a more pronounced proximal ureteral indentation in the lumbar region than what is normally observed while the ureter is oftentimes fixed to the vein at this level. In addition, as the dilated vessel runs lateral and parallel to the mid-ureter, these veins would turn medially to drain the pelvic brims, intersecting the ureter at the point where it crosses the iliac artery, thus in effect causing another point of obstruction on the ureter at this level.

A number of conditions may contribute to the dilation of the gonadal vessels, such as previous pregnancy, either from compression of the expanding uterus or due to hormonal effects of progesterone[2]. Obstruction to the renal vein by thrombosis or compression from neoplasm, lymph nodes or other surrounding structures that may cause renal outflow obstruction leading to incompetent venous drainage, or obstruction to the ovarian vein due to thrombophlebitis, were reported by Melnick in 1971, as causes for the dilatation of the ovarian vein which in consequence resulted to ureteral obstruction.

Melnick and Bratwit were also able to document cases of ovarian vein syndrome attributed to the multiple thickened adhesions between the ovarian vein and the ureter throughout most of its course[2]. Marked adhesions are mainly attributed to local inflammation and/or recurrent episodes of urinary tract infection with peri-urethral fibrosis.

There were only few reported cases of this phenomenon throughout the world and only a handful of information was contributed since its first encounter by Clark. Patients initially presented with recurrent episodes of lumbar or flank pain, recurrent urinary tract infections or in fewer cases, hematuria. It is mostly recognized in parous women and the right ovarian vein is most commonly involved, although the disease can be left sided or can affect both sides.

Diagnosis is often difficult to establish as it may mimic other disease entities. Most reported cases were only diagnosed intra-operatively. However, coupled with a high index of suspicion, there are several modalities that can aid in its diagnosis. Ultrasonographic, urographic contrast studies, as well as computed tomography or magnetic resonance imaging, that demonstrate uretero-pelvic dilatation with signs of obstruction at the ureteral level on the affected side are currently available.

Classical management of ovarian vein syndrome involves ureterolysis and ligation of the involved vessel. Clark, as well as Dykhuizen and Roberts recommends ligation of the offending ovarian vein[1,3]. In the advent of minimally invasive surgery, laparascopy is advocated as the management of choice. A number of articles have been published comparing the results of open and laparoscopic surgery for the management of ovarian vein syndrome[7]. The laparoscopic approach was reported to have a lower morbidity, and a shorter hospital stay and recovery period[8].

References

1. Clark JC. The right ovarian vein syndrome. In: Emmett JJ (ed): Clinical Urography: An Atlas and Textbook of Roentgenologic Diagnosis. 2nd ed. Philadelphia: W.B. Saunders Company. 1964; 1227-1236.
2. Melnick RG and Bramwit DM. Bilateral ovarian vein syndrome. Am J Roentgenol Radium Ther Nucl Med 1971; 509-512.
3. Dykhuizen RF, Roberts JA. The ovarian vein syndrome. Surg Gynecol Obstet 1970; 130: 443-452.
4. Dure-Smith P. Ovarian syndrome: Is it a myth? Urology 1979; 13: 355-364.
5. Hubmer G. The ovarian vein syndrome. Eur Urol 1978; 4: 263-268.
6. Ashleigh RJ, Sambrook P. Case report: unilateral hydronephrosis following obstruction of the inferior vena cava by tumour thrombus. Clin Radiog 1991; 44: 130-131.
7. Tourné G, Ducroux A, Bourbon M, Blinding H. The ovarian vein syndrome: eight cases and review of the literature. J Gynecol Obstet Biol Reprod (Paris). 2002; 31(5): 471-477. (PubMed)
8. Elashry OM, Nakada SY, Wolf Jr JS, Figenshau RS, McDougall EM, Clayman RV. Ureterolysis for extrinsic ureteral obstruction: a comparison of laparoscopic and open surgical techniques. J Urol 1996; 156: 1403-1410.

Are You Moving?

If you are changing your address,
let us know in advance to assure
uninterrupted delivery of the
Philippine Journal of Surgical Specialties

Direct all communications to:

EDEN GRACE A. PAULE
Philippine Journal of Surgical Specialties
PCS Bldg., 992 EDSA
Quezon City, Philippines
Telephone: 9274974
Facsimile: 9292297