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Case Report

Nodule over Arm during Pregnancy: An Unusual Presentation of Filariasis

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Abstract

The aim of the article is to present a rare case of filariasis presenting as a nodule over arm in a pregnant lady which was diagnosed by fine needle aspiration cytology. Lymphatic filariasis is a major public health problem in India with most infections being caused by *Wuchereria bancrofti*. Clinical manifestations depend on the area of lymphatic involvement and the duration of infection. The present case is being presented because on clinical examination there was absence of adjacent enlarged lymph nodes, microfilariaemia or peripheral blood eosinophilia, so it was misdiagnosed as lipoma and only on cytological examination microfilaria of *Wuchereria bancrofti* was noted.

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INTRODUCTION

Filariasis is an endemic disease in many parts of South East Asia especially South India [1]. The clinical presentations are varied and may present as fever, topical pulmonary eosinophilia and lymphedema of various parts of the body or recurrent attacks of acute dermatolymphangioadenitis [2].

A majority of the patients are asymptomatic and the presence of this disease is seen as an incidental finding. The earliest change in lymphatic filariasis is dilation of lymph vessels, which are the habitat of the adult worms, which later on progresses to lymphatic dysfunction. This commonly manifests as lower limb lymphedema, hydrocele, chyluria or rarely groin lymphadenovarix [3]. Lymphoadenovarix as a nodule over arm is an extremely uncommon presentation of filariasis even in endemic areas [1].

CASE PRESENTATION

A 23 year old woman complained of swelling in the right arm since 2 months. She was 3 months pregnant. There was no history of fever or any other significant clinical history. On examination she was of normal body, afebrile and not anaemic. There was a soft, nodular, mobile, non-tender mass of about 2 cm. in diameter over right arm (Figure 1). There was no other swelling or lymph node enlargement anywhere else and no hepatosplenomegaly. All blood counts and ESR were within normal limits. Peripheral smear study was also normal.

A provisional clinical diagnosis of lipoma was made and the patient was subjected to fine needle aspiration of the mass. 1 ml of straw coloured fluid was aspirated and following aspiration the swelling reduced in size. The fluid was centrifuged and smears were made of the deposit. Examination of the smears showed numerous microfilariae in a background of few lymphocytes and mature squamous cells (Figures 2 and 3).

Following this an ultrasound of the swelling was done and this revealed a cystic mass with dilated lymphatic channels. Filarial dance sign was not seen in the dilated lymphatics. Retrospective examination of the genitalia showed no abnormality.

A diagnosis of filarial lymphovarix over right arm was made. Since the patient was pregnant, diethylcarbamazine citrate (DEC) was not advised. Surgical excision with wide margins was done (Figure 4). Patient is under follow up and she is keeping fine.

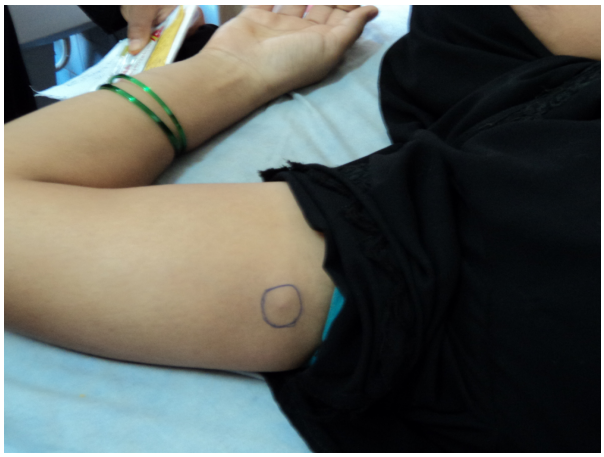

Figure 1. A photograph showing a soft, nodular mass of about 2 cm over the right arm of the patient

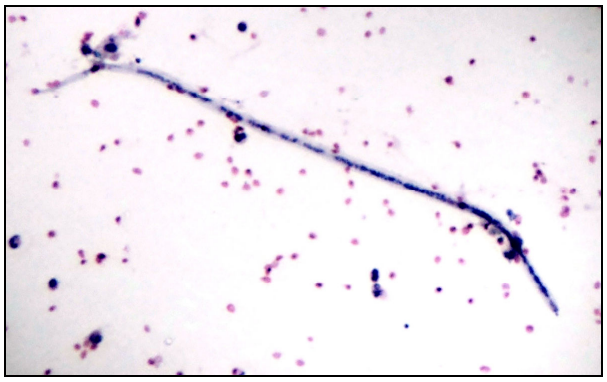

Figure 2. Microfilaria is striking in between normal squamous cells and few mononuclear inflammatory cells in the background (H&E stain, x200).

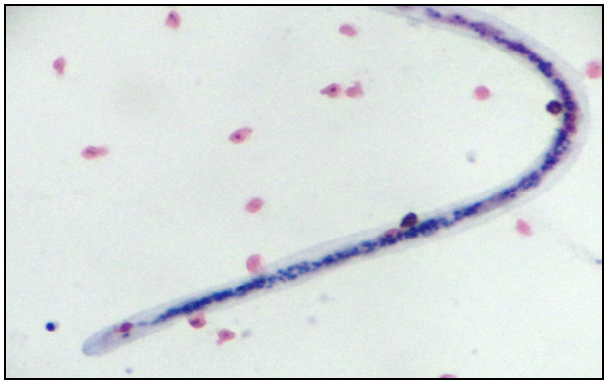

Figure 3. Microfilaria at high power magnification (H&E stain, x400).

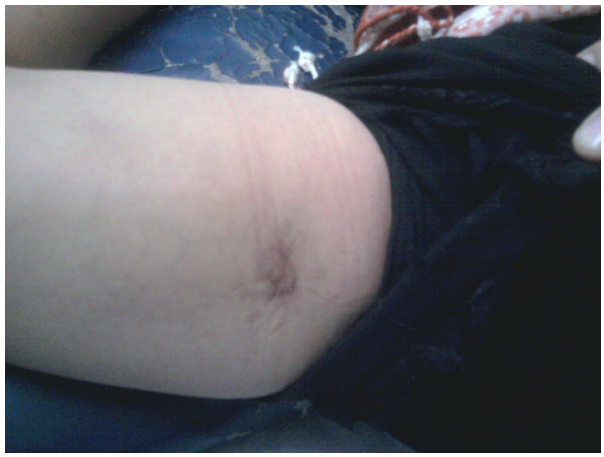

Figure 4. A photograph showing postoperative scar.

DISCUSSION

Filariasis is very frequently encountered in the Asian, African and some of the South American countries. The disease was first recorded in India as early as in the 6th century B.C. by the famous Indian physician Susruta in his book 'Susruta Samhita' [4].

The National Filaria Control Programme (NFCP) with the objective of delimiting the problem and to undertake control measures in endemic areas was launched in the country in 1955. The increase in cases of filariasis during the last six decades reflects the failure of filariasis control programs. The global initiatives to eliminate lymphatic filariasis as a public health problem by the year 2020 have generated a great deal of debate in India, the largest endemic country. This has led to a shift in the focus from control to elimination of the disease [5].

The state of Bihar has the highest endemicity (over 17%) followed by Kerala (15.7%) and Uttar Pradesh (14.6%). Andhra Pradesh and Tamil Nadu have about 10% endemicity. Goa showed the lowest endemicity (less than 1%) followed by Lakshadweep (1.8%), Madhya Pradesh (above 3%) and Assam (about 5%). The seven states namely Andhra Pradesh, Bihar, Kerala, Orissa, Uttar Pradesh, Tamil Nadu, and West Bengal, where mass drug administration (MDA) pilot trials are being undertaken, contribute over 86% of microfilariae carriers and 97% of disease cases in the country [6].

Filaria is transmitted through mosquitoes. When a mosquito with infective-stage larvae takes a blood meal, the parasites are deposited on the person's skin from where they enter through the skin. These larvae then migrate to the lymphatic vessels and develop into adult worms, over a period of 6 to 12 months, causing damage to and dilatation of the lymphatic vessels. The adult filaria lives for several years in the human host.

During this period they produce millions of immature microfilariae that circulate in the peripheral blood and are ingested by mosquitoes when the latter bite infected humans. The larval forms further develop inside the mosquito before becoming infectious to man. Thus, a cycle of transmission is established. Symptoms can appear 5-18 months after a mosquito bite [7].

The clinical presentations are varied and may present as lymphedema of various parts of the body or recurrent attacks of acute dermatolymphangioadenitis. A majority of the patients are asymptomatic and the presence of this disease is seen as an incidental finding. The earliest change in lymphatic filariasis is dilation of lymph vessels, which are the habitat of the adult worms, which later on progresses to lymphatic dysfunction. This commonly manifests as lower limb lymphedema, hydrocele, chyluria or rarely groin lymphadenovarix [1].

There are several case reports of microfilariae being identified in aspirates from lymph node, scrotal lymphatics, breast masses, thyroid, swellings, hydrocoele fluid, pericardial, pleural, ascitic and joint fluids [1].

Until recently, diagnosis of filarial infection depended on the direct demonstration of the parasite (microfilariae) in blood or skin specimens using relatively cumbersome techniques e.g. fine needle aspiration cytology and having to take into account the periodicity (nocturnal or diurnal) of microfilariae in blood. Now a days circulating filarial antigen (CFA) detection test is regarded as the 'gold standard' for diagnosing *Wuchereria bancrofti* infections. Two commercial configurations of this assay are available, one based on enzyme-linked immunosorbent assay (ELISA) methodology that yields semi-quantitative results, and the other based on a simple immunochromatographic card test, yielding only qualitative (positive/negative) answers [8]. In our case CFA detection test was not available and peripheral blood smear examination did not reveal microfilaria.

Management of acute and chronic filariasis cases requires development of adequate referral centres and treatment of adenolymphangitis with antibiotics since most of the acute episodes appear to be of bacterial aetiology. Rigorous local hygiene measures with or without local antibiotic and antifungal agents should be promoted to prevent adenolymphangitis so as to permit the reversal of lymphedema. Early treatment with standard 12-day therapy of microfilaria (mf) carriers is to be adopted to prevent further lymphatic damage and renal failure. The single dose mass therapy with DEC has been found to be as effective as the 12-day therapy, as a public health measure, with lesser side effects thus enhancing public compliance, and decreased delivery costs [5]. Single dose mass administration annually in combination with other techniques has already eliminated lymphatic filariasis from Japan, Taiwan, South Korea and Solomon Islands and markedly reduced the transmission in China [9].

In the endemic areas, prevention centres should be set up for mass treatment with anti filariasis drugs to prevent ingestion of larvae by mosquitoes, public health action to control mosquitoes, and individual action to avoid mosquito bites.

Our case is unique for the following reasons. A search of literature revealed only few case reports of filariasis presenting as a nodule over arm. However in the previously reported cases there was lymphadenopathy, peripheral blood eosinophilia and microfilariaemia, which were all absent in the present case. This is probably explained by differences in host response to the presence of the parasite. Secondly ultrasound scan of the lymphatics did not show the filarial dance sign inspite of significant lymphangiectasia. Hence the only evidence for the diagnosis of a filarial mass over arm was the detection of parasites in the fine needle aspirate. In our case the patient was a pregnant lady, in which the treatment consisted of wide excision of the skin nodule without supplementation of DEC.

To conclude, filariasis should be considered in the differential diagnosis when a patient presents with such swellings and dilated lymphatics especially in persons residing in endemic areas, in migrants from areas endemic for filariasis and in visitors to endemic areas.

CONFLICTING INTEREST

The authors declare that they have no conflict of interest.

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