Official Journal of the Irish Medical Organisation

Ir Med J; May 2025; Vol 118; No. 5; P82
May 29th, 2025

Cutaneous Dirofilariasis Presenting as a Painless Inguinal Mass

S.P. Connolly[1], B. Dalton[2], G. Sheehan[1]

1. Department of Infectious Diseases, Mater Misericordiae University Hospital, Eccles St., Dublin 7, Ireland.
2. Department of Radiology, St James's Hospital, Dublin 8, Ireland.

Abstract

Presentation
A 32 year-old Ukrainian male residing in Ireland was referred with a 6 month-history of a painless right inguinal lump. He denied systemic symptoms and aside from Ukraine, had visited Thailand, Indonesia and Sri Lanka in the previous 5 years.

Diagnosis
Ultrasound scanning unexpectedly revealed a serpiginous, echogenic structure contained within a 13.8mm hypoechogenic cavity, suspicious for a parasitic infection. No evidence of pulmonary manifestations were seen on a plain film chest radiograph. Following surgical excision, histopathology confirmed subcutaneous dirofilariasis.

Treatment
No further treatment was required following excision of the organism and the patient made a full recovery.

Discussion
Transmitted by mosquitos, dirofilariasis is caused by the filarial nematodes of the *Dirofilaria* species, with humans being an accidental dead-end host. Treatment of cutaneous dirofilariasis requires the surgical removal of the parasite, usually without systemic therapy. While a benign entity, this case illustrates the need to consider parasitic infections when assessing painless lumps in those with epidemiological risk. This is of particular relevance given current patterns of immigration.

Background

Due to changing patterns of migration due to recent global events, relatively uncommon pathogens continue to present in common clinical scenarios, reminding physicians to include broader differentials in such encounters with patients who have epidemiological risk. We describe the case of a Ukrainian male whose presentation with a painless inguinal soft tissue swelling was subsequently confirmed to represent cutaneous dirofilariasis.

IMJ
Official Journal of the Irish Medical Organisation

Ir Med J; May 2025; Vol 118; No. 5; P82
May 29th, 2025

Case Report

A 32 year-old male from Ukraine currently residing in Ireland was referred by his family physician for a diagnostic ultrasound with a 6 month-history of a painless lump in his right inguinal area. The patient denied any concurrent systemic symptoms or weight loss, and denied any history of instrumentation or trauma to the area. Physical exam revealed a non-tender, mobile mass superior to the right inguinal ligament, without a visible punctum. Physical exam otherwise revealed no abnormalities, and routine blood testing was within normal limits, including a normal eosinophil count. The patient was referred for ultrasound imaging of the affected area, which unexpectedly revealed a serpiginous, echogenic structure contained within a 13.8mm hypoechogenic cavity, suspicious for a parasitic infection (Figure 1). Aside from his native Ukraine, had visited Thailand, Indonesia and Sri Lanka in the previous five years. The patient was referred to both the infectious diseases clinic and general surgery. Following excision of the organism, histopathological examination revealed a dense, chronic inflammatory infiltrate with worm-like structures containing a thick cuticle and prominent internal tubular structures within, confirming a diagnosis of subcutaneous dirofilariasis. A chest radiograph revealed no pulmonary nodules suspicious for lung involvement. No further treatment was required and the patient made a full cosmetic recovery.

Discussion

Transmitted chiefly by mosquitos of the Aedes, Anopheles, Armigeres, Culex and Mansonia genera, dirofilariasis is a disease caused vector-borne filarial nematodes of the Dirofilaria species1. While the parasite may cause cardiac involvement and congestive cardiac failure in canines, humans are accidental dead-end host. In the rare setting of human infection, dirofilariasis is typically manifest as cutaneous granulomata or asymptomatic pulmonary nodules2. The proposed pathogenesis in this case is via spread of the organism to the lung parenchyma via the lymphatic system, with subsequent infarction and nodule formation3.
Species implicated to date in human infections include D. tenuis, D. repens, and *D. immitis* (the dog heartworm)[1]. *D.immitis* is rarely implicated in human cutaneous disease, more typically causing asymptomatic pulmonary dirofilariasis; while only a limited number of case reports of human infection with *D. tenuis* are known[4]. *D. repens*, however, is highly endemic in eastern and southern Europe, with recent evidence of disease emergence in previously-transmission- free countries such as Austria, Germany and Poland; a phenomenon attributed partly to climate change[2,5]. In Ukraine, dirofilariasis was been a mandatory notifiable disease since 1975, included in the national surveillance system for notifiable diseases[5].

Diagnosis requires the histologic identification of parasites from surgical specimens, however polymerase chain reaction testing and enzyme-linked immunoassay is available in some

sites[3,6]. Pathological specimens are ideally examined for the presence of microfilariae in the uterus. Peripheral eosinophilia is typically absent, as was the case for our patient, and is therefore not reliable in excluding infection. One case series reported a prevalence of 15% for eosinophilia in patients with pulmonary manifestation[7]. In some cases there is a role for collection of peripheral blood during evening time for demonstration of microfilariae, the immature form of the parasite to guide the requirement for systemic treatment[8].

Treatment of cutaneous dirofilariasis requires the surgical removes of the parasite without any need for systemic antihelminthic therapy, unless microfilaraemia is suspected; in which case ivermectin is preferred[6].

While it represents a benign clinical entity, this case illustrates the need to consider parasitic infections in the differential for painless lumps in those with a compatible travel history. This is of particular relevance as current patterns of emigration from war-affected Ukraine persist, where the condition is endemic.

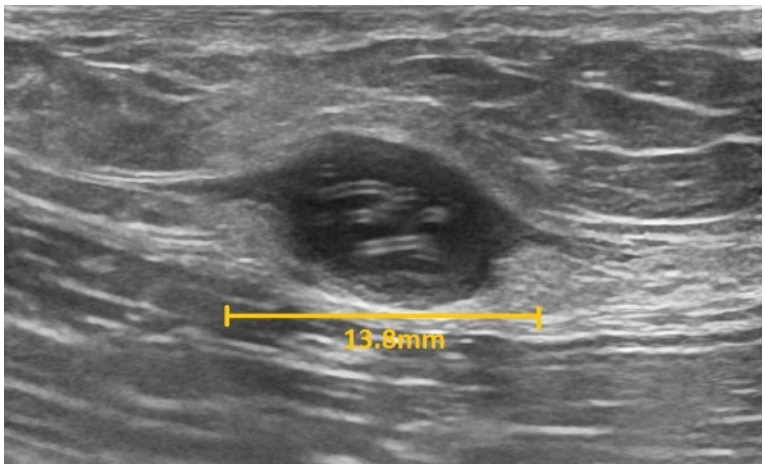

Figure 1: Ultrasound image, provided with patient's permission, depicting a serpiginous echogenic structure within the inguinal regions containing a 13.8mm hypoechogenic cavity, suspicious for a parasitic infection.

Declaration of Conflicts of Interest:
None declared.

Official Journal of the Irish Medical Organisation

Ir Med J; May 2025; Vol 118; No. 5; P82
May 29th, 2025

Corresponding author:
Dr Stephen P. Connolly,
Department of infectious Diseases,
Mater Misericordiae University Hospital,
Eccles Street,
Dublin 7,
Ireland.
E-Mail: sconnolly91@gmail.com.

References:

1. Barutzki D, et al. Pulmonary dirofilariasis: the great imitator of primary or metastatic lung tumour. *Chest*. 1990;98(3):544-546.
2. Reddy MV. Human dirofilariasis: an emerging zoonosis. *Trop Parasitol*. 2013;3(1):2–3.
3. Malik D, Amaraneni A, Singh S, Roach R. Man's best friend: How humans can develop *Dirofilaria immitis*infections. *IDCases*. 2016;4:43–5.
4. Joseph E, Matthai A, Abraham LK, Thomas S. Subcutaneous human dirofilariasis. *J Parasit Dis*. 2011;35:140–3.
5. Sałamatin R, et al. Human dirofilariasis due to *Dirofilaria repens* in Ukraine: Epidemiological report of 1465 cases. *Acta Parasitologica*. 2013;58.
6. Jelinek T, Schulte-Hillen J, Loscher T. Human dirofilariasis. *Int J Dermatol*. 1996;35:872–5.
7. Asimacopoulos PJ, Katras A, Christie B. Pulmonary dirofilariasis: the largest single-hospital experience. *Chest*. 1992;102:851–5.
8. Genchi C, Kramer L. Subcutaneous dirofilariosis (*Dirofilaria repens*): an infection spreading throughout the Old World. *Parasites & Vectors*. 2017;10:517.