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Chronic venous insufficiency, could it be one of the missing pieces in the puzzle of treating pain?

Chronic venous insufficiency

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Abstract

Pain is a common complaint among patients seeking medical care. If left untreated, pain can become chronic, significantly affecting patients' quality of life. An accurate diagnosis of the underlying cause of pain is crucial for effective treatment. Chronic venous insufficiency (CVI) is frequently overlooked by pain physicians. Moreover, many pain physicians lack sufficient knowledge about CVI. CVI is a common condition resulting from malfunctioning or damaged valves in lower limb veins. Symptoms of CVI, ranging from mild to severe, include pain, heaviness, fatigue, itching, swelling, skin color changes, and ulcers in the lower limbs. Recently, it has become more widely known that these symptoms can be attributed to CVI. Even slight or mild CVI can cause related symptoms. Pain physicians primarily consider neuromusculoskeletal disorders when assessing patients with leg pain, and often neglect the possibility of CVI. In clinical practice, when pain physicians encounter patients with unresolved leg pain, they must assess whether the patients exhibit symptoms of CVI and conduct tests to differentiate CVI from other potential causes.

Key Words: Pain; Chronic venous insufficiency; Diagnosis; Treatment; Vein

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Core Tip: Severe pain can interfere with activities related to daily living and work. To treat pain effectively, accurately diagnosing its underlying cause is crucial. However, the specialization of medical disciplines may lead pain physicians to only consider the nervous or musculoskeletal systems as the primary causes of pain. Often, they do not strongly consider the possibility of pain of vascular origin. Chronic venous insufficiency is one of the most common venous disorders causing leg pain. Therefore, the possibility of chronic venous insufficiency should be considered in patients with leg pain, potentially leading to resolution of chronic debilitating pain in these patients.

TO THE EDITOR

We interestingly read Gao *et al*'s published review article ^[1]. The article provides a detailed overview of the treatment of chronic venous insufficiency (CVI), offering valuable insights for readers. I believe that physicians in the pain management field should be aware of this disorder. Here, I emphasize that CVI should be considered as a relevant condition when patients complain of leg pain.

² The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage” [2]. It is primarily caused by tissue damage and inflammation [3]. Pain is a main complaint of patients visiting hospitals and clinics. If the pain is not properly treated, it becomes chronic and may be difficult to control [3]. Around 20% of adults are reported to suffer from chronic pain [3]. Severe pain can interfere with activities related to daily living or work. In addition, it can lead to psychiatric disorders such as depression and anxiety.

To treat pain effectively, accurately diagnosing its underlying cause is crucial. For this purpose, physical examinations, imaging studies, electrodiagnostic studies, and diagnostic blocks are used. In most cases, these tests lead to accurate diagnoses, but sometimes the underlying cause cannot be identified, or pain physicians miss the correct diagnosis. Currently, the medical field is divided into several parts, each of which is highly specialized. Therefore, medical doctors often lack sufficient knowledge in fields outside of their own expertise. Most pain physicians believe that the nervous or musculoskeletal systems are the primary cause of pain. They frequently do not strongly consider the possibility of pain of a vascular origin. Furthermore, even when it is considered, many pain physicians only associate vascular-origin pain with issues in the arteries, and not veins. However, venous problems can also cause pain [4]. Chronic venous insufficiency (CVI) is one of the most common venous disorders causing leg pain [4]. With advancements in diagnostic technologies, the diagnosis of CVI has

recently increased [5]. Therefore, the possibility of CVI should be considered in patients with leg pain.

CVI most commonly occurs because of malfunctioning or damaged valves in the veins of the lower limbs. This leads to a reverse flow of blood and increased pressure in the leg veins, resulting in symptoms such as leg pain, heaviness, fatigue, itching, swelling, skin color changes, and ulcers [6]. Recently, it has become widely known that symptoms attributed to CVI can occur even in cases with slight or mild severity (clinical classes of the ¹ Clinical-Etiology-Anatomy-Pathophysiology [CEAP] classification, C0 [no visible or palpable signs of venous disease] or C1 [telangiectasia or reticular veins]), and treatment of these cases can relieve patients' symptoms and improve their quality of life (Table 1) [7]. In 2022, Hong reported that 43.8% of 1,386 Limbs with symptomatic and treated CVI were C0 or C1 [7]. Currently, with advancements in ultrasound technology, the number of diagnoses of CVI with CEAP classification C0 or C1 has been increasing, including those which were previously overlooked due to previous imaging limitations [7].

CVI is a common condition; its prevalence has been reported to range from 25 to 40% and 10–20% in women and men, respectively [8]. The annual incidence is 2–6% in women and 1.9% in men. Leg pain in some patients is likely caused by CVI. However, when patients complain of leg pain in the clinic, pain physicians primarily consider lumbosacral radicular pain to be due to spinal disorders or diseases of the joints, ligaments, muscles, and tendons of the leg. Most pain physicians do not consider the possibility of CVI in patients with leg pain.

CVI can be diagnosed using a probe with a frequency of 4-7 MHz in both B-mode and Doppler modes [9]. By performing the Valsalva maneuver, increasing the intra-abdominal pressure in an upright position, applying pressure with the fingers to promote venous outflow, or rapidly releasing a pneumatic cuff (within 0.3 s), continuous retrograde blood flow can be observed to diagnose CVI in the deep and superficial veins. CVI is diagnosed when retrograde flow persists for more than 0.5 s in superficial veins, 1 s in deep veins, and 0.35 s in perforating veins.

As a conservative treatment, the use of compression stockings with ankle pressure of 20-30 mmHg for patients with symptomatic CVI is recommended [10]. In addition, sclerotherapy using foam or liquid agents such as polidocanol or sodium tetradecyl sulfate can be used to treat reflux in veins with small diameters, reticular veins, and telangiectasia [11]. In cases of CVI in veins with large diameters, laser or high-frequency closure ablation is used [12, 13].

In clinical practice, patients with leg pain due to CVI are often misdiagnosed as having neuromusculoskeletal disorders, leading to the use of incorrect treatments, such as oral pain medication, various physical therapies, and steroid injections. Even if these treatments are ineffective, CVI is still not frequently considered an underlying condition by pain physicians, who may label patients' pain as untreatable refractory neuromusculoskeletal pain. When pain physicians encounter patients with unresolved leg pain, they need to assess whether the patient exhibits symptoms of CVI and conduct tests to differentiate CVI and other potential causes.

Based on my personal experience, patients with leg pain who have lumbar spinal stenosis are believed to have pain attributed to this condition. They usually undergo multiple transforaminal epidural steroid injections along with various oral pain medications. However, sometimes, the patients' pain does not respond to these treatments. In these cases, despite the lack of apparent gross vascular symptoms in the legs, positive findings are frequently identified during Doppler ultrasound examinations conducted for the purpose of confirming CVI. It was observed that several of these patients experienced a positive therapeutic effect after undergoing closure ablation of the great or small saphenous veins. The investigation into whether the application of compression stockings reduces a patient's pain prior to performing vein closure ablation can be beneficial in predicting the efficacy of the closure ablation treatment. In addition, confirming the lack of response to diagnostic lumbosacral nerve root block with lidocaine can aid in predicting the effectiveness of closure ablation therapy. Furthermore, the pain associated with CVI does not follow a dermatomal pattern and is frequently characterized by a sensation of heaviness in the legs [14].

Moreover, the leg pain persists regardless of whether the individual is standing, lying, or sitting. In contrast to the pain caused by spinal stenosis, walking often provides relief in many cases of CVI-associated pain ^[14].

In clinical practice, pain physicians sometimes encounter patients in which the cause of pain is unclear, and no treatment can alleviate the pain. In such cases, particularly in patients who exhibit symptoms related to CVI, pain physicians should consider the possibility of CVI. Perhaps the CVI could be a missing piece of the puzzle for treating patients with unresolved pain in the field of pain medicine.

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