Symptomatic, unilateral, isolated, complete persistent sciatic vein

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ABSTRACT

Persistent sciatic vein is a rare anomaly of mesodermal development. When found, it is often associated with varicosities in abnormal distributions, pain, limb congestion, and hypertrophy. In this report, we describe a case of an isolated, complete persistent sciatic vein with an atypical anatomy and onset. (J Vasc Surg: Venous and Lym Dis 2017;doi:10.1016/j.jvsv.2017.09.002)

The sciatic vein is an embryologic structure present along the course of the sciatic nerve and the main collecting vessel of the lower limb during fetal development.1 Derangements in vascular development are usually accompanied by soft tissue and bone hypertrophy because of a common mesodermal origin.1 A persistent sciatic vein (PSV) is usually seen in patients with Klippel-Trénaunay syndrome (KTS; 1 in 30,000 live births1), a triad of capillary malformation, venous malformation, and limb overgrowth with or without lymphatic overgrowth.1 PSV may also be seen in Parkes Weber syndrome (PWS), which manifests similar to KTS with the addition of arteriovenous malformations. In this case report, we describe an adult woman with a unilateral complete PSV not associated with KTS or PWS. Written informed consent was obtained for the publication of this case report and any accompanying images.

CASE REPORT

A 61-year-old woman was referred to our vascular surgery clinic with chronic pain and swelling of the left lower extremity. The pain had progressed during the last year and worsened with standing/sitting and when lying in the left recumbent position. She also had ipsilateral labia majora engorgement. Obstetric and gynecologic history was significant for G5P4A1 and uterine fibroids treated by total abdominal hysterectomy (TAH) in 1985. After the TAH, she reported onset of pelvic pain and progressive engorgement of the left leg great saphenous vein (GSV), which was treated by left saphenectomy in 1992. She reported that after this procedure, she had the onset of left leg pain and swelling as well as swelling of the labia majora and pain with intercourse, which suggested that the GSV was an important collateral. These symptoms were chronic for the next 20 years until her evaluation by our service. She had no history of cutaneous vascular lesions, thrombophlebitis, or thromboembolic events.

On physical examination, there was proximal left thigh swelling, more prominent on the medial aspect, which extended to the ipsilateral labia majora and buttock (Fig 1). There were palpable engorged venous structures accentuated on standing that were exquisitely tender to light touch. Mild skin discoloration with small reticular veins and absence of varicosities were noted. The contralateral lower extremity was unaffected apart from reticular veins in a nonspecific distribution.

We proceeded with a contrast-enhanced computed tomography (CT) scan, which showed a large venous structure arising from the popliteal fossa extending proximally along the sciatic nerve distribution with drainage into the internal iliac vein (Fig 2). Multiple tributaries originating from the sciatic vein were noted at the level of the femoral head inflowing to the pelvis (Fig 3). There was no increase in size of ovarian veins or any other pelvic vein except for the outflow of the PSV. The final assessment was an isolated, complete PSV accompanied by multiple collaterals around the pudendal and gluteal veins. When the clinical presentation and images were considered, we decided to offer the patient graded compression stockings (20-30 mm Hg), intermittent leg elevation, and semiannual follow-up. At 6 months of follow-up, she had been strictly compliant with our recommendations and had a significant improvement in symptoms. Therefore, a more invasive approach was not considered.

DISCUSSION

The sciatic vein is the main embryologic vascular outflow of the lower extremity during fetal development and normally regresses at 10 to 12 weeks.1 It is derived from posterior muscle afflues, ascends with the sciatic artery, receives posterior gluteal afflues, and penetrates the pelvis through the subpyramidal portion. In the pelvis, it follows the sciatic nerve medially and drains into the internal iliac, inferior gluteal, and deep femoral veins.2 Three anatomic variations of PSV have been
described in the literature: complete, upper, and lower. In the complete type, the PSV arises from the popliteal vein or from tributaries nearby, passes through the sciatic notch, and terminates in the internal iliac venous system, which is consistent with our patient’s PSV distribution.

In our patient, the contrast-enhanced CT scan proved to be a valuable tool in diagnosing and defining the vascular anatomy of the PSV. First, it is widely available in our region and has been cited in the literature as a useful study in evaluating arteriovenous malformations, deep venous thrombosis, and associated venous anomalies. Other technologies, such as magnetic resonance imaging and phlebography, may have been considered but are not readily available and poorly understood in our region. The CT scan also ruled out any other coexisting process that we could not rule out on the initial visit. The CT scan clearly defined a tortuous venous structure with origin at the popliteal fossa and termination at the internal iliac vein. Moreover, the CT scan findings were not consistent with pelvic congestion syndrome as there were no obvious pelvic varicosities, ovarian vein dilation, or tortuous collateral pelvic venous pathways that could confirm the diagnosis. The Hounsfield unit density along the PSV was consistent
with a venous structure, and lack of contrast enhancement in the arterial phase suggested that arteriovenous malformation and PWS were highly unlikely. KTS was also ruled out as soft tissue and bone hypertrophy and capillary malformations (the most consistent feature) were absent in our patient. The patient’s evolution, history, anatomy, and radiologic findings support that the visualized structure was indeed a PSV.

Our patient is a multiparous woman who underwent a TAH for fibroids and abnormal uterine bleeding. Early in the postoperative period, the patient developed symptoms of pelvic congestion and concomitant left saphenous reflux. Consequently, she underwent stripping of the left GSV 7 years later. After the procedure, she developed non-saphenous vein (NSV) reflux, which caused chronic pain and edema at the left leg. The most important risk factor for development of NSV reflux is female gender, especially women who have had two or more pregnancies.1 Patients who have undergone saphenous vein stripping or ablation have higher odds of presenting with NSV reflux.4 Some of the typical locations of NSV reflux are the buttocks, posterolateral thigh, vulva, popliteal fossa, knee, and along the sciatic nerve.4 Our patient presented with tortuous veins along the sciatic nerve distribution, which is consistent with reports that the most common location of reflux is along the trajectory of nerves.4 Involvement of the labia majora also suggested coexistent pelvic vein reflux, which is most likely a postprocedure sequel of her TAH and vein stripping, although the etiology still remains unclear.

CONCLUSIONS
An isolated, complete PSV is a rare vascular anomaly. To our knowledge, most reports describe the association with KTS or PWS, and there are few reports of true isolated PSV. Although magnetic resonance imaging is the “gold standard” when it is available, contrast-enhanced CT scan is a good alternative for establishing the diagnosis and ruling out any coexisting process. The patient was managed conservatively, which has resulted in satisfactory relief of symptoms while avoiding a more invasive approach that may potentially worsen her condition. Therefore, we suggest that a conservative approach be offered before endovascular or surgical options are considered for treatment of a symptomatic limb with PSV.

REFERENCES