Tropical Biomedicine 34(2): 461–463 (2017)

Short Communication

Filariasis in axillary lymph node

Chen, L.S., Wong, P.S., Leong, K.N. and Chow, T.S.
Infectious Disease Unit, Department of Medicine, Penang General Hospital, Jalan Residensi, 10990 Georgetown, Pulau Pinang, Malaysia
*Corresponding author e-mail: clsben@hotmail.com
Received 15 November 2016; received in revised form 17 March 2017; accepted 19 March 2017

A case of adult filarial worms detected in an axillary lymph node of an asymptomatic patient. A 64 year-old Indian female underwent a mammogram and was incidentally found to have punctate microcalcifications in the upper outer quadrant of the left breast with left axillary lymphadenopathy. She has underlying hypertension and diabetes mellitus on oral medications. She has no family history of breast malignancy. Fine needle aspiration of the left axillary lymph node was suggestive of reactive lympha-denitis. Histopathological examination of excisional biopsy of left breast lump showed fibrocystic disease; no evidence of malignancy was detected whereas excisional biopsy of left axillary lymph node showed reactive lymphoid hyperplasia, featuring variably sized lymphoid follicles with intact mantle zone. No expansion of marginal zone was noted. Occasional pigment-laden macrophages were seen. One of the lymph node showed presence of calcified serpinginous tubular bodies, in keeping with non viable parasite organisms with intact outlines of the structures. There were no eosinophilic infiltrates. The possibility of filarial infestation was suspected. Histopathological sample was sent for further identification and confirmed the presence of adult filarial worm (Fig. 1).

Clinically, patient was well, and denied any fever. On examination there was no palpable lymphadenopathy and there was no evidence of lympoedema of upper and lower limb. Patient lives in Bukit Mertajam, Penang, Malaysia and had visited Padang (West Sumatra) 9 years ago. She also visited the Indian cities of Thiruvannamalai, Chennai, Pondycherry and Kerala 4 years ago.

Full blood count was normal with no eosinophilia. Hemoglobin was 14.1 g/dl, white blood cell 8 000 /uL, platelet 187 000/uL and eosinophil 300/uL (2.9%). There was no renal impairment. Two samples of blood film taken at 10 p.m. for microfilariae came back negative. Filaria and strongyloid IgG and PCR for filaria was negative as well.

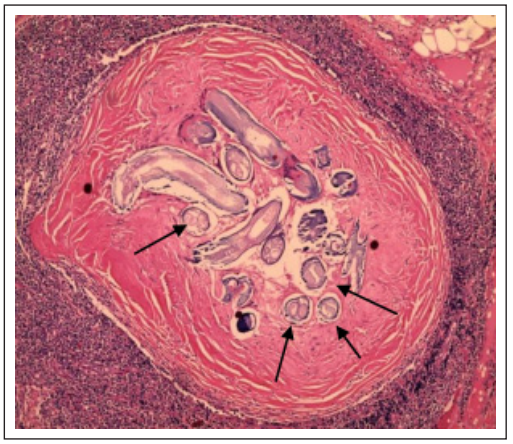

Figure 1. Four arrows pointing at the cross-section of the filarial worms with double uterus (2 circular objects) at 1000x magnification.

Patient was treated with oral doxycycline 100mg BD for 6 weeks followed by single oral dose of albendazole 400mg and T diethylcarbamazine citrate 400mg (6mg/kg).

DISCUSSION

Filariasis, is caused by roundworms (Nematodes) which inhabit the lymphatic and subcutaneous tissue.

There are 3 filarial species that causes lymphatic filariasis – *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*.

The parasite is transmitted by mosquito vectors and humans are definitive host for bancroftian filariasis whereas brugian filariasis infects humans, domestic and wild animals.

In 2000, over 120 million people were infected and about 40 million disfigured and incapacitated by the disease leading to significant economic and psychosocial impact. It is a common disease in the tropics and subtropics. One third of the people affected by the disease lives in India, one third in Africa and the remainder in South Asia, the Pacifics and the Americas.

The clinical presentation among infected patients varies and is influenced by the extent and duration of exposure to infective mosquito bites, the quantity of adult worm antigen and the host immune response.

The burden of infection with adult worms increases with exposure over time. The adult worm does not replicate within the human host. In this case, the disease burden most likely is low as patient lives in a non endemic area with history of short stays in known endemic areas – west Sumatra in Indonesia and parts of India. Once the patient left the endemic areas the possible exposure to infective larvae ceased.

Lymphatic filariasis causes a wide range of acute (e.g. acute dermato-lymphangioadenitis) and chronic clinical signs and symptoms (e.g hydrocele and elephantiasis). The common anatomic sites involved are the inguinal lymph nodes, lower extremities and genitalia. It is uncommon to detect filarial worm in axillary lymph node; only several cases have been reported worldwide. (1,2,3,4,5,6) And this is the first case to be reported in Malaysia.

The diagnosis of filariasis is based upon clinical findings and epidemiological history together with laboratory evaluations. The common diagnostic tools are blood smear examination and serology (antigen and antibody testing). In this case, diagnosis was confirmed by visualization of parasites by microscope. However the species could not be determined via microscopy. Blood smear for microfilaria was negative likely due to low parasite burden as patient was only transiently exposed to filariasis. The antigen for filariasis was not sent in this case. Polymerase chain reaction (PCR) on the specimen extracted from both slides and paraffin block were negative, most likely due to low DNA concentration or presence of PCR inhibitor. There was no eosinophilia present in this case which was most likely due to low parasite inoculum.

In this case oral doxycycline 100mg BD was given as it is a promising alternative approach to reduce filarial worm load by killing Wolbachia, an intracellular symbiotic bacterium of filarial parasites that play an essential role in larval moulting, adult worm survival and female worm fertility (7, 8, 9). Doxycycline also improves clinical outcome of filariasis by lowering the levels of vascular endothelial growth factor C (VEGF-C) (10). Subsequently the patient was given a single dose of oral albendazole 400mg and oral diethylcarbamazine citrate 400mg (6mg/kg). (11, 12, 13).

Acknowledgement. We would like to thank the Director General of Health Malaysia for his permission to publish this article.

REFERENCES

Dey, P., Radhika, S. & Jain, A. (1993). Microfilariae of *Wuchereria bancrofti* in a lymph node aspirate. A case report. *Acta Cytologica* **37**(5): 745-6.

Kapila, K. & Verma, K. (1996). Diagnosis of parasites in fine needle breast aspirates. *Acta Cytologica* **40**: 653-656.

Kibbelaar, R.E., Hol, C., Polderman, A.M., De Graaf, H. & Klinkert, P. (2000). Filaria in an axillary lymph node dissection specimen. *Histopathology* **37**(1): 85-6.

Basu, A., Sistla, S.C., Verma, S.K. & Jagdish, S. (2006). Lymphadenovarix in the axilla – an unusual presentation of filariasis. *Filaria Journal* **30;5**: 9.

Shenoy, R.K., Suma, T.K., Kumaraswami, V., Padma, S., Rahmah, N., Abhilash, G. & Ramesh, C. (2007). Doppler ultrasonography reveals adult-worm nests in the lymph vessels of children with brugian filariasis. *Annals of Tropical Medicine and Parasitology* **101**(2): 173-80.

Maria Roethlisberger, Rachel Wuerstlein, Michael Majores, Irene Müller-Stöver, Hanns, M., Seitz, Kerstin Rhiem, Stefan, Kraemer, Peter Mallmann, Reinhard Büttner & Nadia Harbeck. (2012). Filariasis of the Axilla in a Patient Returning from Travel Abroad: A Case Report. *Breast Care (Basel)* **7**(6): 487-489.

Hoerauf, A., Mand, S. & Fischer, K. *et al.* (2003). "Doxycycline as a novel strategy against bancroftian filariasis - Depletion of Wolbachia endosymbionts from *Wuchereria bancrofti* and stop of microfilaria production," *Medical Microbiology and Immunology* **192**(4): 211-216.

Taylor, M.J., Makunde, W.H., McGarry, H.F., Turner, J.D., Mand, S. & Hoerauf, A. (2005). Macrofilaricidal activity after doxycycline treatment of *Wuchereria bancrofti*: a double-blind, randomised placebo-controlled trial. *Lancet* **365**(9477): 2116-2121.

Debrah, A.Y., Mand, S. & Marfo-Debrekyei, Y. *et al.* (2007). "Macrofilaricidal effect of 4 weeks of treatment with doxycycline on *Wuchereria bancrofti*," *Tropical Medicine and International Health* **12**(12): 1433-1441.

Debrah, A.Y., Mand, S. & Marfo-Debrekyei, Y. *et al.* (2009). "Reduction in levels of plasma vascular endothelial growth factor-A and improvement in hydrocele patients by targeting endosymbiotic Wolbachia sp. in *Wuchereria bancrofti* with doxycycline," *American Journal of Tropical Medicine and Hygiene* **80**(6): 956-963.

Turner *et al.*, Turner, J.D., Mand, S., Debrah, A.Y., Muehlfeld, J., Pfarr, K., McGarry, H.F., Adjei, O., Taylor, M.J. & Hoerauf, A. (2006). A randomized, double-blind clinical trial of a 3-week course of doxycycline plus albendazole and ivermectin for the treatment of *Wuchereria bancrofti* infection. *Clinical Infectious Disease* **42**(8): 1081-9.

Taniawati Supali, Yenny Djuardi, Kenneth M. Pfarr, Heri Wibowo, Mark J. Taylor, Achim Hoerauf, Jeanine J. Houwing-Duistermaat, Yazdanbakhsh, M. & Erliyani Sartono. (2008). Doxycycline Treatment of *Brugia malayi* – Infected Persons Reduces Microfila emia and Adverse Reactions after Diethylcarbamazine and Albendazole Treatment. *Clinical Infectious Disease* **46**: 1385-1393.

Mark J Taylor, Achim Hoerauf & Moses Bockarie. (2010). Lymphatic filariasis and onchocerciasis *Lancet* **376**: 1175-85.