Subcutaneous Human Dirofilariosis
By D. Repens In South Italy: A Case Report

Gaetano Brindicci¹, Carmen Rita Santoro², Fabio Signorile¹, Armando Leone¹,
Giuseppe Di Ciaula¹, Laura Monno¹, Gioacchino Angarano¹

¹Operative Unit of Infectious Diseases, Hospital-University Polyclinic of Bari, Italy;
²Operative Unit of Infectious Diseases, San Giuseppe Moscati Hospital of Taranto, Italy

SUMMARY
Human dirofilariosis is a zoonosis caused by different Dirofilaria species: D. repens, D. immitis, D. tenuis and D. ursi, thin nematodes belonging to the Onchocercidae family, whose larval stages are generally found in the natural (felines and canids) or accidental (human) definitive host.

INTRODUCTION
Human dirofilariosis is a zoonosis caused by some species of Dirofilaria: Dirofilaria repens, D. immitis, D. tenuis and D. ursi (CDC, 2018). Dirofilariae, nematodes of the Onchocercidae family, affect both domestic and wild carnivores living in tropical and temperate regions of the world, where they are transmitted at the end of a mosquito blood meal when infective larvae L3 leave the insect and penetrate into the skin (Service and Ashford, 2001). In Europe, human infection is rare, even in areas considered endemic such as Spain or Italy. In this paper we describe the case of an 82-year-old woman living in Modugno (Bari municipality), who came to our observation for a subcutaneous nodule on her right thigh that had appeared in the previous two weeks and gradually became necrotic.

The woman lived in an apartment with a dog. An adult worm, white, thin, about 140 mm long, came out of the necrotic area spontaneously. After microscopic examination, the worm was identified as D. repens. In Apulia, a South-Italy region, human dirofilariosis is a rare disease and since 1885 only 11 cases have been reported. In recent years we have witnessed an increase in the number of diseases transmitted by vectors at all latitudes, and in our region an increase in the Aedes albopictus population has been reported, so it is reasonable to expect an increase in dirofilariosis cases in humans.
in cases of human dirofilariosis in Apulia, due to the increased population of *Culex pipiens* (Capelli *et al.*, 2013, Giangaspero *et al.*, 2013).

**CASE REPORT**

In this paper we describe the case of an 82-year-old woman, (residing in Modugno, a town of about 40,000 inhabitants in the metropolitan area of Bari), who came to our observation with a subcutaneous nodule in the medial right-thigh region that had appeared in the previous two weeks. The nodule was initially not painful, and was without any signs of phlogosis.

The patient reported being treated for arterial hypertension and did not report any other disease; she lived in an apartment and owned a dog.

Gradually, in the next two weeks, the nodule increased in size and showed a hard-elastic consistency to palpation, overlaid by reddish and warm skin with a central necrotic region (*Figure 1*). Furthermore, excision was not required because a thin, mobile, cylindrical white worm spontaneously exited the skin while the patient was in our clinic for specialist advice, as required by the Emergency room doctor. The patient also underwent blood examinations during the same access, without evidence of eosinophilia or other major alterations. One tube was stored and then analyzed by veterinarians without the presence of microfilaria. After about two weeks, there was complete regression of the skin lesion.

**Morphology analysis**

The worm was thin, cylindrical, white, 0.5 mm thick and about 140 mm in length (*Figure 2*). The anterior end was rounded and of greater diameter than the posterior end (*Figures 3A and 3B*). Under the microscope, after clarification with xilolo, the outer surface of the nematode’s cuticle was found to have fine transverse striations and prominent longitudinal ridges (*Figure 4*). Each longitudinal ridge was separated from the others by a distance that was larger than the width of the actual ridge itself. Based on size and cuticular morphologic features, the worm was identified as a *Dirofilaria repens*. It was not possible to extract DNA from the adult worm since it was stored in formalin. The search for microfilariae circulating in the blood was negative.

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*Figure 1 - The cutaneous nodule from which the worm has come out.*

*Figure 2 - The adult worm.*

*Figure 3 - Anterior (A) and posterior (B) end of the worm.*
In recent years we have witnessed a rise in the number of diseases transmitted by vectors at all latitudes, though in the near future there is likely to be an increase of dirofilariasis in man. Bearing this in mind, it is vital for a clinic (above all in countries where such vectors are rarer) to be aware of what diagnostic procedure to adopt.

Finally, we wish to point out that, as far as we know, the described case is the first in the literature with spontaneous emission of the worm through the skin. The age of the patient (and therefore more damaged skin) and the location of the nodule (easily approachable by the patient herself) could explain this unique event.

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Conflict of interest
The authors declare that there is no financial/personal interest.

References


