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Case Report

Rare presentation and endovascular treatment of multifocal iliac venous stenoses due to right sided May-Thurner Syndrome

Aaron Rohr, MD, MS*, Kevin Maxwell, MD, Shaun Best, MD, Steven Lemons, MD, Philip Johnson, MD

University of Kansas Medical Center, Department of Radiology, 3901 Rainbow Boulevard, Mail Stop 4032, Kansas City 66160, Kansas

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ABSTRACT

May-Thurner Syndrome (MTS) is a well-recognized anatomical variant describing compression of the left common iliac vein and may manifest as lower extremity swelling, pain, ulceration, discoloration, and paresthesia. Right-sided MTS is documented in the literature, though exceedingly rare. Specifically, no current reports describe a multifocal stenoses of the right iliac vein due to anatomical variants associated with left sided IVC. We present a case involving a patient with this pathophysiology, radiographic/sonographic correlate imaging, and subsequent endovascular treatment.

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Introduction

May-Thurner Syndrome (MTS) is a well-recognized anatomical variant describing compression of the left common iliac vein via the right common iliac artery and the vertebral body posteriorly. Initial presentation can vary, but symptoms may include lower extremity swelling, pain, ulceration, discoloration, and paresthesia [1,2]. Current treatment methods vary, but predominantly involve catheter-directed thrombolysis, thrombectomy, angioplasty, and/or stent placement [3,4]. A unique phenomenon termed right-sided MTS involves compression of the right common iliac vein (RCIV) from a left sided inferior vena cava (IVC) via the left common iliac artery.

This pathophysiology is exceedingly rare in the literature [5,6]. Upon review, no current reports describe a multifocal stenoses of the right iliac vein due to anatomical variants associated with left sided IVC.

Case report

We present a 41-year-old female with right-sided MTS, recurrent unprovoked DVT with acute onset of right lower extremity (RLE) swelling/pain. Patient had previously experienced RLE DVT that resolved with anticoagulation. Upon this readmission, a bedside ultrasound demonstrated right iliofemoral

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* Corresponding author.

E-mail address: arohr@kumc.edu (A. Rohr).

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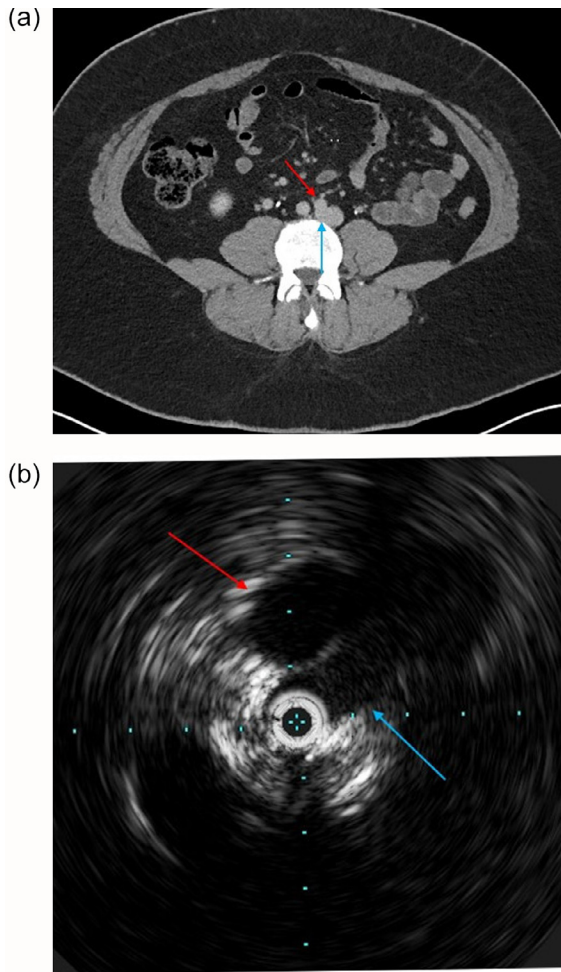


Fig. 1 – (a) Computed tomographic venogram (CTV) demonstrating left sided inferior vena cava (IVC) with compression of the right common iliac vein (RCIV, blue arrow) via the left common iliac artery (LCIA, red arrow) and (b) intravascular ultrasound (IVUS) re-demonstrating compression of the RCIV (blue arrow) via the LCIA (red arrow). (Color version of figure is available online.)

deep venous thrombus (DVT) extending to the popliteal vein. Subsequent computed tomographic venography revealed a left sided IVC with compression of the RCIV secondary to the overlying left common iliac artery (Fig. 1). Therapeutic anticoagulation was initiated and interventional radiology (IR) was consulted for catheter directed treatment 48 hours later, given the extrinsic etiology of the recurrent thrombus.

The patient underwent planned catheter-directed angioplasty and stent placement. The right popliteal vein was accessed with a 9F sheath (Cook, Bloomington, IN) while the patient was receiving therapeutic intravenous heparin. Initial venography demonstrated markedly improved femoral/popliteal thrombus with persistent areas of thrombus and narrowing involving the right iliac vein status post 48 hour anticoagulation. Angioplasty with an 18 mm Atlas balloon (BD, Tempe, Arizona) was utilized throughout the RCIV. Subsequent venography revealed persistent focal narrowing

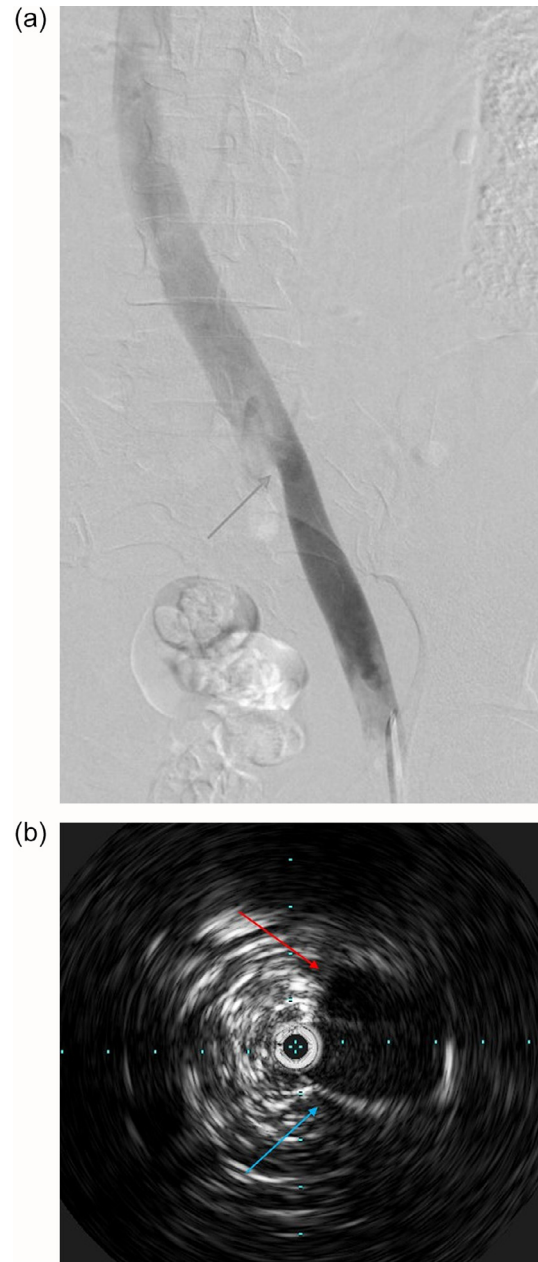


Fig. 2 – (a) Digitally subtracted venography (DSV) demonstrating focal luminal narrowing of the RCIV (blue arrow) adjacent to the confluence of the internal and external iliac vein with (b) correlate IVUS demonstrating narrowing of the RCIV (blue arrow) secondary to the left internal iliac artery (red arrow). (Color version of figure is available online.)

of the RCIV directly prior to the bifurcation of the external/internal iliac vein (Fig. 2). Of note, the compression of the RCIV due to right-sided May Thurner was less appreciated on venography, likely secondary to the 2-dimensional properties of planar imaging. Intravascular ultrasound (IVUS) was then utilized and redemonstrated narrowing of the RCIV secondary to right sided May-Thurner (Fig. 1). An additional segment of narrowing adjacent to the external/internal iliac confluence



Fig. 3 – DSV demonstrating patency of the right iliac vein status post plasty and stent placement without evidence of high-grade stenosis.

due to the overlying right internal iliac artery was noted, which correlated with venography findings (Fig. 2). Given the persistent multifocal venous narrowing, a single 18 mm x 120 mm Venovo stent (BD, Tempe, Arizona) was deployed in the right iliac vein, traversing both levels of stenoses. After angioplasty, a subsequent venogram demonstrated patency without high grade stenosis (Fig. 3).

Discussion

Right-sided May Thurner is a documented, though unique entity. Multifocal stenoses of the right iliac vein, presumably due to the anatomical variance of confounding left IVC, is exceedingly rare, if ever reported. Our case highlights this phenomenon, the associated unprovoked DVT, and documents the relevant radiographic/sonographic findings. Additionally, this case illuminates the diagnostic restraints of planar imaging associated with venography, highlighting the fact that correlation with available computed tomographic venography or intravascular ultrasound can be instrumental in diagnoses. Lastly, the multifocal occlusive disease process can be appropriately treated with utilization of a single endovascular stent, in the appropriate clinical setting.

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