

SURGICAL TREATMENT OF DIROFILARIASIS (Clinical observation from practice)

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Abstract

This article presents a clinical observation and the result of surgical treatment of a rare type of helminthiasis in our country. It is dirofilariasis which was observed in a young woman. The woman suffered from this pathology for a year. As a result of surgical treatment, she was able to get rid of excruciating pain and itching.

Keywords: helminthiasis, dirofilariasis, surgical treatment.

INTRODUCTION

Dirofilariasis is one of the helminthiasis previously considered exclusively zoonotic, and until recently, there was an opinion that only animals are susceptible to this disease - first of all, dogs. However, in recent years, human infection cases have become more frequent.

Dirofilariasis refers to larval helminthiasis (1). In this disease, it is not an adult nematode that parasitizes but its larva that has not reached puberty – microfilariae. The carriers of the infection are mosquitoes, so this helminth is most often found in warm climates: from Australia, South America and Africa to Southern Russia and Central Asia. In recent years, the most significant number of cases of dirofilariasis has been registered in Iran and Greece. However, this disease has been increasingly registered in temperate climates (2,3).

According to Russian authors, 35-40 cases of dirofilariasis have been detected annually on the territory of the Russian Federation for several years.

The incidence rate may be significantly higher (2,3). Moreover, the geography of infection is extensive – from warm Rostov-on-Don, temperate climatic zones of Tula and Ryazan, to frosty Siberia. In recent years, domestic authors have established, and laboratories confirmed the presence of *D. repens microfilariae* in the bloodstream [10.11]. The long-term microfilaremia revealed by us, their ability to migrate through blood vessels, shows the ways of infection of internal organs with *repens dirofilariasis* and allows us to explain the clinical picture in patients in the absence of sexually mature migrating helminths under the skin [11].

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These observations are confirmed by isolated findings of microfilariae in subcutaneous tissue, indicating the maturation and mating of sexually mature helminths with subsequent hatching of larvae [12, 13].

In Kazakhstan, about 20 cases were registered in the infectious diseases hospital in 2018 (zakon.kz .)

Literally from Latin *Dirofilaria*, “diro, filium” translates as “evil thread”. People are susceptible to dirofilariasis– that is, if an infected mosquito bites a person, they will become infected with a 100% probability. However, in the most significant risk zone of infection with dirofilariasis are some categories of people, including:

- breeders of dogs and cats;
- people living near open reservoirs;
- those who often visit nature – hunters, tourists, gardeners, fishermen.

Microfilaria can parasitize for about three years. In the new host, the larvae remain in the place of the mosquito bite for about three months: in the skin or the subcutaneous tissue. Here, microfilariae shed and become more viable in the bloodstream and spread throughout the body.

Before puberty, *Dirofilaria* develops only in the body of animals. The human body is a dead-end option since most larvae still die in people’s blood. It means that a person cannot be the source of infection.

The main symptom is the appearance of a painful seal under the skin or mucous membrane, with redness and itching at the site of insertion. At the same time, the helminth under the skin can move (at a speed of up to 15 mm per day), which can be noticeable to a person, both by sensation and visually. The main danger of dirofilariasis is primary reactions at the site of the introduction of microfilariae. A severe allergic reaction may occur. In addition, the skin becomes inflamed, and seals (cones) of a rather large diameter are formed. There is serous fluid and/or pus inside these seals, and *Dirofilaria* lives inside this content for some time. Often the parasite dies, and then the seal can gradually resolve itself. However, more often, surgical intervention is still required.

Observation

The patient went to the surgery emergency room complaining of pain and intense itching in the lateral abdominal area. According to the patient, she was observed by an infectious disease specialist and a parasitologist about helminthiasis and received various anthelmintic drugs for a year that did not give effect. The disease proceeds with periods of remission and exacerbation. During the period of “waking up” of the parasite, fancy patterns appear on the trunk, intense pain, which forces taking analgesics and pronounces itching of the skin with an increase in body temperature. This problem appeared after a mosquito bite, after a particular time. She turned to various doctors, first of

all to dermatologists; the diagnosis was not established until she began to study this problem herself and turned to parasitologists and infectious diseases specialists.

According to the patient, the exacerbation occurred at night. She woke up from pain and itching and decided to consult a surgeon since repeated use of anthelmintic drugs did not have an effect. When contacting the surgeon, the patient had two foci (Fig. 1-2), in the left lumbar - lateral region, with fresh traces of oedema and hyperemia. If new “moves” appear, the parasitologist recommends removing them surgically. The first figure (lumbosacral region) has a rounded seal with almost no signs of inflammation. There was a seal closer to the centre of the lesion. In Figure 3, a picture of the process of subsiding is presented, with moderate hyperpigmentation. These drawings were made by the patient herself, during the migration of the parasite during the year.



Figure 1. The last location of the parasite



Figure 2. The focus on the left lumbar lateral region



Figure 3. Place of the previous location of the parasite, the anterior abdominal wall

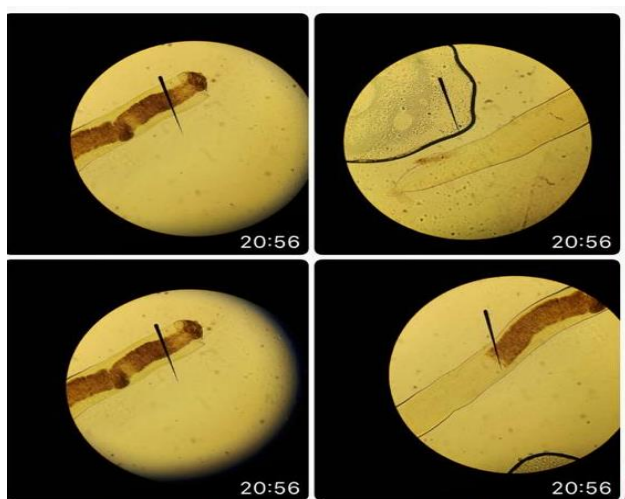


Figure 4. 400-fold increase in the parasite removed from our patient

After studying the tests presented to the patient (UAC, BAC, ELISA for helminthiasis), where no abnormalities were found, the patient was taken for surgery. After preliminary coordination with the patient, surgical tactics, under local anaesthesia, the focus was excised, first in the lumbosacral region, where there was a rounded formation (the wound was immediately sutured), then in the left, lumbosacral side wall of the abdomen. Without closing the last wound, they began to study the excised material. At the same time, when a careful step-by-step autopsy was performed, we found a “wriggling” formation in the form of a thin thread, up to 12 mm in size, isolated with the tip of a scalpel in the thickness of the excised tissue, skin and subcutaneous tissue, and placed on a napkin. The larva was alive. It was moving. In order to study it definitively, they decided to send it to parasitologists, and therefore it was placed in a bottle with normal saline. The wound in the left lumbar-lateral area was sutured. After that, the first excised material was opened, where a larva was also found, which was darker in colour and showed no signs of life.

The larvae were transferred to parasitologists who observed our ward.

Below are the pictures (Fig.4) of larvae in 400x magnification, which were studied in the laboratory.

Conclusion

Dirofilariasis is usually chronic, with relapses characterized by periods of outbreaks and attenuation of the disease. When this parasite is detected on the surface of the body, treatment is only surgical, since no drugs affect it. If you do not treat in time, inflammation of the tissues is likely, and the occurrence of an abscess.

Prevention of the disease includes the extermination of mosquitoes and the restriction of animal and human contact with them, timely detection of animal *Dirofilaria* and their treatment, the fight against stray animals, and anthelmintic prevention in pets.

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