Letter to the Editor

Zoonotic onchocerciasis

To the Editor:

Major human onchocerciasis reported in Africa and Central/South America is caused by Onchocerca volvulus. This blackfly-mediated parasitosis is also called ‘river blindness’, often resulting in visual disturbance in the endemic area.1 Ocular involvement by O. lupi, a canine parasite, has recently been the subject of focus.2 In Japan, infestation of O. volvulus or O. lupi is not seen, but zoonotic onchocerciasis due to O. dewittei japonica, a parasite of wild boar, has infrequently been experienced.3-5 We report herein the ninth case of zoonotic onchocerciasis in Japan. The causative agent of our case was identified as O. dewittei japonica by morphometric characteristics and DNA analysis. In Japan, there are six other Onchocerca species known to be potentially infective to human.5,6 Onchocerca cervicalis (infecting horses), O. gutturosa and O. lienalis (cattle); O. eberbardi (sika deer: Cervus nippon), O. skrjabini (sika deer and serows: Capricornis crispus), and O. suzukii (serows). We focus here on the histopathologic differential diagnosis of parasitic skin infestation.

A 75-year-old woman, living along the Ashida River in Fuchu, the eastern rural part of Hiroshima Prefecture, Japan, noticed a cutaneous nodule on her elbow with rubor and itching without other symptoms in August, 2013. She was engaged in crop work and often bitten by blackfly just before the summer season. Field products were often damaged by wild boar coming down from the forest behind her house. In October, 2013, the patient visited a local hospital to remove the nodule surgically. The deeply situated dermal nodule was infestation. To the Editor:

Parasitic (helminthic) skin nodules can be divided into two types. One typical example is creeping eruption (cutaneous larva migrans), and another is a non-motile nodule caused by infestation of an adult filarial worm of various genera, such as Dirofilaria, Wuchereria, Brugia and Onchocerca. The lesion of the present case represented the latter. The nodule showed foreign body reactions with tissue eosinophilia against non-motile elongated parasite, and extensive fibrosis was formed. The worm matured to an adult to accompany the uterus, though ova were not formed.

Histopathologic identification of the parasite is practically requested to diagnostic pathologists, so that the differential diagnosis of parasitic (helminthic) nodules is thus briefly commented. In case of cutaneous larva migrans, no uterus/ovary or testis is seen in the parasitic body, and foreign body reaction cannot surround the parasitic body because the larva migrates. Foreign body reaction with eosinophilia is often seen around the tunnel-like empty space caused by the migrating parasite. Cutaneous larva migrans is evoked by the larva of either nematode, trematode or cestode. Nematode larvae migrating in the skin include Gnathostoma sp., spiruroid nematode larva (Crassicauda filiakiana) and Ancylostoma braziliense. The size of the larva is much smaller in the latter two than in the former. Trematode-induced larva...
migrants is caused by *Paragonimus westermanii*. Cestodal parasites causing larva mignans belong to *Sparganum mansoni* (plerocercoid of *Spirometra erinaceieuropaei*) and *Cysticercus cellulosae* (the second stage larva of *Taenia solium*). The moving speed of nematode larvae is high, and tissue eosinophilia is poor in cestode larvae. The nematode is encrusted by a thick cuticle and underlying hypodermis, while external ridge formation is a microscopic feature of females of most species of *Onchocerca*. Wide inter-ridge space between the prominent triangular ridges (around 100 μm) is a feature of *O. dewittei japonica*. In *O. gutturosa*, *O. cervicalis* and *O. lupi*, the inter-ridge space between the prominent ridges is short (30–50 μm). *O. lienalis*, *O. eberhardi* and *O. skrjabini* possess low or small transverse ridges. The female adult of *O. suzukii* lacks the transverse ridges. The PCR analysis using DNA extracted from paraffin sections further confirmed the *Onchocerca* species as *O. dewitteii japonica* in the present case, the second case in Fuchu, the eastern part of Hiroshima Prefecture and the third case in Hiroshima Prefecture.

Diagnostic pathologists should realize (i) the occurrence of zoonotic parasitosis of this type and also (ii) the differential diagnosis of skin parasitosis of cutaneous larva mignans type or non-motile infestation of a filarial adult worm.

**DISCLOSURE**

We have no conflict of interest in reporting the present case. The patient agreed with case-reporting.

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