

Clinical and Intraoperative Features of Dirofilariasis of the Temporal Region: Case Report*

Vasyl A. Rybak^{1,*}, Olga S. Cherniak^{2,*}, Pavlo P. Snisarevskyi³, and Valentyna I. Zaritska⁴

¹ Head, Center of Maxillofacial Surgery, Kyiv Regional Clinical Hospital, Kyiv, Ukraine (place of work at moment of article preparing).
Head Physician, Municipal Non-Commercial Enterprise "Irpın Stomatology", Irpin, Kyiv Region, Ukraine (place of work at moment of article publication)

² Head, Department of Ultrasound, Kyiv Regional Clinical Hospital, Kyiv, Ukraine

³ Head, Department of Pathomorphology, Kyiv Regional Clinical Hospital, Kyiv, Ukraine

⁴ Associate Professor, Department of Pathology, Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine (PhD)

ABOUT ARTICLE

Article history:

Paper received 10 June 2018

Accepted 20 August 2018

Available online 25 December 2018

Keywords:

Dirofilariasis

Dirofilaria repens

Threadlike worm

Encapsulation

SUMMARY

Dirofilaria (synonym: threadlike worm) is a parasite of domestic and wild animals that can infect humans secondarily by mosquitoes [1]. Our case is strictly demonstrating the features of the *Dirofilaria repens* located in the temporal area. And we precisely described that stage of absence of *Dirofilaria* migration as stage of anabiosis (state of greatly reduced metabolism) before its encapsulation stage [2].

© 2018 OMF Publishing, LLC. All rights reserved.

Introduction

Dirofilaria (synonym: threadlike worm) is a parasite of domestic and wild animals that can infect humans secondarily by mosquitoes [1]. From the Latin *dirus* ("fearful", "vicious" or "ominous") + *filum* ("thread") [2] and *repens* ("creeping"). Dirofilariasis is the disease caused by filarial nematodes of the genus *Dirofilaria* [3]. There are about 40 recognized species of *Dirofilaria* [4] and the commonest (Joseph *et al*, 2011) of the *Dirofilaria* species which infects humans are *Dirofilaria repens* and *Dirofilaria immitis* [2]. The lung lesions are caused by *Dirofilaria immitis* while the subcutaneous lesion is caused mostly by *Dirofilaria repens* [5]. The purpose of our case report is to highlight the clinical, intraoperative, and postoperative features of Dirofilariasis of the temporal region.

Case Report

A 31-year-old patient referred to the Maxillofacial Surgery

Center with complaints for a painless nodular swelling in the left temporal region (Figs 1, 2) during last month. The patient did not notice any movement (active migration) in the area of swelling. Also, patient did not complain for a spontaneous increasing of swelling in the face similar to allergic reaction. According to patient medical record he lived near the water supply and sewage enterprise in Ukrainka, Kyiv Region. Ultrasound showed an oval shape hypoechoic lesion in cellular tissue in the inferior aspect of the left temporal area. Color and Power Doppler showed no vascularity inside the lesion and in the surrounding tissue. A surgery (enucleation) was done under the general anesthesia. A worms' behavior during (Fig 3) and after the surgery (Fig 4) was the same as in report of Jayasinghe *et al* (2015) [6]: first a threadlike worm was found to be wriggling for several seconds before it became lifeless. A histopathological evaluation confirms the preoperative diagnosis. The postoperative period was smooth.

Discussion

Pampiglione *et al* (2001) reported about 60 new cases of *Dirofilaria repens* in Italy during 9 consecutive years [7]. According to their significant amount of cases the *Dirofilaria* was located in the subcutaneous tissue (49 cases), the epididymis (2 cases), the spermatic cord (2 cases), the lung (2 cases), the breast (2 cases), the omentum (2 cases), and under the conjunctival tissue (1 case) [7]. In 2015 Manuel *et*

* This manuscript has not been presented

* Corresponding author. MNCE "Irpın Stomatology", 38 Sadova Street, Irpin 08200, Kyiv Region, Ukraine.

Phone: +380630373737

E-mail: rybak.jaws@gmail.com (Vasyl A. Rybak)

E-mails of the co-authors:

cherniak.os@gmail.com (Olga S. Cherniak)

sneip78@gmail.com (Pavlo P. Snisarevskyi)

viomelvi@gmail.com (Valentyna I. Zaritska)



FIGURE 1. Preoperative anterior view: Place of the *Dirofilaria repens* localization (arrow) at left temporal region before removal.



FIGURE 2. Preoperative lateral view: Place of the *Dirofilaria repens* localization (arrow) at left temporal region before removal.

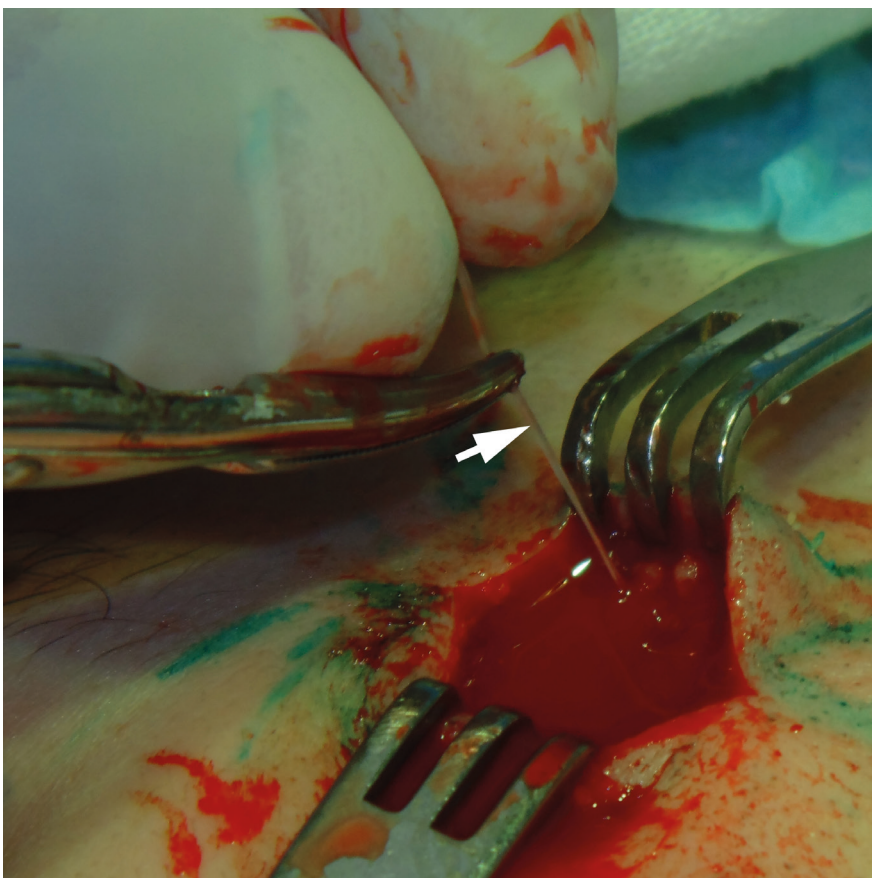


FIGURE 3. Zoomed intraoperative view: *Dirofilaria repens* (arrow) upon removal.



FIGURE 4. Specimen of *Dirofilaria repens* (arrow) after removal.

al reported only a 13th intraoral case of *Dirofilaria* published in literature [1]. Also a lot of case reports described ocular *Dirofilaria* [8]. Generally, review of literature revealed around 800 *Dirofilaria* cases distributed worldwide [5]. The prospective study (Ermakova *et al*, 2017) of 266 patients revealed that proportion of patients with encapsulated parasites was 56.4%; active migration of the parasite was observed in 43.6% of patients [9].

Conclusions

Our case is precisely demonstrating the features of the *Dirofilaria repens* in the stage of absence of migration i.e. stage of anabiosis (Tymofieiev, 2012) (anabiosis is a state of greatly reduced metabolism) before its encapsulation stage [2].

Role of the Co-authors

Vasyl A. Rybak (concept of the article, writing, and editing).
Olga S. Cherniak (material collection).

Pavlo P. Snisarevskyi (material collection).

Valentyna I. Zaritska (material collection).

All authors read and approved the final manuscript.

Term of Consent

Written patient consent was obtained for publishing the clinical photographs.

Fundings

No funding was received for this study.

Acknowledgments

None.

References

1. Manuel S, Surej Kumar LK, Kham SA. Oral dirofilariasis: report of a case arising in the buccal vestibular region. *J*

- Oral Maxillofac Surg, Medicine, Pathol* **2015**;27(3):418–21. <https://doi.org/10.1016/j.ajoms.2014.05.006>.
2. Tymofieiev OO. Manual of maxillofacial and oral surgery [Russian]. 5th ed. Kyiv: Chervona Ruta-Turs; **2012**.
 3. Reddy MV. Human dirofilariasis: an emerging zoonosis. *Trop Parasitol* **2013**;3(1):2–3.
 4. Magill AJ, Ryan ET, Solomon T, Hill DR. Hunter's tropical medicine and emerging infectious disease. 9th ed. Saunders; **2013**.
 5. Joseph E, Matthai A, Abraham LK, Thomas S. Subcutaneous human dirofilariasis. *J Parasit Dis* **2011**;35(2):140–3. <https://doi.org/10.1007/s12639-011-0039-2>.
 6. Jayasinghe RD, Gunawardane SR, Sitheeque MAM, Wickramasinghe S. A case report on oral subcutaneous Dirofilariasis. *Case Reports in Infectious Diseases* **2015**;Vol. 2015(648278):4 pages. <https://doi.org/10.1155/2015/648278>.
 7. Pampiglione S, Rivasi F, Angeli G, Boldorini R, Incensati RM, Pastormerlo M, Pavesi M, Ramponi A. Dirofilariasis due to *Dirofilaria repens* in Italy, an emergent zoonosis: report of 60 new cases. *Histopathology* **2001**;38(4):344–54.
 8. Boss JD, Sosne G, Tewari A. Ocular dirofilariasis: Ophthalmic implication of climate change on vector-borne parasites. *Am J Ophthalmol Case Rep* **2017**;7:9–10. <https://doi.org/10.1016/j.ajoc.2017.04.004>.
 9. Ermakova L, Nagornyy S, Pshenichnaya N, Ambalov Y, Boltachiev K. Clinical and laboratory features of human dirofilariasis in Russia. *IDCases* **2017**;19:9:112–5. <https://doi.org/10.1016/j.idcr.2017.07.006>.

Rybak VA, Cherniak OS, Snisarevskiy PP, Zaritska VI.
 Clinical and intraoperative features of dirofilariasis of the temporal region: case report.
J Diagn Treat Oral Maxillofac Pathol **2018**;2(4):174–8.
<http://dx.doi.org/10.23999/j.dtomp.2018.4.5>.