Light Microscopic Detection of Mansonella ozzardi Parasitemias

To the Editor—Under the heading “An incidental finding from a blood smear,” a case report in the Photo Quiz section of Clinical Infectious Diseases appears to show blood smears of Mansonella ozzardi microfilariae [1, 2]. With this letter, we wish to clarify for readers that M. ozzardi microfilariae are typically about 160–200 μm in length [3] and are thus not shown at ×100 magnification as in Hidron et al [1, 2]. Furthermore, from a clinical training perspective, it is also important to point out that while a powerful microscope objective lens (eg, ×100) can be used to help identify microfilariae, they are not easily found with them. This counterintuitive fact, that filarial parasitemias are often missed with high-magnification objectives (eg, ×100), was actually used by Sir Patrick Manson (the founder of the London School of Hygiene and Tropical Medicine) to advocate the opening of specialist tropical medicine training institutions before they existed:

“Ten chances to one if one asks a student, or even a medical practitioner, to set about examining a patient for filariae he will prepare a very fine film of blood, such as would be suitable for the demonstration of bacteria, and that he would set to work to examine it with a twelfth of an inch immersion lens…. Although there may be tens of millions of filariae in the patient’s blood the chances are they will not be discovered by such means…. Most people think that when they have to make a microscopic examination the more microscope they have the better. As a rule, the reverse is truth. Filariae should be sought with an inch objective otherwise they will be missed.” [4]

Given that M. ozzardi microfilariae are still often detected and diagnosed using the same light microscopy–based techniques that Manson used 100 years ago [2, 3], his advice on the matter is still beneficial for clinical diagnostic training today. It is, thus, important (in our view) that readers of this journal who are interested in trying to diagnose M. ozzardi microfilariae are made aware that they are most easily found with a ×10 objective [5, 6]. It is also important to point out that the greatest challenge for accurately diagnosing Colombian M. ozzardi microfilariae is discriminating them from Mansonella perstans microfilariae, which are not effectively treated with ivermectin [3], and that it is not always easy to see that the tails of M. ozzardi microfilariae are “devoid of nuclei” (see Figure 1B in [1]). We recommend polymerase chain reaction (PCR)–based diagnostic techniques for definitive filarial parasite identifications, specifically the assay of Tang et al [7]. This ribosomal DNA–targeting assay can detect and discriminate all filarial parasites that commonly cause parasitemias in humans and is also more sensitive than light microscopy–based diagnosis [3, 8]. Other mitochondrial DNA–targeting PCR–based assays have also been successfully used for this purpose [9], although it is worth noting that recent research has shown that these PCR–based techniques (including the popular CO1 barcoding technique) can be unreliable for M. ozzardi diagnosis and arguably should thus be avoided [10].

Note

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James Lee Crainey and Sérgio Luiz Bessa Luz
Labortatório de Ecologia de Doenças Transmissíveis na Amazônia, Instituto Leônidas e Maria Deane/Instituto Leônidas e Maria Deane/Fundação Oswaldo Cruz, Manaus, Brazil

References


