

The secret cargo of mosquitoes: *Dirofilaria repens* for the first time detected in Austria

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The scientists use special mosquito traps to collect the insects. Credit: Carina Zित्रa / Vetmeduni Vienna

Until a short while ago, infections with the parasite *Dirofilaria repens* was regarded as a classical traveler's disease in Austria. Mosquitoes from abroad passed the parasite on to dogs, in some cases even to humans.

The most recent research data from the Vetmeduni Vienna have shown, for the first time that the parasite has been imported to Austria and established here. In mosquitoes from the state of Burgenland, the scientists found larvae of the parasite. The infected mosquitoes possibly migrated to Austria through Eastern and Southern Europe. The results of this research were published in the journal *Parasites & Vectors*.

The parasite *Dirofilaria repens* is a roundworm that primarily attacks the subcutaneous tissue of [dogs](#) and causes lumps in the skin, swelling, and itching. Dogs, cats, foxes, wolves and martens can be infected in addition to dogs. "In humans, 16 cases of [human](#) dirofilariosis have been recorded since the year 2000, but the dark figure is definitely higher", says the lead author Katja Silbermayr. Humans, however, are so-called dead end hosts; the parasite does not reproduce in humans and therefore poses no major risk.

Silbermayr is a veterinarian and performs research on parasitic skin diseases. She emphasizes, "So-called cutaneous dirofilariosis is quite unknown among veterinarians in our latitudes. Therefore, through our work we wish to create greater awareness among medical experts. Lumps in the skin need not necessarily be tumors; they may be a sign of dirofilariosis. Only appropriate treatment or prevention can restrain the spread of this parasite."

Austrian-wide screening discloses dirofilaria in the state of Burgenland

Experts at the Institute of Parasitology investigated about 8,000 mosquitoes from the whole of Austria in 2012. They found *Dirofilaria repens* in two towns: Mörbisch and Rust at the lake Neusiedl. There were two different types of mosquitoes that carried *Dirofilaria repens*: *Anopheles maculipennis* and *Anopheles algeriensis*. "Basically these

[parasites](#) are not choosy in selecting their vector or carrier, i.e. the mosquito. Throughout the world *Dirofilaria repens* is found in the most diverse types of mosquitoes. We may well be able to demonstrate these parasites in other types of mosquitoes", says Silbermayr.

The reason for immigration: traveling and adoption

The cause of immigration, according to Silbermayr, is that dog owners travel with their pets, especially to southern countries. The adoption of pets from abroad also spreads parasites into Austria. Global warming is, according to Silbermayr, no crucial factor in the spread of *Dirofilaria repens*.

The scientists believe that *Dirofilaria repens* will spread further in Austria. The parasite is already quite rampant in Spain, Portugal, Italy, Croatia, Hungary and Slovenia. "It's merely a question of time until it spreads further in Austria."

A related parasite not yet discovered in Austria

Dirofilaria immitis, also known as the heartworm, is a related but much more dangerous parasite. It is transmitted exactly like *Dirofilaria repens* by mosquitoes to dogs, and settles in the lungs and the heart. At these sites the heartworm, which is about 20-30 cm long, leads to heart failure, dyspnea, and general deterioration. This parasite has not yet been found in [mosquitoes](#) in Austria.

"To prevent insect bites we have preparations with a prophylactic effect, which are either applied as a spot-on to the animals' skin, or provided in tablet form. Once the parasite is in the animal, the treatment is usually laborious and long-drawn. Depending on the severity of the affliction, it may be associated with complications", explains Silbermayr.

The life cycle of *Dirofilaria repens*

The infectious larvae of the parasite are transferred to dogs by a mosquito bite. In the skin the [larvae](#) mate and form so-called new microfilaria, which then reach the dog's bloodstream. Mosquitoes in Austria absorb the parasite when feeding on the dog's blood and are then able to infect further animals.

More information: "Autochthonous *Dirofilaria repens* in Austria," by Katja Silbermayr, Barbara Eigner, Anja Joachim, Georg G Duscher, Bernhard Seidel, Franz Allerberger, Alexander Indra, Peter Hufnagl and Hans-Peter Fuehrer, *Parasites & Vectors*
www.parasitesandvectors.com/content/7/1/226

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