

# Subcutaneous dirofilariasis

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**ABSTRACT** Subcutaneous dirofilariasis is a parasitic infestation found in endemic areas in Mediterranean countries such as Italy. It is occasionally reported in India, mostly from the state of Kerala. Presentation in an infant is extremely rare. We report a case of subcutaneous dirofilariasis in a child that was diagnosed by ultrasonography and confirmed by surgery.

**Keywords:** *Dirofilaria repens*, dirofilariasis, microfilaria, subcutaneous nodules  
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## INTRODUCTION

Dirofilariasis is a parasitic infestation caused by filarial nematodes belonging to the genus *Dirofilaria* (Nematoda, Filarioidea, Onchocercidae).<sup>(1)</sup> The majority of cases have been reported from European countries such as Italy, France, Greece and Spain. Sri Lanka is the most affected country in Asia.<sup>(2)</sup> In India, most of these cases have been reported from the state of Kerala.<sup>(3)</sup> Dirofilariasis can be found in different sites such as the orbits, upper limb, lung, mesentery, breast, male genitalia<sup>(2,4)</sup> and subcutaneous tissue.<sup>(5)</sup> Although most cases are diagnosed only after excision biopsy, we report a case that was diagnosed on pre-operative ultrasonography and subsequently confirmed intra-operatively.

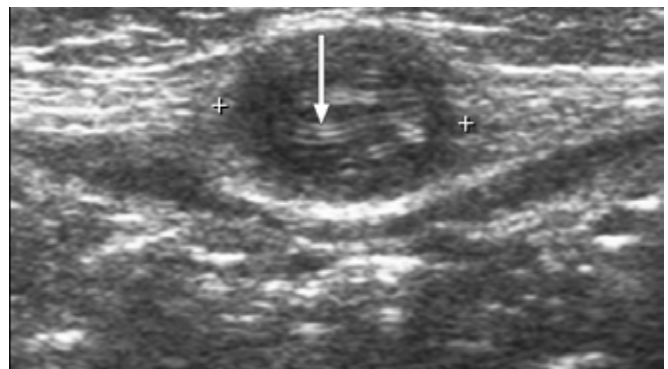
## CASE REPORT

The mother of a nine-month-old girl noticed a reddish swelling in the child's anterior abdominal wall (Fig. 1) for four days. The child would cry whenever the lesion was handled. On examination, there was a tender swelling measuring 2 cm × 2 cm in the anterior abdominal wall, with surrounding redness. The swelling was immobile and was firm in consistency. No other lesions were found on the abdomen. A clinical diagnosis of anterior abdominal abscess was made and the patient was admitted for further evaluation. Peripheral blood examination was within normal limits and the leukocyte count was also normal. There was no eosinophilia. The patient was then subjected to ultrasonography (US) examination.

US with a high-resolution linear probe revealed a hypo-echoic nodular lesion measuring 1.2 cm × 0.8 cm in the anterior abdominal wall. The magnified image demonstrated multiple linear hyperechoic lesions (Fig. 2) within this nodule, which showed active movement. A diagnosis of subcutaneous filariasis was made. The patient underwent excision of the nodule under general anaesthesia. Peri-operatively, the surgeon extracted live filarial larvae from the nodule. Microbiological examination



**Fig. 1** Photograph shows a subcutaneous lesion measuring 2 cm × 2 cm (marked in blue) in the anterior abdominal wall, seen on the left side, superior to the umbilicus.



**Fig. 2** High-resolution ultrasonography image shows linear hyperechoic lesions, i.e. worm (arrow) within the subcutaneous nodule.

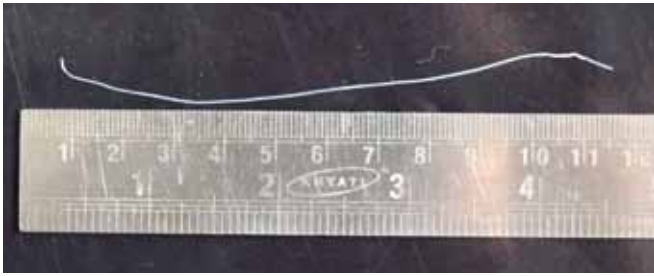
confirmed the presence of *Dirofilaria (D.) repens* measuring 12.5 cm in length (Figs. 3 & 4).

## DISCUSSION

Human subcutaneous dirofilariasis is a zoonotic filariasis caused

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**Fig. 3** Photograph shows the worm *Dirofilaria repens* measuring 12.5 cm in length.



**Fig. 4** Photomicrograph on glycerin wet mount fixed with formalin shows multilayered cuticle (arrows) with distinct longitudinal ridges.

by infection due to several species of worms belonging to the genus *Dirofilaria*. Most documented cases were attributed to *D. repens*.<sup>(6)</sup> Dogs are the primary hosts and reservoirs of *D. repens*, while humans are accidental hosts and dead ends in *Dirofilaria* infestation.<sup>(7)</sup> The primary vectors are mosquitoes, which transmit larvae from animals to humans. Female worm infestation is more common.<sup>(8)</sup> The worms found in humans cannot attain maturity and are hence unable to express larvae in the blood stream. This probably explains the rarity of microfilaraemia in humans. Since there is no microfilariae in the blood stream, antibiotics are ineffective.<sup>(9)</sup>

The most common presentations of dirofilariasis are subcutaneous and submucosal lesions.<sup>(10)</sup> Diagnosis is usually based on a high clinical suspicion in patients from endemic areas. Peripheral blood eosinophilia is an inconsistent finding and is dependent on the host's immune response.<sup>(4)</sup> Enzyme-linked immunosorbent assay for antibody response to *D. repens* somatic antigen is a useful adjuvant test in endemic areas with a strong clinical suspicion prior to surgery,<sup>(8)</sup> although it has been found to be negative in many cases.<sup>(4,9)</sup> A definitive diagnosis is secured on isolation of the worm. High-resolution US is the imaging modality of choice, as live motile worms can be visualised in real time. Surgery is the treatment of choice. Complete excision of the nodule with extraction of the worm is successful in most cases. A medical line of treatment is usually not necessary in the absence of filaremia.<sup>(3,4)</sup>

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