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Section: Parasitology Manual	Subject Title: Laboratory Procedures for Blood and Tissue Parasites	
Issued by: LABORATORY MANAGER	Original Date: March 13, 2000	
Approved by: Laboratory Director	Revision Date:	
	Review Date:	

Microfilaria in Blood

PRINCIPLE

Male and female filaria invade tissues and then produce offspring that are the means of transmission of the disease. The offspring, microfilaria, circulate in the blood and frequently display peak circulation times that match the biting habits of the insects responsible for their transmission. Several methods exist to detect the presence of microfilaria. A Knott concentration destroys the red cells and concentrates the remaining material, including any microfilaria present. The Nucleopore filter method also destroys the red cells and then filters out any remaining debris.

SPECIMEN

Blood sample in a yellow or purple top tube

SAFETY

The usual precautions when handling blood should be observed. Microfilaria require passage through their insect vector before they become infective, therefore the blood sample cannot produce a filaria infection from a sharps stick.

REAGENTS

2% buffered formalin.

PROCEDURE

This is considered to be a non-routine procedure therefore it should only be performed by experienced personnel.

Knott Concentration

- a) Mix 1 ml of blood with 10 ml of 2% buffered formalin.
- b) Centrifuge at 1,500 rpm for 5 minutes.
- c) Decant supernatant and examine the sediment.

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NOTES

Microfilaria come in two varieties, sheathed and unsheathed. There are also a large number of artifacts that can be mistaken for microfilaria. Microfilaria should have the following characteristics: 1) they should have a smooth surface; 2) they should have rounded or tapered ends; 3) they should contain internal structures; 4) they are frequently motile if they have not been exposed to preservatives; 5) they should be between 200 - 300 μ M in length; and if multiple microfilaria are present they should be very similar to each other.

QUALITY CONTROL

- Ensure that the formalin solution is not outdated.
- Ensure that the microscope has been calibrated in the last year and that the results of the calibration are displayed on the microscope base.

REPORT

The presence of microfilaria or other parasites. Haematoxylin staining is required to determine the species (see **Hematoxylin Stain for Microfilaria**). The sheath may not be visible if Giemsa is used.