CLINICAL VIGNETTE

Soleal Vein Thrombosis Masquerading As Ankle Pain

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A 64-year-old female presented with complaints of pain in her anterior right ankle and worry that she might have a sprain or fracture. She had flown from Los Angeles to New York 3 weeks before her office visit and had done a lot of walking on her trip. While out of town, she developed the ankle pain and thought that she perhaps had injured herself with unaccustomed exercise. She noted that her ankle felt better when she wore shoes with higher heels. She also experienced some calf pain, which later resolved. On presentation in the office, she was feeling well except for the ankle pain. She denied fevers, chills, chest pain, palpitations, shortness of breath and cough. There was no history of any recent trauma, falls or twisting injury.

Past medical history included uncomplicated treated hypertension, osteoporosis for which she was taking weekly alendronate and vitamin D, and a remote uncomplicated hysterectomy. Age-related cancer screening tests were up to date and negative. She did not smoke and was not taking hormone replacement therapy. There was no personal or family history of deep venous thrombosis, hypercoagulability or pulmonary embolism. Family history was positive for breast cancer in multiple relatives.

On examination, she was afebrile with blood pressure 130/80 and heart rate of 72/min. Physical examination was unremarkable except for right anterior ankle tenderness and trace edema of the lateral malleolus. Because of concern for a possible osteoporosis related stress fracture, radiographs of the right ankle were obtained and were negative except for mild soft tissue swelling adjacent to the lateral malleolus.

Because a definitive cause of her persistent ankle pain had not been found, she was sent for vascular venous duplex scanning which revealed deep venous thrombosis of the soleal vein. Treatment was initiated with fondaparinux sodium, which was continued until she was adequately anticoagulated with warfarin. Of interest, the patient reported that the ankle pain disappeared completely after a few days of anticoagulation. Her laboratory evaluation for a hypercoagulable state was negative. Four months later, her follow-up duplex venous scan was normal, and anticoagulation was discontinued.

Deep venous thrombosis of the calf is difficult to diagnose clinically and, even when suspected, it is confirmed in only about one in three cases. Common symptoms include calf pain, leg heaviness, swelling and increased heat[1-3]. Risk factors include age over 40; cancer; varicose veins; hormone replacement therapy or birth control pills; personal or family history of deep venous thrombosis or pulmonary embolus; recent surgery; significant immobilization and leg trauma[1,2,4]. Muscle strain, tear or direct injury; lymphangitis; cellulitis and Baker's cyst can have similar presentations[3].

Treatment of deep venous thrombosis with an anticoagulant aims to prevent propagation of the clot, pulmonary embolism and to minimize the occurrence of post thrombotic syndrome. This last "…is a syndrome generally consisting of, but not limited to, edema, skin induration, hyperpigmentation, venous ectasia, redness, pain with calf compression, and venous ulceration"[5].

Deep venous thrombosis in the veins of the proximal lower extremity is more likely to result in complications than when it occurs in the distal lower extremity, and anticoagulation is advised[1,6,7].

The soleal vein of the calf is one of the distal deep veins of the leg. It is occasionally the site of an isolated deep venous thrombosis, and atypical presentations can occur. It may be more common in women than in men[2].

The literature is conflicting regarding the need for anticoagulation for distal venous thrombosis[8]. Some literature suggests a 20% progression to complications[4]. "A fifth of untreated newly developing calf vein thrombi extend proximally, and a quarter are associated with long term symptoms of post thrombotic syndrome; it is therefore appropriate to treat proved significant calf vein thrombosis."[1] There are studies that seem to lend support to treatment with anticoagulation[9-11].

An autopsy study of cases of fatal massive pulmonary embolism showed "…that the soleal vein was the most frequent site of deep vein thrombosis, both for fresh and for organized thrombi"[12].

More recent studies seem to suggest that there is no need for anticoagulation, with its risks for bleeding, for patients with isolated distal venous thrombosis. Perhaps, patients could be followed with repeated scanning and anticoagulation could be initiated if there were evidence of progression or worsening of symptoms[6,13,14]. One study indicated that malignancy was the only risk factor for progression[4].

Our patient returned seven years later with a complaint of left ankle pain (the opposite ankle). Interim history revealed she was undergoing treatment for breast cancer. She had no recent travel history or trauma. Left ankle x-rays were negative. This time vascular venous duplex scan of the left lower extremity was negative for deep venous thrombosis. She saw her podiatrist who treated her for an ankle sprain.

In the outpatient setting, as many as 60 to 70% of deep venous thrombosis may occur distally whereas, for inpatients, 80% are proximal[7]. The definitive management of treatment for soleal vein thrombosis with anticoagulation is unclear. Additional investigative studies for elucidation of individual risk factors and updated guidelines and the role of anticoagulation for treatment of deep venous thrombosis of distal calf veins are needed[7,15].

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