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IMAGES IN INTERVENTION

Venous Strangulation as an Unusual Cause of MitraClip System Delivery Failure

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We illustrate the novel approach of right iliac vein stenting for the delivery of a MitraClip steerable sheath system (Abbott Vascular, Santa Clara, California) in a patient with a unique case of venous obstruction. An 85-year-old man with decompensated heart failure due to severe mitral regurgitation and Society for Thoracic Surgeon's risk score of 24% was deemed at prohibitive risk for surgery and was referred for transcatheter mitral valve repair. An initial attempt to pass the 24-F MitraClip delivery system through the right iliac vein was unsuccessful (**Figure 1**, Online Video 1). Subsequent computed tomography venography demonstrated an unusual pattern of right common iliac to external iliac vein compression by right common iliac artery bifurcation as demonstrated by a computed tomography venogram obtained after the initial procedural attempt (**Figures 2A to 2D**). The vein appeared to be fixed posteriorly in the pelvis by the anterior arterial bifurcation, causing a stenosis and fixed tight curve that was impossible to negotiate with the large delivery system. The decision was made to open the stenosis with a stent using 2 overlapping Wallstent endoprostheses (Boston Scientific, Natick, Massachusetts) (one 14 × 60 mm and a second, cephalic and overlapping, 16 × 60 mm, both dilated to 16 mm) to enable the delivery of MitraClip sheath (**Figures 3A to 3C**). Relieving the stenosis allowed the successful delivery of the MitraClip steerable sheath system and deployment of the MitraClip (**Figure 3D**, Online Videos 2 and 3). The patient had an excellent procedural outcome with immediate reduction in the mean left atrial pressure and left atrial V-wave and regurgitant jet (**Figure 4**). The strategy of upfront stenting of vein stenosis can be considered in the setting of unfeasible MitraClip sheath delivery through stenotic areas after detailed assessment of the anatomy and mechanism of obstruction.

FIGURE 1 **Illustration of the Inability to Advance the MitraClip Steerable Sheath System Across the Common Iliac Vein Stenosis**

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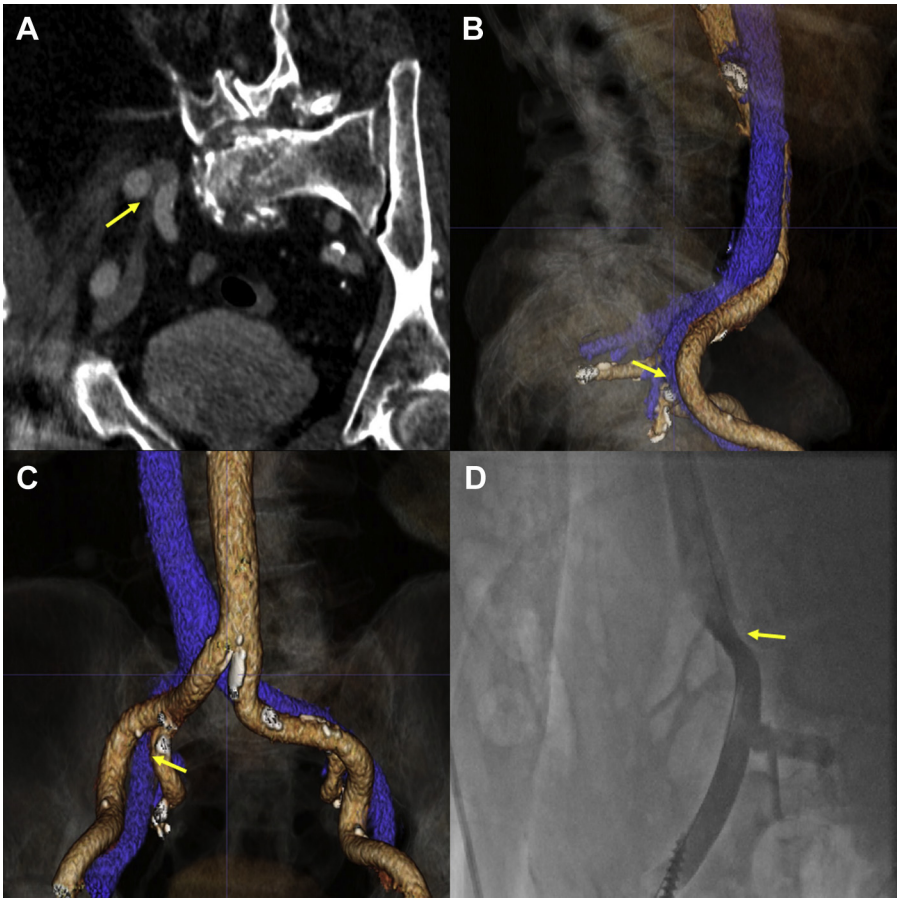
FIGURE 2 Right Common Iliac Vein Stenosis



A computed tomography venogram demonstrates compression of the right common and external iliac veins by the iliac arterial system (**A**, **arrow** corresponds to the area of narrowing; **B to C**, 3-dimensional reconstruction with **arrows** pointing at the area of stenosis). A lateral venogram illustrates the narrow and tortuous lumen of the right common iliac vein **(D, arrow)**.