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Jessica A. Young

*HCA Healthcare*, [jessica.young6@hcahealthcare.com](mailto:jessica.young6@hcahealthcare.com)

Stephen Zweibach

*HCA Healthcare*, [stephen.zweibach@hcahealthcare.com](mailto:stephen.zweibach@hcahealthcare.com)

Nicole L. Plenty

Tiffany Tonismae

*HCA Healthcare*, [tiffany.tonismae@hcahealthcare.com](mailto:tiffany.tonismae@hcahealthcare.com)

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Managing May-Thurner Syndrome and Associated Complications Throughout Pregnancy & Postpartum

HCA Healthcare/USF Morsani College of Medicine GME Programs

Jessica A. Young, MD; Tiffany Tonismae, MD

**Background:** May-Thurner syndrome (MTS) is a congenital anatomic variation of the right iliac vein which causes outflow obstruction of the left common iliac vein. While rare, patients with this syndrome are at increased risk of injury, including proximal deep vein thrombosis (DVT) [1-3]. Risk of thrombosis is further exacerbated during pregnancy. Here we present a rare case of MTS diagnosed during early pregnancy due to multiple simultaneous thromboses.

**Case Report:** A 32-year-old G3P2 at 9 weeks and 1 day with past medical history of complex migraines presented to the emergency room (ER) with complaints of continued shortness of breath and chest pain one day after being diagnosed with a pulmonary embolism (PE) at a different facility. Echocardiogram was obtained to rule out any alternate pathology and ejection fraction (EF) was found to be 55-60%. One week prior to this hospitalization, she presented to the emergency room for shortness of breath, abdominal discomfort, and left lower extremity pain; the patient was found to have a right ovarian vein thrombosis as well as an abdominal thrombosis and subsequently diagnosed with MTS. Therapeutic lovenox (1 mg/kg twice daily) was initiated prior to discharge from the hospital. While repeat imaging studies at our facility (ultrasound of the aorta, common iliac veins, and lower extremities) did not reveal any active thrombi, therapeutic lovenox was continued due previous diagnosis, persistent symptoms, and active PE per maternal-fetal medicine (MFM), hematology-oncology, and vascular surgery recommendations.

At 27 weeks, patient presented to the ER for persistent shortness of breath and epigastric pain. Repeat echocardiogram was obtained with normal EF but other imaging noted a new PE. She was again seen by hematology-oncology and lovenox was increased. She was discharged home in stable condition. She returned at 32wks with severe pelvic pain with no evidence of preterm labor. MRI revealed right ovarian vein thrombosis and thromboses in the bilateral common femoral veins. She was discharged with instructions to continue with therapeutic lovenox.

She was scheduled for induction of labor at 37 weeks. Her lovenox was held 24 hours prior to admission. Her labor and delivery course were unremarkable. Lovenox was restarted 6 hours after delivery. She was discharged on postpartum day one in stable condition.

At three weeks postpartum, the patient was seen for routine follow-up by hematology. Repeat imaging revealed continued compression of the left iliac vein and the right ovarian vein thrombus with extension into the inferior vena cava remains stable. Lovenox was decreased to 70 mg every 12 hours and will continue for a minimum of three months. Imaging will be repeated prior to discontinuing anticoagulation with consideration for stenting of vein by interventional radiology.

**Discussion:** There are no approximations documented in the literature of prevalence of MTS amongst pregnant populations. While the true incidence of MTS is unknown as most patients remain asymptomatic, approximately 18-49% of patients diagnosed with left lower extremity DVT are found to have this syndrome. A retrospective analysis of CT scans revealed a prevalence of 22–24 % left iliac vein compression in the general population [1,2]. Risk of venous thromboembolism (VTE) is further exacerbated during pregnancy as seen in this case. One study estimates the relative risk of DVT is increased fivefold during pregnancy and up to twenty times during the postpartum period [3]. In the US, VTE is one of the leading causes of maternal mortality, accounting for 9.3% of all deaths [4]. Risk factors associated with MTS include: reproductive age females; oral contraceptive use; scoliosis of the lower lumbar; hypercoagulable disorders; and radiation exposure [5]. Traditionally, VTE is managed with

anticoagulants, such as weight-based unfractionated heparin and low-molecular weight heparin, considered safe in pregnancy [4]. Catheter-directed thrombolysis, pharmacomechanical thromboectomy, and open surgical thrombectomy requiring multiple fluoroscopic procedures are therapies available for treatment of VTE, however, these options are not routinely recommended in pregnancy due to risk of maternal bleeding and fetal teratogenesis and are only used if the risks of not treating the maternal patient greatly outweigh potential risks to the fetus [6-7]. Research is ongoing for endovascular devices that could directly deliver thrombolysis at the site of the clot without causing detrimental effects to mother and fetus; consensus recommendations are needed in the use of thrombolytics in pregnancy [8]. The ATOMIC registry demonstrated that patency rates for acute and long-term outcomes were 84% at 19 months and 93% at 20 months respectively [9]. There are no trials regarding the use of stents in pregnant patients, however, a few case reports of stents placed in pregnant patients at great risk of literally losing life and limb present surprisingly good overall maternal outcomes with limited effect to the fetus [6,7].

**Conclusion:** MTS should be a differential diagnosis for all cases of unprovoked left DVT and PE. We propose management of this patient as a potential strategy for future MTS cases.

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