Case Reports

Human dirofilariasis - an unusual mode of presentation at fine needle aspiration

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Abstract

Human dirofilariasis due to Dirofilaria *(Nochtiella) repens* has been reported from many parts of Europe, Asia and Africa[1]. Detection of this nematode in subcutaneous tissue in man (an abnormal host) at histology, has been well documented. We report the detection of a dead and degenerate adult female *Dirofilaria repens* at the fine needle aspiration puncture site of a subcutaneous lesion. A 21 year old girl was referred for fine needle aspiration biopsy (FNAB) of a localised swelling of the right forearm, measuring 4 x 3 cms. Fine needle aspiration was performed by the classical aspiration technique using 23 gauge needle. As the needle was withdrawn from the lesion following the aspiration, a fine, white, thread like structure was seen protruding from the puncture site. It was identified as an adult female of the nematode species *Dirofilaria (Nochtiella) repens* with a, length of 80.5mm and a maximum width of 450 um. FNAB is a standard diagnostic technique performed on palpable lesions of many sites including subcutaneous nodules. As most Human dirofilariasis present in the form of subcutaneous nodules awareness of this phenomenon will be useful not miss the detection of the parasite in this interesting and unusual mode of presentation.

Introduction

Human dirofilariasis due to *Dirofilaria (Nochtiella) repens* has been reported from many parts of Europe, Asia and Africa[1]. Detection of this nematode in subcutaneous tissue in man (an abnormal host) at histology, has been well documented. It has also been reported to emerge from surgical cuts, subconjunctival cysts and skin punctures[1]. Review of literature revealed only one report, where the diagnosis of dirofilariasis was based on the detection of the adult worm at the fine needle aspiration puncture site, of a breast lump[2]. We report the detection of a dead and degenerate adult female *Dirofilaria repens* at the fine needle aspiration puncture site of a subcutaneous lesion.

Case report

A 21 year girl was referred for fine needle aspiration biopsy (FNAB) of a localised swelling of the right forearm, measuring approximately 4 x 3 cm, of one months duration. The presence of mild oedema over the swelling which was interpreted as lymphoedema had given rise to a clinical suspicion of filariasis, due to *W. Bancrofti*, a common infestation in Sri Lanka. Fine needle aspiration was performed at 2 sites of the swelling by the classical aspiration technique, using a 23 gauge needle. The first aspirate yielded creamy material.

As the needle was withdrawn from the lesion following the second aspiration, a fine, white, thread like structure was seen protruding from the puncture site and lightly adherent to the needle tip. On pulling out slowly with a gloved hand, it was found to be a whitish worm, 80.5mm in length with a maximum width of 450 um, and was identified as a dead and degenerate adult female of the nematode species *Dirofilaria (Nochtiella) repens*, the head end of which was missing (Figure 1). The species identification was made on a morphological basis which included the size, and the characteristic lon-

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gitudinal striations of the cuticle. Haematoxylin and eosin stained smears of the creamy material from the first aspirate, displayed a mixed inflammatory infiltrate comprising neutrophils, macrophages and eosinophils. A diagnosis of an inflammatory reaction to Dirofilaria was made.

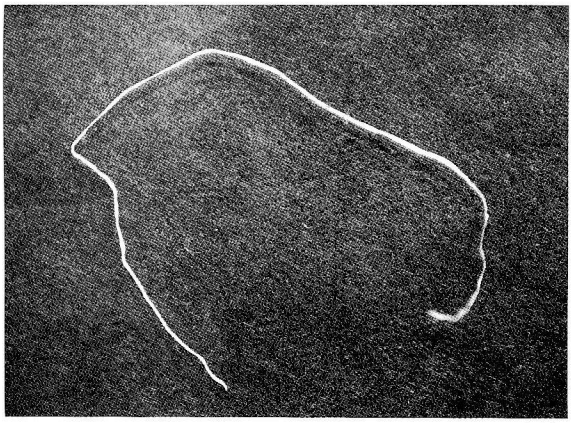

Figure 1. The whitish worm, 80.5mm long with a diameter of 450 um.

Discussion

FNAB which is a recognized diagnostic technique, has proved to be of value in the detection of various parasites[3]. The technique involves the acquisition of tissue components via a narrow gauge needle[4]. This minimally invasive procedure relies on the cutting knife provided by the luminal edge of the needle tip, which cuts through the tissues. The classical aspiration technique utilizes the attached syringe, to create a vacuum which enhances tissue contact with the luminal cutting edge[5]. The non-aspiration needle jab technique, which differs slightly from this classical aspiration technique, is performed without the use of the vacuum created by an attached syringe. The absence of the need for sophisticated equipment and simplicity of technique, has encouraged the wide use of needle biopsies in the diagnosis of a variety of pathologic processes, including those due to parasitic infestation.

The clinical suspicion of filariasis was based on the presence of mild oedema which had been interpreted as lymphoedema. Fine needle aspiration which has proved to be useful in the detection of the parasite in *W. bancrofti* infections[3,6] was performed with the hope of arriving at a specific diagnosis. The smears made from the aspirate of the lesion, however, only indicated its inflammatory nature, although the presence of numerous eosinophils implied the possibility of a reaction to a parasite. The failure to detect the worm at the puncture site would have precluded the specific diagnosis of dirofilariasis, as the smears did not contain any worm particles. It is also unlikely that the entire length of the dirofilaria, with a maximum width of 450 um could have been aspirated into the syringe via the 23 gauge needle (which has an internal diameter of 416um).

The detection of a female worm is consistent with the marked prevalence of the female over the male in human cases. The head end which is missing, may have been amputated by the cutting edge of the needle.

Human dirofilariasis has been reported in Asia[1]. Although by 1993, a total of 29 cases of locally acquired human dirofilariasis were documented in Sri Lanka[7], the recent increase in awareness of it existence, has led to the detection of a further 70 cases in Sri Lanka to date[8]. The Nematode in some of these cases, was either extracted, in many instances alive, from the lesion, or identified on histologic section.

As most human dirofilariasis present in the form of subcutaneous nodules, the performance of fine needle biopsy on such lesions is to be expected. We therefore emphasize the importance of examining the punture site following fine needle aspiration of subcutaneous nodules, with a compatible clinical suspicion, so as not to miss the detection of the parasite in this interesting and unusual mode of presentation.

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