

## Ultrasound for the rheumatologist – subcutaneous sarcoidosis

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ACTA REUMATOL PORT. 2016;41:376-377

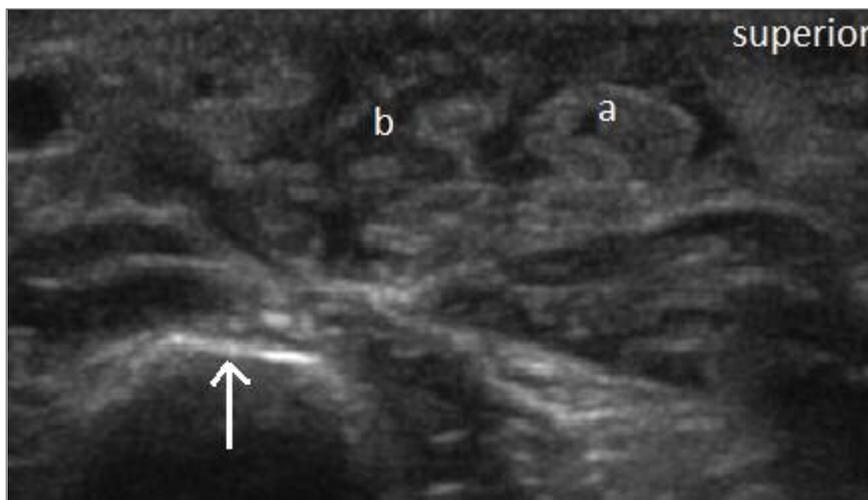
A 65 year-old-female presented with slowly enlarging volar forearm lumps of about two months' duration. The largest, on the ulnar forearm, measuring 4x2 cm, was slightly adherent to the skin with a leathery feel.

Ultrasound was performed in the rheumatology office with a SonoSite (Bothell, WA, USA) M-Turbo machine with a 6-15 MHz linear transducer. It revealed an irregularly defined, partially compressible mass, with hyperechoic areas interspersed with hypoechoic areas (Figure 1). Mild Doppler signal was present in the hyperechoic areas (Figure 2). Rheumatological and infectious labs were negative except for an elevated angiotensin converting enzyme level. A skin biopsy showed non-necrotizing granulomatous inflammation consistent with sarcoidosis. Microbial studies, chest computed tomography and body gallium scan were

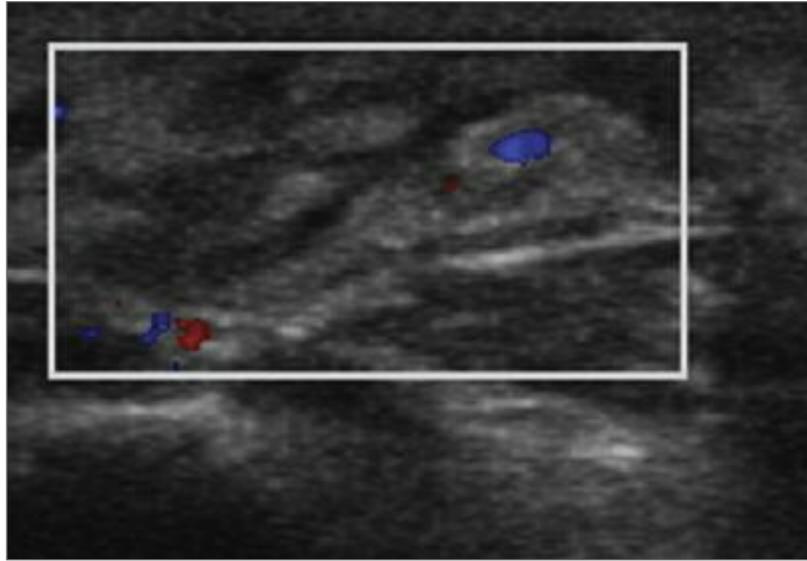
negative. Isolated subcutaneous sarcoidosis was diagnosed and prednisone initiated. At a six month follow-up visit, the masses had resolved.

Isolated subcutaneous sarcoidosis is the rarest form of cutaneous sarcoidosis<sup>1</sup>. It frequently presents as multiple asymptomatic lumps on the extremities. There are only two prior reports of its sonographic appearance with which ours is consistent<sup>2-3</sup>. Sonographic subcutaneous sarcoidosis has ill-defined areas of hyperechoic (granulomas) and hypoechoic (edema) areas with mild Doppler signal. While not pathognomonic, this finding should prompt evaluation for sarcoidosis. Biopsy is still required to exclude malignancies. Ultrasound helps to exclude common masses such as lipomas, ganglion cysts and nerve sheath tumors like neurofibromas. Ganglion cysts are very common anechoic or hypoechoic masses that are well demarcated and located in close proximity to a tendon or joint, typically the wrist. They demonstrate posterior acoustic shadowing on ultrasound. Small superficial lipomas can present similarly clinically. They are usually elongated and can have well-

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**FIGURE 1.** Gray scale image. Hyperechoic areas (a) interspersed with anechoic (b) areas. Arrow denotes ulna



**FIGURE 2.** Doppler image shows vascularity in the hyperechoic region

defined or ill-defined borders. They are usually but not always hyperechoic. Doppler flow is usually absent. Nerve sheath tumors are elongated, commonly hypoechoic lesions and the nerve can be seen entering and exiting the tumor. They also demonstrate posterior acoustic shadowing. Sonographically, cellulitis, while not a mass *per se*, can show cobblestone pattern and swelling of the skin and soft tissue which may appear similar to our case but the Doppler signal is more profound and the clinical exam with redness, warmth and pain is very different from that of subcutaneous sarcoidosis.

These reports of the sonographic appearance of sarcoidosis, should help direct the physician towards appropriate investigations. Rheumatologists would be encountering more of such lumps as their use of ultrasound increases and this sonographic knowledge will serve as an important asset in diagnosis.

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