

The LFA test for histoplasmosis is more accurate in patients with high burden of infection.

**Conclusion.** The MVista *Histoplasma* galactomannan LFA may meet the need for accurate rapid diagnosis of histoplasmosis in resource-limited settings, especially in patients with relatively high disease burden, potentially reducing morbidity and mortality.

**Disclosures.** Melissa Minderman, Bachelor's Degree, Molecular Biology, MiraVista Diagnostics (Employee) Suphansa Gunn, Bachelor's Degree, psychology, MiraVista Diagnostics (Employee) Lawrence J. Wheat, MD, MiraVista Diagnostics (Employee)

**722. Parasitic and Non-Parasitic Causes of Eosinophilia in Children Presenting to a Tertiary Care Center in the United States**

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Session: P-34. Eukaryotic Diagnostics

**Background.** Peripheral eosinophilia can be caused by many underlying conditions, including infectious pathogens, allergic disorders, neoplastic disorders, and immunological disorders. However, uncovering the cause of eosinophilia in children can be challenging due to the wide differential diagnosis.

**Methods.** To identify causes and risk factors of eosinophilia in children, we performed a retrospective chart review of children presenting to Texas Children's Hospital in Houston, TX with peripheral eosinophilia from January 1, 2011 to December 31, 2019. Eosinophilia was classified as mild (absolute eosinophilia count or AEC >500 and < 1500), moderate (AEC >1500 and < 5000) and severe (AEC > 5000). Demographic information in addition to travel history, co-morbid conditions, and diagnostic workup were collected.

**Results.** A total of 773 patients under 18 years of age were evaluated. The most common cause of eosinophilia in children was atopy (N=343, 44%), followed by eosinophilia of unknown etiology (N=227, 29%). Infectious pathogens were the etiology in 8% of cases of which all were parasitic pathogens. Helminthic (n=48, 79% of parasitic diseases in total) pathogens were more common than protozoan (n=13, 21% of parasitic diseases in total) and patients with parasitic infections had higher median eosinophilia compared to other subgroups (median = 1661, range 512-17,501) with the majority having moderate to severe eosinophilia (57%). The most common helminth was *Toxocara* (n=31), followed by *Strongyloides* (n=15), and, more rarely, pinworms (n=4). The most common protozoa identified was *Dientamoeba fragilis* (n=9), followed by *Giardia* species (n=5), *Endolimax nana* (n=4), *Blastocystis* species (n=3), and *Iodamoeba butschlii* (n=1). Many unknown cases had limited workup that did not include investigations for common parasites.

**Conclusion.** While atopy and unknown etiology were the most common diagnoses for children presenting with eosinophilia, parasites were relatively common and should be considered in the differential when investigating etiologies for peripheral eosinophilia.

**Disclosures.** Joud Hajjar, MD, MS, Baxalta (Grant/Research Support)Horizon (Advisor or Review Panel member)Pharming (Advisor or Review Panel member)

**723. Cryptosporidium Detection in Preserved Stool Specimens: A Comparison Study of EIA, DFA, and Direct Microscopic Method**

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Session: P-34. Eukaryotic Diagnostics

**Background.** *Cryptosporidium* is an intestinal parasite that may cause diarrhea. Laboratory diagnosis largely relies on microscopic or immunology-based antigen detection. Direct fluorescent antibody (DFA) is considered the gold standard. Enzyme immunoassay (EIA) is an attractive alternative, but direct comparison studies for the performance together with the impact from different specimen preservation media are limiting.

Table 1. *Cryptosporidium* Detection from Preserved Stool Specimens\*

Preservation Medium Type or Origin	Total # Tested	<i>Cryptosporidium</i>	Microscopic	DFA Method	EIA Method	DFA/EIA Agreement (%)
Total Fix	80	+	44	50	50	100
		-	36	30	30	100
10% Buffered Formalin	16	+	5	5	5	100
		-	11	11	11	100
Cary Blair/C&S	20	+	10	10	10	100
		-	10	10	10	100
Graded Survey (CAP)	4	+	NA	2	2	100
		-	NA	2	2	100
Panel Specimens (TechLab)	20	+	NA	8	8	100
		-	NA	12	12	100
Total	140		59+/57-	75+/65-	75+/65-	100

\*NA, positive; "-", negative; DFA, direct fluorescent antibody; EIA, enzyme immunoassay; NA, not applicable.

**Methods.** We compared these three methods for the detection of *Cryptosporidium* oocysts (direct microscopic) or antigen (DFA or EIA) from stool samples preserved in either 10% buffered formalin, Cary-Blair/C&S, or Total Fix (MCC, Torrance, CA). The DFA from Meridian Bioscience (Cincinnati, OH) and the EIA using *CRYPTOSPORIDIUM II* (TechLab, Blacksburg, VA) were performed according to the manufacturer's instructions. The direct microscopic method was performed according

to laboratory protocols, including direct wet mount, modified acid-fast stain, or permanent trichrome stain.

**Results.** A total of 140 samples, including 116 clinical specimens, 20 validation panel samples and 4 proficiency survey specimens, were examined (Table 1). The DFA and EIA methods produced 100% concordant results using all three preservatives, while the microscopic method had decreased sensitivity. All microscopic positives remained positive for both the DFA and EIA. Cross-reactivity from other parasites, such as *Giardia*, of the two immunoassays was not observed.

**Conclusion.** While the two immunological methods both outperformed the microscopic method, the EIA has the advantages of being objective, simple to perform, has less hands-on time, and thus makes it an attractive option for high throughput *Cryptosporidium* detection.

**Disclosures.** Kileen L. Shier, PhD, D(ABMM), MLS(ASCP)CM, Quest Diagnostics (Employee)

**724. LDBIO Toxoplasma Test in the United States and Beyond: Review of the Device's Performance on U.S. Samples and Its Ability to Avoid False Positives**

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Session: P-34. Eukaryotic Diagnostics

**Background.** Part of an essential "toolbox" to eliminate *Toxoplasma gondii* infection is prompt recognition of acute infection acquired during gestation, in order to initiate treatment for congenital toxoplasmosis (CT). From conception to one month post-partum, screening seronegative pregnant women monthly for antibody to the parasite enables treatment that prevents trans-placental transmission of newly acquired maternal *Toxoplasma*, or that attenuates signs and symptoms of CT. Tests that are highly sensitive and specific—and that meet the other World Health Organization ASSURED criteria for diagnostics—are very useful for this kind of screening. Herein, we evaluated the accuracy of a test that meets these criteria—the LDBIO *Toxoplasma* ICT IgG-IgM device (LDBIO)—and whether it eliminated difficulties of other tests with false positive IgM results.

World Health Organization A.S.S.U.R.E.D. criteria



These are criteria for ideal screening or diagnostic tests, as described in a September 2017 paper in the Bulletin of the World Health Organization. Our study focused mostly on sensitivity and specificity for the LDBIO immunochromatography test for IgG and IgM specific to *Toxoplasma gondii*.

**Methods.** Both parts of this study examined results generated by the LDBIO device—a point-of-care immunochromatography test for *Toxoplasma* IgG and IgM—using serum and whole blood samples. With whole blood, thirty microliters were collected using a glass micro hematocrit tube. With both sera and whole blood, samples were loaded into the well of the LDBIO device, which took 20 minutes to generate results. In the first part of this study, we summarized results from three published U.S. studies and added new data from an ongoing clinical trial at the University of Chicago Medical Center (UCMC). In the second part of this study, we compiled data on how the LDBIO device performed on a total of 69 samples from U.S. and French studies that had led to false positive results when tested with commercially available comparator tests. Four of these false positives came from the UCMC trial.

UCMC Feasibility Study Flowchart