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Case Report

An incidental finding of microfilaria on a urine cytological smear study

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ABSTRACT

In developing nations, lymphatic filariasis is a significant public health concern. Wuchereria bancrofti species, which are morphologically recognised as sheathed parasites with a tail tip free of nuclei, are responsible for almost 90% of the cases in India. Microfilariae have been found in a wide range of other body fluids as well as urine samples from patients with chylous and achylous hematuria. We report a case of microfilariasis in urine cytology. This study aims to raise awareness of the possibility of filariasis in bodily fluids and aspirates, particularly in areas where it is endemic. Identification results in a comprehensive diagnostic and treatment plan for the patient.

1. Introduction

Over 120 million people in Asia, Africa, the Western Pacific, parts of the Caribbean, and South America suffer from lymphatic filariasis, a disabling parasitic infection.[1] It is caused by three species: Wuchereria bancrofti, Brugia malayi, and Brugia timori. Although microfilariae are typically detected in peripheral blood, they can also be found in other body fluids, effusions, and aspirates from a wide range of sites, including benign and malignant neoplasms.[2,3] Case reports of patients with chylous and achylous hematuria describe microfilariae in smears made from urine samples.[2,3] Identification of microfilariae in the sediment smears of urine has been infrequently documented in the literature.[4–6] The current case is a rare case of filariasis manifested as chyle in the urine.

2. Case Report

A 35-year-old migrant laborer from Rajasthan presented with fever, chills, rigors, and lower flank pain for 30 days. Fever was associated with headaches, flank pain, and joint pain that did not respond to treatment. For the past two days, the patient has complained of passing milky urine and having burning micturition. There was no hepatosplenomegaly or lymphadenopathy on general examination. The patient has received antimalarial treatment outside. He was referred for an investigation of his urine, a complete blood count, and a smear for malarial parasites. The patient underwent an ultrasound of the abdomen, which was normal. CBC count results show hemoglobin 10 g/dL with 12% eosinophils in the blood. A malarial parasite was not detected in the smear. Urine sample shows the chylous in appearance. The urine sample was processed for cytological examination. On microscopy, the cytospin preparation showed mature lymphocytes, a few eosinophils, and a few microfilariae that were morphologically sheathed, with one end of the body pointed and the other blunt. The tail tip was free of nuclei, favouring Bancroftian filariasis.

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(Figure 1) Atypical urothelial cells were not identified.

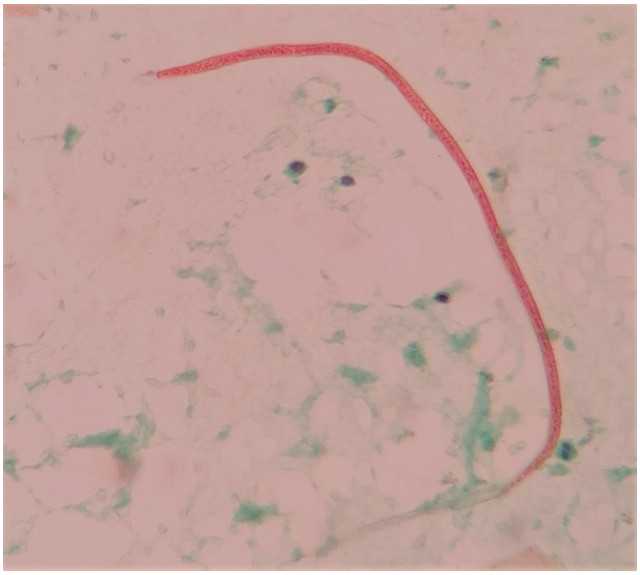

Fig. 1: Cytospin smear of urine shows microfilaria of Wuchereria bancrofti along with degenerated urothelial cells and lymphocytes. (H&E x 400)

3. Discussion

Wucherer was the first to describe microfilaria in urine in 1866. W. bancrofti parasites are typically found in the lymphatic system, and microfilariae can be found circulating in the peripheral blood during the parasite's life cycle. They can become entangled in a variety of organs as they travel through the blood. Shedding of microfilaria into the urine is probably determined by local factors, such as lymphatic blockage by scars or tumors and damage to vessel walls by inflammation, trauma, or stasis. Achylous hematuria is a rare occurrence, whereas chyluria is a known filariasis complication. Chyluria is caused by the rupture of abdominal lymphatic varices into the renal pelvis or urinary bladder when the lymphatic vessel drains the intestine. Because of the suspended fat globules, Chylus urine is opaque and milky. When blood is present, the condition is known as haematochyluria. A prolonged attack of chyluria results in a syndrome similar to the nephrotic syndrome. Chyle-rich urine will coagulate; the condition might present as urinary maintenance because of coagula, but the more common mode of presentation is aching in the back, pelvis, and groin from enlarged lymph varices.[7] In addition to peripheral blood smears, microfilariae have been detected in cervicovaginal smears, bronchial washings, ovarian cyst fluid, hydrocele fluid, pericardial fluid, synovial fluid, nipple discharge, bone marrow smears, breast aspirates, lymph nodes, thyroid, ovary, liver, and spleen.

The specific laboratory diagnosis of filariasis is based on the presence of circulating microfilaria in the peripheral blood or the presence of different stages of the parasite in tissue sections. Giemsa-stained peripheral blood films, phosphate detection of microfilaria, Knott concentration process, and membrane filtration procedures are all used in laboratories to detect suspected cases of filariasis.[8] The smear is created using the sediment after centrifuging a 1 ml sample of anticoagulated blood preserved with 4 litres of formalin and stained with methlylene blue or Giemsa stain using the Knott concentration technique. The Nuclepore method involves passing 1 to 2 ml of anticoagulated blood through a polycarbonate filter. The filter is then removed from the supporting chamber and placed on a microscope slide to count parasites. This technique is highly sensitive and is thought to be appropriate for situations where microfilaremia quantification is important.[9]

Serological procedures using the indirect fluorescence assay. When the parasite is not visible, antigens can help confirm a clinical suspicion of filariasis. The application of unique monoclonal antibodies for detecting circulating antigens in the enzyme linked immunosorbent assay will almost guarantee the specificity of the assay. Specific DNA probes for filariasis that are currently available are probably not as useful for patient diagnosis as they are for epidemiological objectives. Recently, ELISA, PCR, lymphoscintigraphy, and ICT assays have been employed to detect the organism.[8]

Bed rest, a high-protein diet devoid of all fats, medication (diethycarbamazine), and the use of abdominal binders, which are said to increase intra-abdominal pressure and prevent lymphourinary reflux, are all used to treat chyluria. In cases of recurrent clot-colic, urine retention, and progressive weight loss despite conservative treatment, especially in children, surgical intervention is recommended.

4. Conclusion

Aspiration cytology and body fluid smears from various body swellings at various unidentified locations must be carefully examined for microfilaria in India. Aspiration cytology is a quick, inexpensive, and easy procedure for diagnosing microfilaria. In endemic regions, any body fluid, including urine, sent for routine microscopy should be carefully examined for microfilariae, which frequently push to the edge of the smear.

5. Conflict of Interest

There are no conflicts of interest in this article.

6. Source of Funding

None.

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