Case Report

Transverse mobility of pelvic kidney causing left lower extremity deep venous thrombosis

Christopher P. Vittore MD*, Robert A. Murray MD

Department of Radiology, OSF St. Anthony Medical Center, University of Illinois College of Medicine, 5666 E. State St, Rockford, IL 61108, USA

ARTICLE INFO

Article history:
Received 13 October 2016
Accepted 18 December 2016
Available online 13 January 2017

Keywords:
May-Thurner
Pelvic kidney
Deep venous thrombosis

ABSTRACT

A case of May-Thurner-like syndrome was found to be a result of a pelvic kidney compressing the left common iliac vein. Cross-sectional imaging demonstrated transverse mobility of the pelvic kidney which has not been described previously. The ectopic kidney’s mobility resulted in intermittent venous compression. In a patient with recurrent lower extremity deep venous thrombosis and a pelvic kidney, the possibility of movement of the kidney resulting in venous compression needs to be considered.

© 2016 the Authors. Published by Elsevier Inc. under copyright license from the University of Washington. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Introduction

Recurrent episodes of lower extremity deep venous thrombosis (DVT) with negative laboratory workup for thrombophilia raise concern for venous compression. When the involvement is limited to the left side, the cause may be compression of the left common iliac vein by the right common iliac artery. The resulting left lower extremity pain, swelling, and thrombosis is known as May-Thurner syndrome. Although catheter venography has been considered the standard of reference, computed tomography (CT) and magnetic resonance venography (MRV) have proven useful in making the diagnosis. Additionally, they can exclude alternative causes of pelvic vein compression such as lymphadenopathy or uterine fibroids. We present a patient with a unique mechanism for left common iliac vein compression causing recurrent DVT: a mobile pelvic kidney. There are rare reports of pelvic kidneys producing lower limb DVT. However, the situation we present is unique, as it shows the transverse mobility a pelvic kidney may possess and the resultant potential for significant intermittent venous compression.

Case report

A 43-year-old woman had recurrent episodes of DVT involving her left lower extremity. She had undergone gastric bypass surgery for morbid obesity with successful weight reduction. Her first DVT occurred a year after gastric bypass surgery, soon after a panniculectomy surgery. Five years later, a laparoscopic vaginal hysterectomy was performed for an enlarged fibroid uterus. The surgeon reported lysis of extensive adhesions to the anterior abdominal wall at the time of hysterectomy. Left lower extremity DVT developed two more times during the next 5 years. Although she was positive for anticardiolipin antibody, her hypercoagulability workup was otherwise negative.

* Corresponding author.
E-mail address: cvittore77@yahoo.com (C.P. Vittore).
http://dx.doi.org/10.1016/j.radcr.2016.12.004

© 2016 the Authors. Published by Elsevier Inc. under copyright license from the University of Washington. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
The patient’s recurrent left lower extremity DVT raised concern for May-Thurner syndrome so an MRV was ordered. The study showed no compression of the left common iliac vein by the right common iliac artery but instead demonstrated the left common iliac vein narrowed between a left pelvic kidney and the fifth lumbar vertebra (Fig. 1). No DVT was present at the time of the MRV study. Surprisingly, a pelvis CT scan performed a year earlier showed the kidney in a more lateral position, anterior to the left psoas muscle (Fig. 2). The left common iliac vein at that time had a normal diameter. No surgeries had been performed in the interval between the two imaging studies. Since the patient had recurrent DVT despite medical management with anticoagulation, plans were made for stenting of the left iliac vein.

Discussion

The developing kidney typically ascends to its orthotopic position between the sixth and ninth weeks of gestation. Failure of ascent above the pelvic brim results in an ectopic kidney. Pelvic kidneys occur with an incidence estimated between 1 in 2200 to 1 in 3000, left more than right [1]. Most pelvic kidneys are asymptomatic although ureteropelvic junction obstruction and reflux are seen with increased frequency [2]. Prior reports of a pelvic kidney associated with left lower extremity DVT include a child with direct common iliac vein compression [3] and an elderly woman with indirect common iliac vein compression [4]. To our knowledge, this is the first description of significant transverse mobility of a pelvic kidney resulting in compression of the left common iliac vein with recurrent DVT in the left lower extremity. The orthotopic kidney is known to occasionally show gravity-dependent craniocaudal positional change known as nephroptosis. There is even a documented case of upward movement of a pelvic kidney during bladder filling [5]. However, the transverse movement of a pelvic kidney is unexpected. For this patient, it may be due to a reduction in the volume of pelvic fat following the patient’s gastric bypass surgery since her first episode of DVT occurred a year after her surgery. Pelvic anatomic alteration related to removal of an enlarged fibroid uterus and lysis of nearby adhesions may have contributed to the transverse mobility of the pelvic kidney as well. Treatment of May-Thurner syndrome usually consists of thrombolysis or thrombectomy followed by left iliac stenting [6]. This strategy would probably be best for treating this patient’s May-Thurner-like syndrome as well.

The importance of this case lies in the fact that a pelvic kidney may be a source of recurrent DVT even if it is not causing venous compression at the time of initial imaging. A pelvic kidney has potential for significant transverse movement, which may result from weight loss and/or pelvic surgery.

References

[1] Stevens AR. Pelvic single kidneys. J Urol 1937;37:610–8.
[2] Gleason PE, Kelalis PP, Husmann DA, Kramer SA. Hydronephrosis in renal ectopia: incidence, etiology and significance. J Urol 1994;151(6):1660–1.
[3] Eng JM, Walor DM, Michaelis LA, Weiss AR. An unusual presentation of May-Thurner Syndrome in a pediatric patient with a pelvic kidney. J Pediatr Urol 2013;9(1):e72–5.
[4] Sahnan K, Yee CPY, Thomas RH, Srinatharan K. A rare case of May-Thurner-like syndrome in an elderly lady. Case Rep Intern Med 2014;2014(2):19–24.
[5] Serpa MA, Rosenberg RJ, Spencer RP. Mobility of pelvic kidney demonstrated during bladder filling. Clin Nucl Med 1996;21(4):346–7.
[6] Patel NH, Stookey KR, Ketcham DB, Cragg AH. Endovascular management of acute extensive iliofemoral deep venous thrombosis caused by May-Thurner syndrome. J Vasc Interv Radiol 2000;11(10):1297–302.