

## Canine vector-borne diseases (CVBD)

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### **Subcutaneous Dirofilariosis**

Subcutaneous dirofilariosis (or sc. dirofilariosis) is a zoonotic vector-borne disease, transmitted by bites of mosquitoes of many species. In Europe, dogs are the main reservoir for the pathogen.

#### **Pathogen**

- Filarial nematode *Dirofilaria repens*

#### **Vector**

- Mosquitoes of many species (*Aedes* spp., *Culex* spp.)

#### **Distribution**

- Common in Southern Europe, also found in Eastern Europe, Asia and Africa
- In Europe, prevalent in Italy, Southern France and other peri-Mediterranean countries, furthermore in East European countries like Romania, Hungary and Slovakia

**Clinical Signs and Diagnosis**

- The microscopic larval parasites are transmitted by mosquitoes into the skin and develop to adult stages in the subcutaneous tissue.
- Adult worms cause small, painless nodules; the location can vary as the worms can move through subcutaneous tissue. During surgery, worms may also be found in connective tissue between muscles.
- Clinical signs may include localised pruritic dermatitis
- Diagnosis by surgical removal of worms from subcutaneous nodules, use of serological testing, microfilarial count in blood (Knott's test) and antibody-/antigen-testing
- Microfilariae in the blood need to be differentiated from the more pathogenic *Dirofilaria immitis* and less significant *Dipetalonema* spp. (syn. *Acanthocheilonema* spp.)

**Treatment**

- Surgical removal from subcutaneous nodules
- Therapy with arsenic adulticide melarsomine and the macrocyclic lactones, such as the microfilaricidal moxidectin (of the avermectin group)

**Prevention**

- Use of macrocyclic lactones to prevent larval development, such as Advocate® (Advantage multi®), a combination of imidacloprid and moxidectin for dogs and cats

**Zoonotic potential**

- *D. repens* is zoonotic, although infection cannot transfer directly from dog to man, but need the insect vector
- Infection in man usually results in a subcutaneous nodule, with worms occasionally reaching deeper locations in the lung
- Over 350 human cases have been recorded worldwide, more than 100 from Italy