Immunodiagnosis of Parasitic Infections

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OBJECTIVE: To employ commercially prepared antigens and experimentally developed antigens in the SAFA test and the IHA test for screening patients with suspected amebiasis, filariasis, malaria and gnathostomiasis.

DESCRIPTION: Under contract with the R&D Command, Parke Davis and Co. has produced two antigens which have been standardized in preparation and in the resulting nitrogen content per milliliter of fluid. One has been prepared from axenic cultures of E. histolytica, the other from D. immitis. The antigens may be used in both the SAFA and IHA test systems. An antigen has been prepared at WRAIR intended for use in the diagnosis of P. falciparum infections, and an antigen is being developed in the SEATO Medical Laboratory for the detection of patients with gnathostomiasis. It is intended to test these antigens for specificity and sensitivity with sera from a population with a broad spectrum of infection and immunity, and to provide a reference diagnostic capability in support of other U.S. installations in SE Asia.

PROGRESS: A disparity in test results with the Parke–Davis antigen for the diagnosis of amebiasis by the SAFA test was reported in the last annual report (1970–1971). This has been rectified and the antigen has produced good results over the past reporting period. The SAFA and IHA now provide nearly equivalent results. Positive results have been confirmed locally by the demonstration of the amebae.

Serum samples were obtained in Vietnam from 1339 newly arrived troops and from 1102 soldiers who were departing that command. These sera were screened for filariasis and malaria with the following results:

	Number positive	
	Arriving	Departing
Filariasis	38	25
Malaria	4	14

The incidence of positive SAFA results for malaria were anticipated, but the increased number of positive findings for filariasis among arriving troaps was not. There is the possibility that personnel with past Vietnam experience were among the arriving group. They may have also had inapparent infections with Dirofilaria immitis in the past. SAFA tests for amebiasis were not performed.

An attempt to develop an antigen to be used in a SAFA test for gnathostomiasis continues. During the reporting period fresh larvae from infected mice produced a weakly reactive fraction which gave significantly higher fluorescent responses in 3 of 5 suspected cases of gnathostomiasis. These three continue to experience the symptoms associated with migrating gnathostome larvae. One of the positive sera was from a patient who was also strongly positive for filariasis. Symptoms of both infections were clinically present.

A recent trip to a town 100 km west of Bangkok where there is an abattoir noted for its pork production yielded over 100 adult Gnathostoma hispidum. These worms were frozen in liquid nitrogen and brought to SMRL for antigen preparation, a process underway at this time.

SUMMARY: The SAFA test has yielded satisfactory results in the detection of amebiasis and filariasis which are comparable to those obtained by IHA. The test for malaria has not produced conclusive results yet. A reactive fraction for the detection of gnathostomiasis has been obtained and additional antigenic extracts are in preparation.