

Sticky microfilaria in cervical pap smears: An unusual observation

N Sood^{1*}, J Malhotra¹

Abstract

Introduction

Filariasis, a vector-borne disease, is common in tropical countries like India. It is a major health problem in endemic areas. Filariae have also been known to be present in any possible site, possibly because of their ability to migrate along the lymphatics. Although adult worms can evoke immune and inflammatory host response, the presence of tissue reaction sticking to the microfilaria has not been reported from body fluids. Methodology: The subject of this study was Routine cervico-vaginal Pap smear from a 32 year old female. Microfilaria with adherent inflammatory cells and epithelial cells were noted. These sticky microfilaria are an unusual finding. In addition, epithelial abnormalities were also detected -AGUS

Conclusion

Although tissue microfilaria have been reported in absence of filaremia, the presence of tissue reaction has not been reported from body fluids.

Introduction

Filariasis affects humans and animals, caused by filariae, the nematode parasites of the order Filariidae.¹ Amongst the described filarial parasites, only 8 species cause natural infections in humans. Filariasis caused by *Wuchereria bancrofti*, *Brugia malayi* and *B. timori* are transmitted by mosquitoes and is recognized as one of the world's most incapacitating diseases in tropical areas. Around 120 million people are affected by the infection, worldwide and approximately 40 million show the chronic disease manifestations: elephantiasis and hydrocele.^{1,2} Another one billion (18% of the world's population) are at risk of infection.² This disease is common in tropical countries like India. Filarial parasites have been reported from many uncommon sites, including pleura cavity, hydrocele fluids, bone marrow and even cervicovaginal smears.^{3,4,5,6,7} The adult worms inhabit the lymphatics, where they survive for prolonged periods, and produce millions of first-stage larvae microfilariae (mf), which thereby circulate in the peripheral blood. While filarial infection is known to stimulate mediators that increase blood vessel formation in vivo, live microfilariae promote only a limited number of these regulators in cultured vascular EC. It is suggested that the live microfilariae are remarkably inert in their induction and/or activation of vascular cells in

their immediate local environment⁸. These sticky microfilaria are being reported for the first time in cervicovaginal smears.

Case report

Routine cervicovaginal smear from a 32 year old lady was submitted in pathology department from gynecology department as a part of cancer screening programme. The Papanicolaou stained smear showed presence of two sheathed microfilariae, 250-300 μ m in length in the entire smear. These microfilariae had polymorphs, histiocytes and endocervical cells sticking to their surface, along their length (Figure 1 & Figure 2). These microfilariae also had chain of nuclei but not reaching up to the tip of the tail, morphologically suggestive of *W. bancrofti*. The background cells showed mild atypia in endocervical cells (AGUS) (Figure 3). The peripheral smears on three different occasions did not show any filaremia. Neither did the patient have any swelling of the limbs or lymphadenopathy. It was thus a case of isolated cervicovaginal presentation with unusual tissue response. The patient was put on antifilarial therapy and was asymptomatic on follow-up after one year with negative subsequent Pap smear. This work conforms to the values laid down in the Declaration of Helsinki (1964). The protocol of this study has been approved by the relevant ethical committee related to our institution in which it was performed. All subjects gave full informed consent to participate in this study.

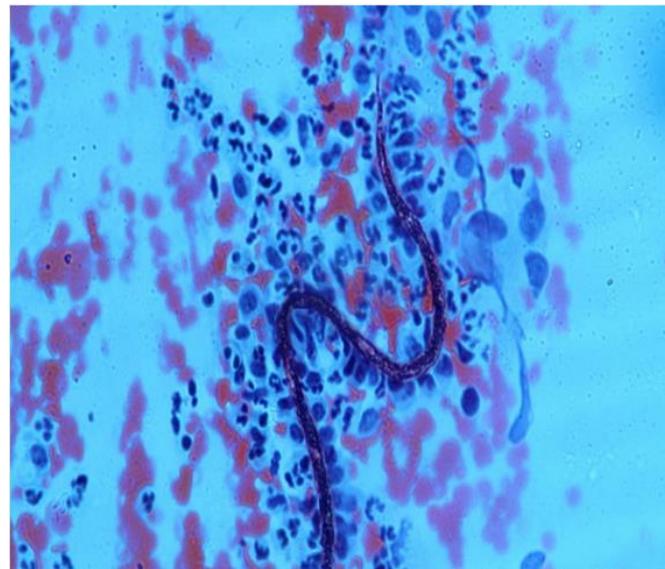


Figure 1: Microphotograph showing sheathed microfilaria with adherent inflammatory cells and endocervical cells throughout its length (Pap stain x400).

*Corresponding author
Email: neesu1234@hotmail.com

¹ Deen Dayal Upadhyay hospital, delhi, india

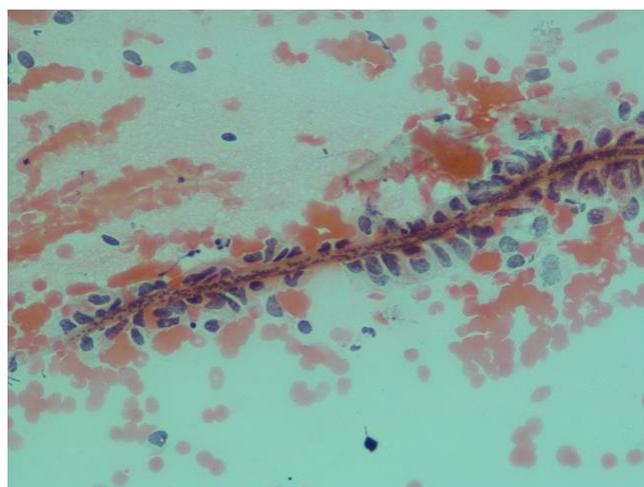


Figure 2: Microphotograph showing sheathed microfilaria with nuclei reaching just short of the caudal tip (Pap stain x1000).

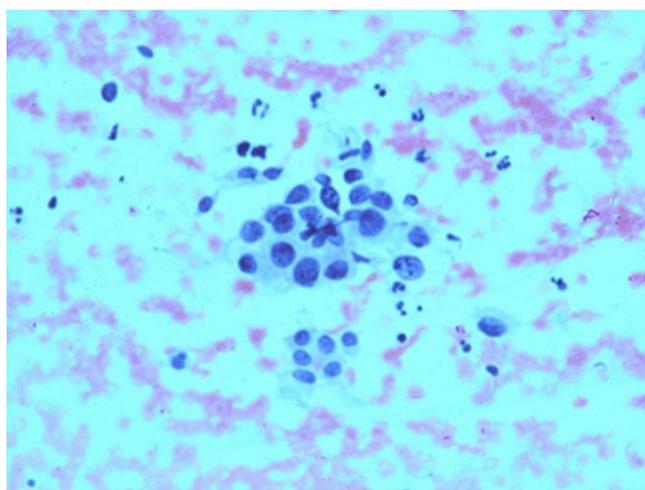


Figure 3: Microphotograph showing atypical endocervical cells (Pap stain x400).

Discussion

India is endemic for filariasis and unusual sites have been reported for their presence, including Cervicovaginal smears as in this case.^{4,8} However in none of the reported cases have these been described with sticky surface attracting the inflammatory and epithelial cells, all along. A single case has been described with some histiocytes sticking around caudal end of microfilaria in hydrocele fluid, unlike the mixed inflammatory response throughout the length in this case.¹⁰ As has been reported that the microfilaria are known to be inert unlike the adult worms, this finding is unusual in this context.^{9,10}

Parasitic products that modulate host's immune response leads to the two extremes: asymptomatic microfilaremia, or development of the chronic disease manifestations through repeated episodes of adenolymphangitis and lymphoedema. Filariasis may present with various clinical manifestations, the commonest being asymptomatic. The common presentations include microfilaremia, lymphedema, hydrocele, acute adenolymphangitis (ADL),

chronic lymphatic disease and less common presentations are like chyluria and tropical eosinophilia. Inflammatory cytokines and immunological hyperactivity of the host may, on one end, promote establishment of the infection and on the other, lead to disease manifestations^{10,11,12} Incidental detection of microfilaria in a routine cervicovaginal smear in absence of microfilaremia and with unusual sticking inflammatory cells on its surface is being reported for its rarity.

References

- 1.Knopp S, Steinmann P, Hatz C, Keiser J, Utzinger J. Nematode infections: filariases. *Infect Dis Clin North Am.* 2012; 26(2):359-81.
- 2.<http://www.globelnetwork.org/neglected-tropical-diseases/fact-sheet>
- 3.Reddy GS, Balasundaram S. Filarial pericardial effusion. *J Indian Med Assoc* 1977; 68:125-6.
- 4.Ravi M. Raj K. Gupta Microfilariae of *Wuchereria bancrofti* Identified in a Cervicovaginal Smear *Acta cytologica* 1998; 42(3):840
- 5.Patricia AC, Gita J, Rohela M. Microfilaria in hydrocele fluid cytology ; *Malaysian J Pathol* 2004;26(2) : 119 – 23
- 6.Munjal S, Gupta JC, Munjal KR. Microfilariae in laryngeal and pharyngeal brushing smears from a case of carcinoma of the pharynx. *Acta Cytol* 1985;29:1009-10.
- 7.Rani S, Beohar PC. Microfilaria in bone marrow aspirate: A case report. *Acta Cytol* 1981;25:425-6.
- 8.Sinha A. Microfilaria in cervical smear. *J Obstet Gynaecol.* 2004 Oct;24(7):843-4.
- 9.Schroeder J-H, Simbi BH, Ford L, Cole SR, Taylor MJ, et al. Live *Brugia malayi* Microfilariae Inhibit Transendothelial Migration of Neutrophils and Monocytes. *PLoS Negl Trop Dis* 2012;6(11):e1914. doi:10.1371/journal.pntd.0001914
- 10.Patricia AC, Gita J, Rohela M, Microfilaria in hydrocele fluid cytology ; *Malaysian J Pathol* 2004;26(2) : 119 – 23
- 11.Pincus S. Potential role of infections in chronic inflammatory diseases. *ASM News* 2005; 71 : 529-35.
- 12.Ravindran B. Are inflammation and immunological hyperactivity needed for filarial parasite development? *Trends Parasitol* 2001; 17 :70-3.