INTRODUCTION

Intravenous drug users are at high risk for developing skin or subcutaneous abscesses and septic thrombophlebitis of peripheral veins. Septic thrombophlebitis is a condition characterized by inflammation and thrombosis of the vein (1). The clinical manifestations of peripheral vein septic thrombophlebitis include fever, erythema, tenderness, and purulent drainage at the site of the affected vein (2–4). The diagnosis is made based on a combination of clinical manifestations, imaging findings, and culture results. Surgical resection of the involved peripheral venous segment is usually recommended (5).

CASE REPORT

A 49-year-old man presented to our Emergency Department (ED) with redness, swelling, and pain in his right thigh that had become progressively worse for 5 days. The patient stated that he had low-grade fever for 2 days and noted purulent drainage from his right thigh for 1 day. He had been using heroin intravenously for more than 5 years. He admitted to injecting heroin into his right thigh 1 week prior. His past medical history was significant for multiple abscesses that required incision and drainage (I & D). He was not taking any medications. The physical examination revealed the patient to be in moderate distress due to pain. His vital signs were: temperature 37.4 °C, heart rate 88 beats/min, blood pressure 145/80 mm Hg, respiratory rate 18 breaths/min, and an oxygen saturation of 99% on room air. His right thigh examination revealed a 15 cm × 5 cm area of focal swelling, erythema, and induration that was exquisitely tender, with a 1 cm × 1 cm centrally located open area spontaneously draining some purulent material. He also had tender swollen right inguinal lymph nodes. There were no palpable cords or lymphangitic streaking. The rest of his physical examination was unremarkable. It was determined that the patient had an abscess, and an I & D was planned by the treating emergency physicians to completely evacuate the abscess cavity.

A point-of-care ultrasound examination was then performed by the treating emergency physicians using a 10-5 MHz linear array transducer to assess the depth and extent of the abscess. The ultrasound examination revealed a non-compressible peripheral vein with concentric, echogenic material within the lumen of the vein. An irregularly shaped heterogeneous hyperechoic mass surrounding the vein, consistent with an abscess, was also visualized (Figure 1). The long-axis view of the peripheral vein showed a thickened vessel wall with perivascular inflammation (Figure 2). The diagnosis of a peripheral vein septic thrombophlebitis was made based on the sonographic findings. A compression ultrasound of the deep veins of the right lower extremity was also performed, which did not reveal any evidence of thrombus. Blood cultures were obtained and intravenous antibiotics were administered. Vascular Surgery was consulted and, after evaluating the patient in the ED, recommended
excision of the affected vein in the operating room, but the patient refused operative intervention. Vascular Surgery performed an I & D at the bedside and admitted the patient to the hospital. The patient left the hospital against medical advice 1 day later. No further follow-up information was available.

**DISCUSSION**

Emergency physicians are often the first to encounter patients with complications from intravenous drug use. Intravenous drug users are at high risk for developing skin or subcutaneous abscesses and septic thrombophlebitis of peripheral veins after unsterile and unsuccessful attempts to inject drugs into peripheral veins (6). The symptoms of an abscess and peripheral septic thrombophlebitis are very similar. Additionally, the local manifestations are frequently insidious and may be absent in more than half of the cases in prior reports (7,8). Because the local signs of inflammation over the affected vein often do not indicate the severity of the underlying pathology, it is recommended that surgical exploration and excision of the vein segment promptly proceed when the diagnosis is highly suspected (7).

Emergency physicians are at risk of underestimating the severity of this disease. In our case scenario, the treating emergency physicians did not suspect the diagnosis of septic thrombophlebitis. The bedside ultrasound was performed to guide the I & D procedure, and sonographic findings of septic thrombophlebitis were discovered incidentally. The sonographic findings of a septic thrombophlebitis include a non-compressible vein with an anechoic or echogenic thrombus in the lumen, thickening of the vessel wall, loss of venous response to respiratory maneuvers, and absence of color Doppler flow (9). These findings should be used in conjunction with clinical manifestations for the diagnosis of peripheral vein septic thrombophlebitis.

Missed or delayed diagnosis of peripheral septic thrombophlebitis can result in significant patient morbidity and mortality. Diagnostic imaging clearly plays a crucial role in timely diagnosis and prompt treatment of this serious condition in the ED. Bedside ultrasound is increasingly being used by emergency physicians in the past 2 decades for a wide variety of indications. This case demonstrates the utility of bedside ultrasound to make a rapid diagnosis and initiate prompt treatment for this serious condition that may otherwise go undetected or may be difficult to diagnose in the ED.

**REFERENCES**