ASK THE EXPERTS

Pelvic Congestion Syndrome: Which Veins Do You Treat and When?

Experts discuss the use of imaging, embolization approaches, and reintervention strategies in case of recurrence.

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Despite outstanding technical approaches and apparent successful embolization, some patients will have persistent issues, whether related to pain or venous reflux. In individuals who have daily pelvic pain or reflux patterns indicative of pelvic congestion syndrome (PCS), I prefer to do an abdominal MRI with dynamic contrast-enhanced sequences to evaluate venous flow characteristics. CT is also an option, and I would recommend a combination of arterial and venous imaging through the abdomen and pelvis. In my experience, the majority of patients with PCS show isolated left gonadal vein reflux and normal directional flow within the contralateral right gonadal vein on the dynamic MRI. CT will demonstrate matched arterial phase contrast in the left gonadal vein and varicosities, as well as the potential outlets from the pelvis, including the normal contralateral gonadal vein. At the same time, I evaluate for left renal or iliac vein compression, which may be contributing to the situation.

I very rarely embolize the right gonadal or internal iliac veins unless there is an obvious dilation of one or both venous structures. During the embolization procedure, I obtain a left renal venogram followed by a pelvic venogram from the deep gonadal vein to assess the outflow to gain a better understanding of venous compensation for the passive filling of the pelvis and plan future intervention if initial embolization does not relieve their symptoms. This is highly infrequent. In the past, I have used sclerosant but have moved back to simple coil embolization of the lower gonadal vein and a single Amplatzer vascular plug II (Abbott Vascular, formerly St. Jude Medical) at the top of the gonadal vein above the last collateral. I have not yet seen a recurrence using this technique. The advantage of this approach is that patients have very manageable postprocedural pain.

If the patient has concomitant left iliac vein compression, the patient is counseled, and this is addressed at the same time the left gonadal vein is embolized. If there is no history of thrombus, I will treat the patient with clopidogrel and aspirin and transition to aspirin alone. From time to time, the central common iliac vein will be dilated, which leads to concerns about stent migration. In those cases, I extend the stented segment into the external iliac vein.

If the patient has hematuria and renal vein compression, I have collaborated with vascular surgery to discuss potential translocation of the renal vein. I have also worked with surgery in preservation of the gonadal vein as a potential conduit for renal vein decompression in the setting of renal vein compression. If the patient does not wish to have surgery and is symptomatic, which includes pain and hematuria, I will embolize the gonadal vein and stent the renal vein. This is a vascular territory where I tread lightly with a conservative approach. I prefer to use the Smart Control stent (Cordis, a Cardinal Health company) or other stents with segmental independence, which extend from the renal hilum to just beyond the site where the renal vein passes under the superior mesenteric artery.

Finally, in the few patients who seek additional care, I will perform CT or repeat MRI with contrast, paying close attention to the right gonadal and internal iliac veins. I compare these studies to the pelvic venography performed during embolization and look very closely in the territories that decompressed the pelvis. I also trace back into the pelvis veins that communicate with vulvar or posterior thigh varicosities and also look closely at external iliac vein and common femoral tributaries. If they correlate with the patient's persistent issues, these are addressed from a top-down method using embolization. I believe that the pelvic veins enlarged from the chronic demand of the incompetent left gonadal vein will regress, much like the majority of calf varicosities will regress with saphenous ablation and compression. Over the years, I have performed very few secondary interventions; however, I may be overestimating my success, as I only see patients if they are having persistent symptoms after the first year rather than annual surveillance.

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Two questions must be answered prior to determining which veins to treat: (1) Which veins are incompetent? and, (2) Is a venous compression syndrome present (nutcracker or May-Thurner syndrome)? Preprocedural imaging helps answer these questions. Transabdominal and transvaginal ultrasonography can screen for pelvic venous incompetence. In some patients, sonography can also screen for venous compression syndromes, but this is limited by body habitus. If symptomatic patients have sonographic findings of pelvic venous incompetence, cross-sectional imaging with a coronal dynamic sequence can provide more detailed anatomic information, evaluate presence of venous compression syndromes, and rule out other potential etiologies of pelvic pain. CT venography is a good option for patients who have previously undergone a workup for other gynecologic causes of pelvic pain, and MR venography is an option for patients who have not.

In the absence of compression syndromes, bilateral ovarian and bilateral internal iliac venography will identify the incompetent systems. These four systems are interconnected, so if one is incompetent, there is a high likelihood that others are incompetent as well. All incompetent systems should be embolized. Performing only left ovarian venography and embolization is insufficient, as many of these patients return with unresolved or recurrent symptoms.

If cross-sectional imaging suggests a compression syndrome, the diagnosis can be confirmed using venography and intravascular ultrasound. Left common iliac vein compression (May-Thurner syndrome) warrants stenting in addition to embolization. If embolization of incompetent pelvic veins is performed without stenting, embolization will fail because the outflow of these incompetent veins remains obstructed.

Patients with left renal vein compression (nutcracker syndrome) can be referred for ovarian vein transposition. If this treatment option is not available, then the decision to embolize the left ovarian vein should be made based on the degree of left renal venous collateralization. In other words, if the left ovarian vein is the only or dominant outflow to the compressed left renal vein, then left ovarian vein embolization should not be performed because it would likely result in left renal vein thrombosis. However, if there are numerous other large collaterals other than the left ovarian vein, left ovarian vein embolization may be performed. When the latter is true, obtaining pressure gradients across the compressed left renal vein during balloon occlusion of the left ovarian vein (to mimic the hemodynamic response to left ovarian vein embolization) helps to estimate the degree of compensation by other collaterals.

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The biggest struggle for me in treating patients with pelvic pain and suspected PCS is obtaining authorization from local insurance companies. My strategy when dealing with the payors is to present a detailed history and clear documentation of the patient's anatomic and functional abnormalities. My initial workup is a pelvic ultrasound, and when ultrasound results are suspicious, I then routinely perform diagnostic venography in which I interrogate both

gonadal veins, documenting the size as well as presence of reflux. I also obtain a bilateral internal iliac venogram with an occlusion balloon in place. Lately, I have been looking at the common iliac veins as well for findings suggestive of stenosis. With these data available, I submit a request for authorization for embolization. Phone calls and long letters are not always persuasive, and I have advised patients to change their health insurance provider when possible.

When patients also present with lower extremity symptoms, I will treat their legs first, using saphenous vein ablation, phlebectomy, and sclerotherapy, as indicated.

When authorization is obtained to treat a patient, I have all the information available before starting the procedure. My approach varies based on venous abnormalities and the patient's symptoms. I embolize each gonadal vein that demonstrates reflux. I start distally and work backward, redirecting the catheter into branch vessels, embolizing these as well using foam sclerosant and long detachable coils. Once I am above all branch vessels, I use plugs to occlude the main gonadal veins. I usually stop the procedure when both gonadal veins have been treated.

Patients return for follow-up at 1 and 3 months. At these visits, we discuss their response to the procedure and any new or residual symptoms. I do not schedule any additional interventions after the 1-month visit. If patients have persistent symptoms at or beyond 3 months, we then proceed with foam sclerotherapy of abnormal internal iliac veins.

If only one gonadal vein demonstrates reflux, I embolize this vessel as previously described. I will also treat abnormal internal iliac veins with foam sclerotherapy in the same session. These patients are also seen at 1- and 3-month follow-up.

As previously noted, I routinely evaluate the common iliac veins for stenosis. If patients have persistent and significant symptoms after intervention, I will bring them back for repeat iliac venography, intravascular ultrasound, and possible stent placement. I also usually confer with their gynecologist to ensure that symptoms are not caused by another pathology.

When authorization for embolization cannot be obtained, I counsel patients about symptom management, recommending compression shorts and lifestyle modification. If the patient has labial or perineal varicosities, I will perform sclerotherapy. However, patients are informed that this is not likely to be a long-term solution for their symptoms.

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Approximately 10% to 15% of all women have pelvic varices. This pathology is common in women who are younger than 45 years, but not all women suffer from chronic pelvic pain. The main cause for pelvic varices is unknown, although factors such as genetics, hormones, and trauma have been reported to contribute to their development. Predisposing or associated factors include multiparous status, prolapsed uterus, family history of chronic pelvic pain, and a history of varices in the lower extremities.

Different treatment methods for PCS have been proposed with variable results. Nevertheless, embolization of ovarian and pelvic veins has demonstrated the best outcome and is recommended with a 2B level of evidence.[1] Despite this, there are no significant randomized studies comparing the results of embolization of the ovarian veins alone or of the four venous lines (ovarian and hypogastric veins) with one or the other treatment. For embolization of the varicose veins, mechanical agents (coils and plug) alone or combined with sclerosing substances have been used. There are no studies comparing these treatment options.

Some studies recommend embolization of only the veins that present reflux, with good results. Furthermore, other authors have reported success with embolization of the left ovarian vein alone. Nonetheless, a large series demonstrated more significant results in 85% to 96% of patients with bilateral ovarian and internal iliac veins embolization.[2]

At our institution, we recommend embolization of the four axes of the pelvis (both ovarian and both internal iliac veins), using only mechanical agents (coils or plug). We hypothesize that these four vein axes have a close connection between them, so the treatment of one or two of them might induce hypertrophy of those remaining. The biggest disadvantage is the treatment time and the cost of the procedure. ■

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