Hello, and welcome to the April 2020 edition of *Vascular Disease Management*. I have chosen to comment on the article “Management of Thrombosed Contralateral Iliac Vein Secondary to Wallstent Extension Into the Inferior Vena Cava”, by Dr Qais Radaideh and colleagues.

I have chosen to comment on this article as iliac venous stenting has become a commonly performed interventional treatment of iliac venous compression, with or without concomitant venous thrombosis at the time of presentation. Historically, stenting was performed using the woven, stainless steel Wallstent (Boston Scientific) as it is available in appropriate sizes, affords excellent vascular scaffolding, and possesses excellent resistance to external compression in large-diameter iterations. Clinical outcomes with the Wallstent in venous stenting, both in the short and long term, have been excellent. Reported Wallstent fractures are uncommon. Limitations of the Wallstent include difficult precise initial positioning, as the Wallstent foreshortens longitudinally as it grows axially, and subsequent continued foreshortening as the stent continues to grow axially over time and therefore, foreshortens post placement. To allow for more accurate initial placement, the Wallstent delivery system was designed to allow recapture and repositioning even after up to 80% of the stent is deployed. Because of the continued axial growth and longitudinal shortening post placement, standard practice when treating common iliac vein compression was to place the stent across the iliac venous bifurcation to ensure stent coverage at the area of compression. This and other self-expanding stents are typically sized larger than the reference vessel to prevent migration of the stent, and to improve patency and hemodynamic flow. Often the inferior vena cava (IVC) is not much larger in diameter than the diameter of the iliac venous stent and its diameter can collapse significantly with depleted vascular volume. These factors contribute to the possibility of the stent jailing the contralateral iliac vein, leading to the possibility of obstruction and thrombosis of that contralateral common iliac vein, as demonstrated in this article. Initially, the Wallstent was utilized in an off-label manner, but recently, it has received a venous stent indication. Perhaps this will lead to the development of longer Wallstents, which would be desirable in long-segment occlusions.

There are two recently FDA-approved nitinol self-expanding stents that have venous stent indications. These are the Venovo stent from BD and the Vici stent from Boston Scientific. While these stents each have unique designs and different size matrices, they share the characteristic of allowing more precise initial placement without continued foreshortening, with subsequent axial growth. These stents are particularly helpful when there is bilateral common iliac venous compression and reconstruction of the bifurcation is needed. The Venovo stent has the longest presently available stent lengths. Other nitinol venous stents are currently being developed, but have not yet received FDA approval. These stents have hybrid designs that are under evaluation. Nitinol stents have not been utilized in iliac venous compression as long as Wallstents, so there is no long-term comparison of clinical outcomes between the Wallstent and these newer designs.

In this case report, the “jailed” common iliac vein ultimately thrombosed. This was first treated with mechanical thrombectomy after the occluded segment was crossed via the true prior lumen, as confirmed by intravascular ultrasound (IVUS). Ultimately, the proximal common iliac vein and the adjacent IVC were dilated with an Atlas balloon (BD), then a new bifurcation was constructed with the placement of a Wallstent opposite the previously implanted stent. Angiographic images confirmed that this restored flow...
in the previously occluded iliac vein. Hemodynamic parameters also demonstrated success.

Iliac venous obstruction is being treated with stenting far more frequently than in the past. This has been associated with dramatic healing of chronic and acute venous ulcers, as well as profound improvement in the symptoms of chronic venous hypertension. This case report demonstrated one of the potential complications that can occur with iliac venous stenting. Other complications include stent embolization and stent thrombosis (particularly if antiplatelet agents aren’t utilized).

Despite a significant increase in venous stent procedures, obstructive venous disease remains underdiagnosed and undertreated. Consideration of vena cava or iliac venous obstruction should be part of the differential diagnosis in patients presenting with CEAP classification 4-6 venous stasis changes, patients with unexplained unilateral edema, and whenever there is iliofemoral thrombosis (particularly left-sided).

Newer stent designs and better balloons have the potential to improve outcomes, but only if clinicians first make the diagnosis.