

A worrying dance in the subcutaneous adipose tissue

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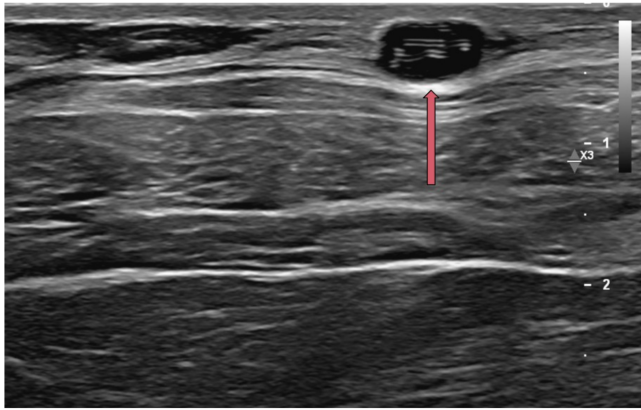


Figure 1. Ultrasonography. A 37-year-old woman presented to the emergency department with a mild painful swelling in the anterior abdominal wall at the right iliac fossa; there was no associated itching or rash. Five months earlier she underwent right mastectomy for infiltrating ductal carcinoma, which was still under treatment with chemotherapy (doxorubicin, cyclophosphamide, paclitaxel, pertuzumab and trastuzumab). Her vital signs and laboratory tests were normal. Ultrasonography (US) showed a 8 x 5 mm sized anechoic lesion with multiple internal thin structures, which presented parallel echogenic borders and anechoic centers, in the subcutaneous adipose tissue (Figure 1, red arrow). These structures exhibited wriggling motion during real-time imaging (Video 1).

Question

Given the patient's history and US result, which is the most likely diagnosis?

1. Metastasis from breast cancer
2. Subcutaneous dirofilariasis
3. Hidradenitis suppurativa
4. Infected sebaceous cyst

Answer

Subcutaneous dirofilariasis is the correct answer.

Dirofilariasis is a vector-borne parasitic disease caused by filarioid nematodes of the genus *Dirofilaria*, transmitted by various mosquito species of the family Culicidae (*Aedes*, *Anopheles*, *Culex*, *Ochlerotatus*, *Coquillettidia* or *Mansonia*).¹ These nematodes naturally infect dogs, cats and/or some wild carnivores, and humans have long been considered accidental “dead-end” hosts, because these parasites do not usually reach sexual maturity in human tissues.¹ Based on its location, human dirofilariasis is classified into three forms: ocular,² subcutaneous and pulmonary.³ In

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most cases the presentation of Subcutaneous Dirofilariasis (SD) is highly nonspecific: an accidentally palpable nodule.^{4,5} Although the definitive diagnosis is histopathological,¹ US can rise the suspicion of SD by detecting worm-like structures resembling parallel hyperechoic lines within a cystic lesion (as shown in Figure 1)¹ and worm movements in live ones (the so-called “filarial dance sign”, first described in 1994 and shown in Video 1).^{1,6} Surgical excision of the lesion is the definitive treatment for SD.^{1,7}

In our case the patient had no history of contact with pets or recent travel, so she was probably infected by an outdoor mosquito bite of which she had no memory at the time of admission. The lesion was excised in toto under local anesthesia. Histopathologic examination showed a cyst without epithelial lining, bordered by a rim of fibroblasts and lympho-plasmacellular infiltrates, including a worm-like structure consistent with *Dirofilaria*. No medical therapy was undertaken, because the parasite was completely removed with surgery. Full recovery was achieved, and the patient was discharged after one day of hospitalization.

In the last years there has been an increase in cases of human dirofilariasis in Europe due to global climate change and international movement of people, so emergency physicians should always consider this condition in the differential diagnosis of subcutaneous nodules.⁸

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Online supplementary materials
Video 1. Ultrasonography.