Dynamic Chiropractic

DIAGNOSIS & DIAGNOSTIC EQUIP

That Calf Strain May Be a Deep-Vein Thrombosis

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I recently read an article in the *Journal of Orthopedic and Sports Physical Therapy* that discusses an interesting situation we should all be aware of – deep-vein thrombosis (DVT) presenting as a calf strain.[1] The case involved a 21-year-old runner who presented with a calf that felt tight and achy. The patient related that he remembered straining his calf four days previously when he lifted 40 pounds over his head while straightening his knees out of a squat position. There was mild edema over the left calf, pain on toe walking, unilateral heel raises and double-leg squatting, and decreased dorsiflexion of 10° on the painful side. Lower extremity pulses were normal.

Ice, triceps surae stretches, a compression stocking and ibuprofen were prescribed. Three days later, he was 80 percent better and had no visible edema or ecchymosis; in fact, except for pain on palpation over the gastrocnemius and soleus, all previous positive tests were negative. I think most of us would agree with the diagnosis of a calf strain.

But four weeks later, the patient still felt a "low-intensity, nagging pain" in his left calf. An important finding regarding a possible deep-vein thrombosis was that the patient had experienced increased pain following a six-hour plane ride, causing him to seek help at a local emergency unit. He was told to use ice and stretching, which again relieved his symptoms. The main findings four weeks later, besides the pain after the plane ride, was that lower-leg edema was visible along with a 2+ pitting edema. All other previous tests were still normal.

cardiovascular mortality in North America.[2]
Unfortunately, a clinical diagnosis of DVT in the office can be difficult. For years, Homans' test was an acceptable test for DVT; the supine patient's knee is partially flexed and the practitioner forcibly dorsiflexes the ankle, exerting traction on the posterior tibial vein, causing pain.
Most studies give poor marks for Homans' sign, based on it being present in 33 percent of patients with true thrombosis and positive in greater than 50 percent of symptomatic patients without DVT.[3]
Venography is the reference standard for diagnosing DVT, but it is an invasive test that can be painful and is associated with allergic and other side effects. It should be reserved for patients having a high probability of the condition; other noninvasive tests, such as venous ultrasonography, impedance plethysmography[4] and the D-dimer test, can often be used first for what are considered low-probability patients.
The D-dimer blood test, when negative, means it is most likely that the person tested does not have an acute condition or disease causing abnormal clot formation and breakdown. Most doctors agree that a negative D-dimer is most valid and useful when the test is done on people who are considered to be at low to intermediate risk for thrombosis. The test is used to help rule out clotting as the cause of symptoms.
In the case history described above, the lengthy plane ride was an important clue regarding potential DVT. We should tell our patients that regardless of the risk of DVT, they should avoid dehydration and frequently exercise their leg muscles. There is evidence that travelers on flights longer than six hours and with one or more risk factors for DVT should also consider knee-high graduated compression stockings, 15-30 mmHg at the ankle.

References

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