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Scrotal filariasis in a Caucasian child in Greece

Adelais K. Tzortzopoulou[1], Panagiota Giamarellou[2], Aikaterini Michail-Strangia[2], Alexander Passalides[1]

[1] Second Department of Pediatric Surgery, "A. & P. Kyriakou" Children's Hospital, Athens, Greece
[2] Department of Pathology, "A. & P. Kyriakou" Children's Hospital, Athens, Greece

ABSTRACT

Lymphatic filariasis is very rare in Greece, despite her geographical position. Only a few cases about affected young men and children have been published during the last century. We report a 2-year-old Caucasian boy presented to our emergency department with a painless swelling in the right scrotum during the last 10 days. Neither fever nor discomfort was reported. In the clinical examination, the right scrotum was hard but painless. An ultrasound and a computed tomography (CT) scan showed a mass (d 2.04 x 1.34x 2.48 cm) in the right epididymis and it was thought to be a solid tumor of epididymis. A decision of an exploratory scrotal surgery was made and a right orchiectomy was performed. The histological examination showed that here were a lot of eosinophil, lymphocytes and some parasites, namely Wuchereria bancrofti in the parenchyma of both testis and epididymis. Then some more specific blood tests were done, which were negative for filariasis, and it was decided that chemotherapy was not needed. In a follow-up period of one and two years after the surgery, all the tests (blood tests and CT scan) were normal and the child had a normal everyday life. Sometimes some clinical cases in children could be tricky. In Europe, such parasitic diseases, as filariasis, are very rare and their diagnosis is difficult for even an experienced pediatric surgeon.

Key Words: Lymphatic filariasis; children; Wuchereria bancrofti.

Corresponding Author: Dr. Adelais K. Tzortzopoulou. Second Department of Pediatric Surgery, "A. & P. Kyriakou" Children's Hospital, Athens, Greece
E mail: t.k.adelais@gmail.com
ORCID ID: https://orcid.org/0000-0002-6561-1625
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Introduction

Lymphatic filariasis is a global health problem and in 2015 38.5 million people were infected. Today the World Health Organization (WHO) estimates that more than 856 million people in 52 different countries (most of them in Africa and Asia) remain threatened by lymphatic filariasis and require preventive chemotherapy to stop the spread of this parasite infection. WHO has developed health programs aimed at eliminating the disease by the year 2020 [1].

Lymphatic filariasis is a parasitic infection caused by roundworms of the family Filariodea. There are three types of these worms: Wuchereria bancrofti, Brugia malayi

and Brugia timori. Wuchereria bancrofti is responsible for more than 90% of the infected people and it is also common in Greece. Infected mosquitoes deliver the larvae (microfilariae) to the skin from where they insert into the body. Then the worms migrate to the lymphatic vessels and they mature into adults and breed (adult filarial worms), which cause damage to the lymphatic system [1,2].

In childhood the infection usually causes a hidden damage to the lymphatic system. Most of the infected children develop the clinical disease in their later adult life. That is why it is very difficult to diagnose the disease only from the clinical examination in childhood. Several studies for lymphatic filariasis from endemic areas have recorded a lot of pediatric patients with non-specific lymph node enlargement of the neck, the axilla or inguinal region. Scrotal hydrocele and lymphedema is most common in boys of pubertal age or older. Fever and vomiting are not so common symptoms [3].

Every year Wuchereria bancrofti affects 22 million of children below 15 years old in endemic areas. Hopefully, lymphatic filariasis is very rare in Europe. With this case report we present a case in Greece, the first one during the last decade, describing the most important clinical findings, the main differential diagnosis, the therapeutic interventions and outcomes [4].

Case report

A 2-year-old Caucasian boy from Pyrgos (southern Greece) presented to our emergency department with a painless swelling in the right scrotum during the last 10 days. Neither fever nor urinary symptoms and discomfort were reported. His parents denied any recent trauma in the scrotum or relevant family history. In the physical examination, the right scrotum was hard but painless. A right testicular mass was palpable. The ultrasound and the computed tomography (CT) scan showed a mass (d 2.04 x 1.34x 2.48 cm) in the right testis with internal vascularity, and it was thought that to be a solid tumor [Fig. 1].

Fig. 1. CT scan demonstrating a mass (d 2.04 x 1.34x 2.48 cm) in the right testis with internal vascularity. It was thought that it was a solid tumor.

Thus, all the testicular tumor markers in blood tests (hCG, AFP, LDH) were negative. Other blood tests showed elevated white blood cells (15500/μl), 52% neutrophils, 36.8% lymphocytes and 5.4% eosinophils. His hemoglobin was 14g/dl and hematocrit 40.1%. A decision of an exploratory scrotal surgery was made. The intraoperative findings revealed a tumor-like-mass and a radical right orchiectomy was performed. Macroscopic examination showed an enlarged mass including epididymis and testis d 2 x 2.5 cm. In microscopic evaluation were identified a lot of eosinophils, lymphocytes and some parasites, namely Wuchereria bancrofti. The diagnosis was made based on the histologic examination and the identification of the adult worm in the parenchyma of testis [Fig. 2A, B]. After the surgery blood tests identifying microfilaria and circulating filarial antigen – CFA were all negative. Because of these results and the age of the patient chemotherapy was not given.

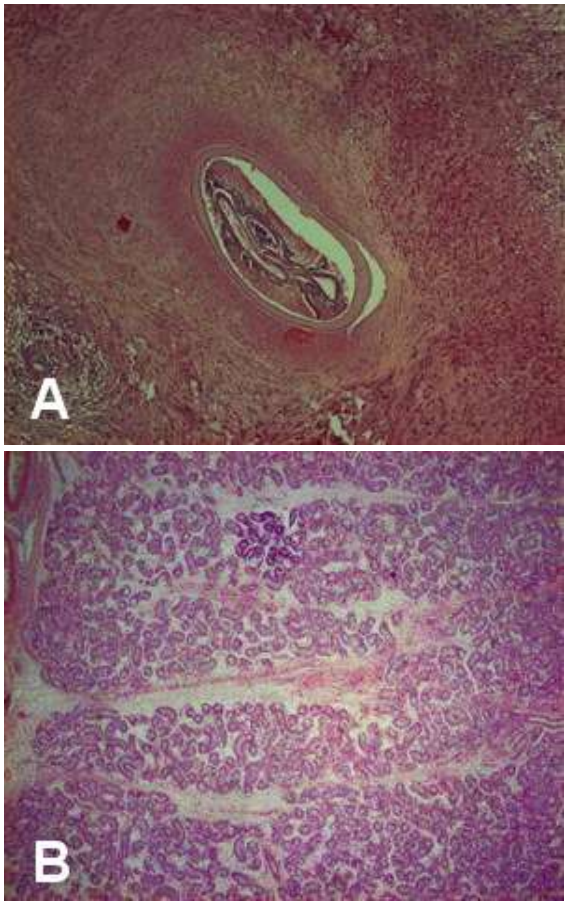

Fig. 2 A, B. Microscopic evaluation revealed a lot of eosinophils, lymphocytes and some parasites, namely Wuchereria bancrofti.

In a follow-up period of one and then two years after the surgery, all the previously mentioned blood tests and both the abdomen and thorax CT scan were repeated and were normal.

Discussion

In a Caucasian child with a scrotal swelling the most frequent diagnosis is hydrocele. Inguinal hernia, epididymitis, orchitis, varicocele, twisted testis and malignancy were included in the differential diagnosis. Nowadays, we need to have a suspicion of tuberculosis or lymphatic filariasis, due to the intense migration from endemic areas to Europe. Also, through the financial crisis in whole Europe the prevalence of filariasis is becoming higher, as it is associated with precarious socio-environmental conditions [5].

Lymphatic filariasis in Europe, caused by Wucheria bancrofti, is extremely rare in Caucasian patients, especially in children. Thus, every year Wuchereria bancrofti affects 120 million people in endemic areas (sub-Saharan Africa, Southeast Asia, India and Pacific islands), 22 million of whom are children below 15 years old. Generally, it has been recognized that the greater the prevalence of the infection in the general population, the larger the number of infected children [6].

Although the first reference to the lymphatic filariasis occurs in ancient Greek literature, today the Greek patients, who are infected by this parasitic disease, are very few. Greece is one of the non-endemic countries for lymphatic filariasis, according to WHO map. Thus, the most recent publication is about another nematodes of the same family: Dirofilaria, which has infected a lot of dogs in Greece. As lymphatic filariasis, Dirofilaria prevalence, is higher in northern areas of Greece, like Thessaloniki and Larisa, than others in southern Greece, like Heraklion [4].

To diagnose the disease in children, even in endemic areas, is very difficult because in most cases children are asymptomatic microfilaraemic carriers (positive for microfilaria but without clinical symptoms) or cryptic individuals (patients positive only for circulating filarial antigen - CFA, which is the marker for live worm). The pathogenesis and the transmission of this parasitosis are still not clearly understood in pediatric population. The damage, which is caused to the lymphatic system by the adult worms, develops slowly and most of the symptoms are detected as the children are older than 4 years. According to a recent study in India, including 1383 children, younger than 15 years old, only 14.6% of the

children had signs and symptoms of the acute disease. A 3.8% developed hydrocele, 9.9% of children were asymptomatic microfilaraemic carriers and 17.1% found to have cryptic infection [7,8].

In our case the diagnosis of filariasis was unexpected and was made due to the histological examination findings. Filariasis was not included in the pre-operative differential diagnosis, because there were neither signs of systemic manifestation of this disease nor certain features peculiar to scrotum filariasis in ultrasound, such as calcified dead worms and the classical 'filariar dance sign'. Fine needle aspiration cytology was not performed because its role in diagnosis of testicular or epidydimal masses is still controversial [9].

Regarding chemotherapy, Diethylcarbamazine (DEC) is the medicine of choice, which is both microfilaricidal and active against the adult worms. In 2000 the World Health Organization (WHO) established the global program to eliminate lymphatic filariasis (GPELF) also in school-age children to eliminate lymphatic filariasis by 2020 in endemic areas. During the 2014 an estimated 138.8 million school-aged children were treated. Treatment in children more than 18 months of age involves either a 1-day or 12-day treatment course (6mg/kg/day). In early stages of lymphedema DEC is helpful if there is an active filarial infection. Through its microfilaricidal action it might prevent further lymphatic damage. Other antifilarial drugs, such as ivermectin and albendazole, are important in reduction of blood microfilaral levels and lymphatic filariasis transmition, but have limited role in acute attacks of disease. Our patient did not receive any chemotherapy because microfilarias were not identified in the blood and all the other blood tests were negative as well as the CT scan for the lungs and abdomen, even in a two years follow up [10-12].

Compliance with ethical statements

The views expressed are those of the authors, have the patient's family permition and do not have any conflict of interest with other institutions and health organizations.

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References

[1]World Health Organization. Tropical diseases, Lymphatic filariasis 2016, http://www.who.int/gho/neglected_diseases/lymphatic_filariasis/en/

[2]Ho CC, Ideris N. Testicular mass: do not forget filariasis. Infection. 2013;41(4):893-96.

[3]Shenoy RK, Bocarie MJ. Lymphatic filariasis in children: clinical features, infection burdens and future prospects for elimination. Parasitology. 2011;138(12):1559-68.

[4]Diakou A, Kapantaidakis E, Tamvakis A, Giannakis V, Strus N. Dirofilaria infections in dogs in different areas of Greece. Parasit Vectors. 2016;9(1):508.

[5]Brandao E, Bonfim C, Alves A, Oliveira C, Montenegro CE, Costa T, et al. Lymphatic filariasis among children and adolescents: spatial identification via socio-environmental indicators to define priority areas for elimination. Int Health. 2015;7(5):324-31.

[6]Witt C, Ottesen EA. Lymphatic filariasis: an infection of childhood. Trop Med Int Health. 2001;6(8):582-606.

[7]Chesnaia CB, Vlaminck J, Kunyu-Shako B, Pion SD, Awaca-Uvon NP, Weil GJ, et al. Measurement of Circulating Filarial Antigen Levels in Human Blood with a Point-of-Care Test Strip and a Portable

Spectrodensitometer. Am J Trop Med Hyg. 2016;94(6):1324-29.

[8] Mandal NN, Bal MS, Das MK, Achary KG, Kar SK. Lymphatic filariasis in children: age dependent revpalence in an area of India endemic for Wuchereria bancrofti infection. Trop Biomed. 2010;27(1):41-46.

[9] Chaubal NG, Pradhan GM, Chaubal JN, Ramani SK. Dance of live adult filarial worms is a reliable sign of scrotal filarial infection. J Ultrasound Med. 2003;22(8):765-69.

[10] Kshirsagar NA, Gogtay NJ, Garg BS, Deshmukh PR, Rajgor DD, Kadam VS, et al. Efficacy and tolerability of treatment with single doses of diethylcarbamazine (DEC) and DEC plus albendazole (ABZ) for three consecutive years in lymphatic filariasis: a field study in India. Parasitol Res. 2017;116(10):2683-94.

[11] Smith ME, Singh BK, Michael E. Assessing endgame strategies for the elimination of lymphatic filariasis: A model-based evaluation of the impact of DEC-mediated salt. Sci Rep. 2017;7(1):7386.

[12] World Health Organization. Summary of global update on preventive chemotherapy implementation in 2016: crossing the billion. Wkly Epidemiol Rec. 2017; 92(40): 589-608.

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