Archives of the Balkan Medical Union
vol. 55, no. 3, pp. 495-498
September 2020

CASE REPORT

PARASITOSIS OF THE FACE SKIN: A CASE REPORT

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Received 29 May 2020, Accepted 15 July 2020
https://doi.org/10.31688/ABMU.2020.55.3.16

Abstract

Introduction. Dirofilariosis is caused by the filarial nematodes *Dirofilaria (Nochtiella) repens* and *Dirofilaria immitis*. The vectors are mosquitoes of the Culicidae family of the genus Anopheles, Aedes and Culex.
Case presentation. We present the case of a 47-year-old woman, under treatment for suspected atheroma of the facial skin of the eye and nose. The patient presented to medical check-up without symptoms of pain or discomfort. After histological examination of the lesions, the diagnosis of „dirofilariosis repens" was established, a disease extremely rare in Bulgaria.
Conclusions. Dirofilariasis repens is a parasitosis, with few cases reported in Bulgaria. It is believed to be a consequence of being bitten by insects from the Mediterranean region. Due to the nature of the disease and the small number of cases in Bulgaria, the diagnosis is difficult. The primary diagnoses are: neoplasms, lymphadenitis of unknown etiology, hydrocele, lipoma, dermoid cyst, fibroadenoma, neurofibroma, allergic conjunctivitis. In this case, the removal of the tumour and histological examination of the removed parasites were made, which guarantees diagnosis and treatment.

Keywords: parasitosis, Dirofilariasis, *Dirofilaria repens*.

Résumé

La parasitose de la peau du visage : rapport de cas

Introduction. La dirofilariose est causée par les nématodes filaires *Dirofilaria (Nochtiella) repens* et *Dirofilaria immitis*. Les vecteurs sont des moustiques de la famille des Culicidés du genre Anopheles, Aedes et Culex.
Rapport de cas. Nous présentons le cas d'une patiente de 47 ans qui reçoit un traitement pour la suspicion d'athérome de la peau faciale de l'œil et du nez. La patiente s'est présentée au contrôle médicale sans symptômes de douleur et de malaise. Après l'examen histologique des lésions, le diagnostic de «Dirofilaria repens» a été établi, ce qui est extrêmement rare en Bulgarie.
Conclusions. La Dirofilariose repens est une parasitose, avec peu de cas signalés en Bulgarie. On pense qu'elle est la conséquence des piqûres d'insectes de la Méditerranée. En raison de la nature de la maladie et du petit nombre de cas dans notre pays, le diagnostic est difficile. Les diagnostics primaires sont: néoplasmes, lymphadénite d'étiologie inconnue, hydrocèle, lipome, kyste dermoïde, fibroadénome, neurofibrome, conjonctivite allergique. Dans ce cas, l'ablation de la formation et l'examen histologique des parasites enlevés ont été effectués, ce qui garantit le diagnostic et le traitement.

Mots-clés: parasitose, ver du cœur, *Dirofilaria repens*.

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Introduction

Dirofilariosis is caused by the filarial nematodes *Dirofilaria (Nochtiella) repens* and *Dirofilaria immitis*. Their usual final hosts are pet dogs, although cats, foxes, wolves, coyotes, shrews, and sea lions can be both a suitable host and a parasite reservoir[1]. The vectors are mosquitoes of the Culicidae family of the genus Anopheles, Aedes and Culex. Most cases of human pulmonary heartworm disease occur in the United States, around the Gulf of Mexico and along the South Atlantic coast, where the incidence of dogs with *Dirofilaria immitis* is 40%[2]. The distribution range is very wide and reaches southern Canada. The geographical distribution of the disease in humans is parallel to that in dogs. *Dirofilaria repens* is endemic in areas around the Mediterranean sea. Italy is the country with the highest human exposure (66%), followed by France (22%), Greece (8%) and Spain (4%)[3]. The majority of cases in France are registered in areas south of the 46th parallel[4]. Changes in the geographical distribution of heartworm disease are expected, in connection with global warming.

Case report

We present the case of a 47-year-old woman, under treatment for suspected atheroma of the face, located in the medial eye corner and nose. The tumour appeared 4 months previously, after a mosquito bite.

As background information, the patient reported that she worked in agriculture, in strawberry plantations in Spain. The patient seeks medical examination due to aesthetic indications, does not report pain or discomfort. Under local anaesthesia, the skin was repaired, with a skin incision, and the removal of the tumour showed the movement of three parasitic worms inside.

Even before the tumour was removed and placed in a vessel for testing, the parasites inside died. It was apparent that they cannot live in an aerobic environment. A few days later, the histological result came – Dirofilariasis repens. This is a parasitosis that has few cases reported in Bulgaria. It is believed to be a consequence of being bitten by insects from the Mediterranean region.

Discussion

Despite the fact that the human dirofilariasis is considered rare, there is an increase of reported cases in the recent few years[4]. In Eastern and Southeastern Europe, the infection caused by *Dirofilaria repens* is the most encountered dirofilariasis with endemic foci, as well as in Asia minor and Sri Lanka[5]. The country with the highest number of reported cases is Italy[6]. Furthermore, *Dirofilaria repens* is the primary cause of subcutaneous dirofilariasis in Asia. In Bulgaria, the statistical data are different from Eastern European data. Between 1973 and 2014, a total of 47 cases of human heartworm disease were reported in the country[1].

Unlike normal hosts, parasite nodes are formed in humans at the site of the parasite's localization, with an exception over the dirofilariasis of the eye. In most cases, the nodule is located in the subcutaneous tissue (dermis and submucosa). In all cases, the

Figure 1. Tumour before surgery.

Figure 2. Post surgical aspect.

Figure 3. Removed tumour with parasitic worms.

Figure 4. Seam of wound.

disease started unnoticed, with asymptomatic subcutaneous nodules and patients seeking medical examination after accidentally filling a „bump"[11].

In most reported cases, the localization of the parasite is subcutaneous (74.48%), in different parts of the body, subconjunctival (21.27%) and genital (scrotum, testicles) (4.25%). The upper half of the body is more often affected (80.86%) than the lower half (19.14%)[7].

In ocular dirofilariasis, the parasite is subconjunctival and is not covered by the host response. Our patient did not complain of itching and eye pain, eyelid swelling, redness, photophobia and blepharospasm. Usually, these symptoms are initially considered to be an allergic reaction to various chemical agents. Cases of localization of the parasite in the vitreous, lens, and ocular space have also been reported. Cases of localization in the parotid gland[8], in the submucosa of the oral cavity, the base of the tonsils and in the root of the tooth have been described in the literature[9].

Due to the nature of the disease and the small number of cases in our country, the diagnosis is difficult. The primary diagnoses are: neoplasms, lymphadenitis of unknown etiology, hydrocele, lipoma, dermoid cyst, fibroadenoma, neurofibroma, allergic conjunctivitis[7].

Serological tests contributes little to the detection and identification of the parasite in humans[10]. Positive results are interpreted in relation to available endemicity and clinical complaints.

Investigation of blood eosinophilia and serum IgE profile in patients with subcutaneous nodes is recommended.

The positive diagnosis of dirofilariasis repens can be made by the study of histological preparations or identification of the extirpated parasite.

The presented case is a rarity in Bulgaria. At the initial examination, the team of specialists suspected a type of epidermal cyst. During intraoperative intervention and histological examination, the diagnosis is somewhat surprising.

Conclusions

According to existing legislation, dirofilariasis in humans is not subjected to mandatory registration and notification. Therefore, the data for Bulgaria are incomplete.

The climatic and geographical conditions of our country are favorable for the local spread of the disease. So far, cases of dirofilariasis in humans have been diagnosed in 18 districts of Bulgaria.

Dirofilariasis repens is a parasitosis with a few cases reported in Bulgaria. It is believed to be a consequence of being bitten by insects from the Mediterranean region. Due to the nature of the disease and the small number of cases in our country, the diagnosis is difficult. The primary diagnoses are: neoplasms, lymphadenitis with unknown etiology, hydrocele, lipoma, dermoid cyst, fibroadenoma, neurofibroma, allergic conjunctivitis. In this case, the removal of the tumour and histological examination of the removed parasites were performed, that allowed the positive diagnosis.

Author Contributions:

M.C., A.B., and I.A. were responsible for the diagnostic procedures, clinical diagnosis, and treatment decisions. M.C. and M.B. wrote the manuscript. All authors have read and agreed to the published version of the manuscript.

Compliance with Ethics Requirements:

„The authors declare no conflict of interest regarding this article"

„The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from the patient included in the study"

„No funding for this study"

Acknowledgments:

None

References

1. Vuchev D, Mikov O. Dirofilariasis – transmissible helminthiasis in humans. DDD, Bulletin 1-4, 2004, 106-110.
2. Klochko A, Wallace MR. Dirofilariasis. Update: Jul 22, 2013. Available at emedicine.medscape.com/article/236698. (accessed 20 May 2020)
3. Szenasi Z, Kovacs AH, Pampiglione S, et al. Human dirofilariosis in Hungary: an emerging zoonosis in central Europe. *Wien Klin Wochenschr.* 2008;120(3-4):96-102.
4. Raccurt CP. Human dirofilariasis in France: new data confirming the human transmission of Dirofilaria repens to the north of the 46 degree north latitude. *Med Trop (Mars).* 2000;60(3):308-9.
5. Pampiglione S, Canestri Trotti G, Rivasi F. Human dirofilariasis due to Dirofilaria (Nochtiella) repens: A review of world literature. *Parassitologia.* 1995;37:149–93.
6. Pampiglione S, Rivasi F, Angeli G, et al. Dirofilariasis due to Dirofilaria repens in Italy, an emergent zoonosis: Report of 60 new cases. *Histopathology.* 2001;38:344–54.
7. Harizanov R, Jordanova D, Bikov I. Some aspects of the epidemiology, clinical manifestations, and diagnosis of human dirofilariasis caused by Dirofilaria repens. *Parasitology Research.* 2014;113(4):1571-1579.
8. Amano O., Mizobe K., Bando Y., Sakiyama K. Anatomy and histology of rodent and human major salivary glands: Overview of the Japan salivary gland society-sponsored workshop. Acta Histochem. Cytochem. 2012;45:241–250. doi: 10.1267/ahc.12013. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
9. Celakovsky P, Kalfert D, Tucek L, Mejzlik J, Kotulek M, Vrbacky A, Matousek P, Stanikova L, Hoskova T, Pasz A. Deep neck infections: risk factors for mediastinal extension. Eur Arch Otorhinolaryngol. 2013 Aug 8;271(6):1679–1683. doi: 10.1007/s00405-013-2651-5. [PubMed] [CrossRef] [Google Scholar]
10. Kaftandjiev IT, Harizanov RN. Rare case of epididymal dirofilariasis. QJM 2016;109(5):351-2.
11. Simon F, Lopez-Belmonte J, Marcos-Atxutegi C, Morchon R, Martin-Pacho JR. What is happening outside North America regarding human dirofilariasis? *Vet Parasitol.* 2005;133(2-3):181-9.