MiraVista
VETERINARY DIAGNOSTICS

Antibody Testing Can Help Differentiate Histoplasmosis from Blastomycosis

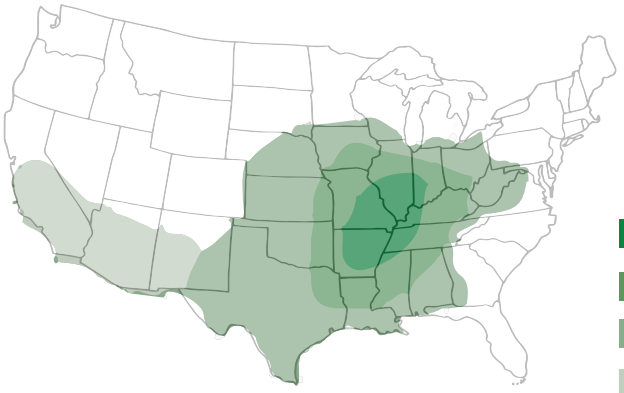
CASE PRESENTATION:

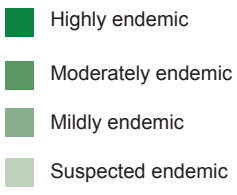
A 6-year-old Labrador retriever from Kentucky presented with sudden onset of coughing, lethargy and inappetence. Thoracic radiographs revealed diffuse nodular interstitial pulmonary infiltrates and tracheobronchial lymphadenopathy, suggestive of a systemic mycosis. The veterinarian submitted urine for both *Blastomyces* and *Histoplasma* antigen tests, with results of 4.5 ng/mL and 6.8 ng/mL, respectively. Following consultation regarding positive results in both assays, this veterinarian submitted serum from the dog for testing in the canine *Histoplasma* and *Blastomyces* IgG antibody enzyme immunoassays (EIAs). The result was positive (16.96 EIA units) in the *Histoplasma* antibody EIA, while the *Blastomyces* antibody EIA result was negative. Due to the positive *Histoplasma* antibody result and the positive antigen results, the dog was diagnosed with histoplasmosis.

Current Challenge

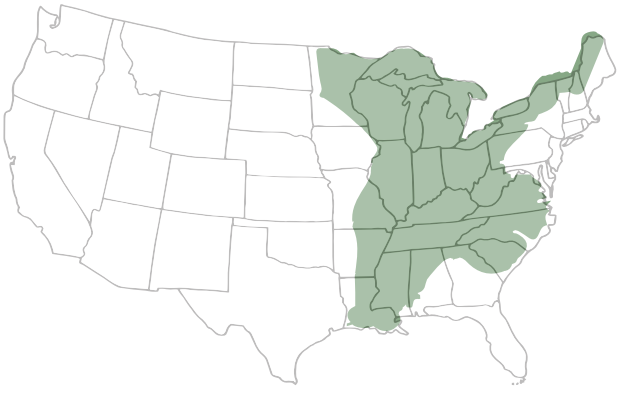
- MVista® *Histoplasma* Canine IgG Antibody EIA and MVista® *Blastomyces* Canine IgG Antibody EIA have fast turnaround times and are semi-quantitative (results reported in EIA units [EU] from 10-80+ EU)
- Nearly complete cross reactivity is observed between the *Blastomyces* and *Histoplasma* antigen tests. Comparison of the quantitative results from both assays will NOT help to differentiate the two infections. For patients living in the area of overlapping endemic ranges, it is typically not recommended to test their urine in both assays.
- Both fungi are endemic in states such KY, IN, IL, TN, OH, WV, LA, MS, MO, AR and surrounding areas. This case demonstrates the ability of the antibody EIA tests to differentiate the infections
- Definitive diagnosis by identification of the *Blastomyces* or *Histoplasma* yeasts is not always possible; therefore, antibody testing is beneficial to assist in diagnosis
- Occasionally cross reactivity is observed with the antibody assays; however, histoplasmosis cases usually display higher quantitative results in the *Histoplasma* antibody EIA

Areas Endemic for Histoplasmosis USA





Areas Endemic for Blastomycosis USA



SOURCE (2/16/18):
https://www.cdc.gov/fungal/diseases/histoplasmosis/causes.html and https://www.cdc.gov/fungal/diseases/blastomycosis/causes.html

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Hc Histoplasma — MVista® *Histoplasma* Canine IgG Antibody EIA

TEST CODE: 327

CLINICAL SIGNIFICANCE: IgG antibodies to *Histoplasma* antigen appear to be associated with active infection, especially in dogs with moderate to high positive (20 EU or greater) results. Antibodies may also be detected in a small percentage of healthy dogs from the endemic area as a result of sub-clinical infection within the last 2 years. IgG may be detected in histoplasmosis cases with falsely-negative antigen results (especially with localized disease or chronic infection) and combined antibody and antigen testing increases the overall sensitivity. Intermediate results (8-9.9 EU) typically reflect either rising or falling IgG, and retesting the patient in several weeks may be beneficial.

SPECIMEN COLLECTION:

• Serum: Collect serum specimens in a serum separator or red top tube. Allow blood to clot for 30 minutes, then centrifuge. Pipette serum into a plastic screw cap vial for shipment, is preferred. If plastic screw cap vial is not available, ship in specimen collection tube.
• CSF: Sterile transport tube

MINIMUM SPECIMEN REQUIREMENTS

• Serum: 0.25mL

SPECIMEN STABILITY:

• Refrigerated: 14 Days
• Frozen: 14 Days

SPECIMEN REJECTION: Any specimen type >14 days old other than serum or CSF. For specimen submissions that do not meet these criteria, please call Customer Service

TRANSPORT TEMPERATURE: Refrigerated/Frozen

SHIPPING: Ship on dry ice for Monday – Friday, next day delivery. Frozen ice packs may be substituted if specimen is shipped the day of collection.

TURNAROUND: Testing is performed on Mondays & Thursdays
Serum or CSF: Next Day

REFERENCE RANGE: Negative

INTERPRETATIVE INFORMATION:

• Negative: <8.0 EU
• Indeterminate: 8.0 - 9.9 EU
• Positive: 10.0 EU - 80.0 EU
• ALQ: >80.0 EU

METHODOLOGY: Semi-Quantitative Indirect Enzyme Immunoassay

LIMITATIONS:~1/3 of patients with blastomycosis or coccidioidomycosis will exhibit cross reactivity. The reference range and other method performance specifications have not been established for this test in CSF. The test results should be integrated into the clinical context for interpretation.

Bd Blastomyces — MVista® *Blastomyces* Canine IgG Antibody EIA

TEST CODE: 330

CLINICAL SIGNIFICANCE: IgG antibodies to *Blastomyces* antigen appear to be associated with active infection, especially in dogs with moderate to high positive (20 EU or greater) results. Antibodies may also be detected in a small percentage of healthy dogs as a result of sub-clinical infection within the last 2 years; however, results of preliminary studies show high specificity of the assay (>90%) in healthy animals from Blastomyces-endemic areas. IgG may be detected in blastomycosis cases with falsely-negative antigen results (especially with localized disease; e.g., ocular or bone infections) and combined antibody and antigen testing increases the overall sensitivity. Intermediate results (8-9.9 EU) typically reflect either rising or falling IgG, and retesting the patient in several weeks may be beneficial.

SPECIMEN COLLECTION:

• Serum: Collect serum specimens in a serum separator or red top tube. Allow blood to clot for 30 minutes, then centrifuge. Pipette serum into a plastic screw cap vial for shipment, is preferred. If plastic screw cap vial is not available, ship in specimen collection tube.
• CSF: Sterile transport tube

MINIMUM SPECIMEN REQUIREMENTS

• Serum: 0.25mL

SPECIMEN STABILITY:

• Refrigerated: 14 Days
• Frozen: 14 Days

SPECIMEN REJECTION: Any specimen type >14 days old other than serum or CSF. For specimen submissions that do not meet these criteria, please call Customer Service

TRANSPORT TEMPERATURE: Refrigerated/Frozen

SHIPPING: Ship on dry ice for Monday – Friday, next day delivery. Frozen ice packs may be substituted if specimen is shipped the day of collection.

TURNAROUND:
Testing is performed on Mondays & Thursdays
Serum or CSF: Next Day

REFERENCE RANGE: Negative

INTERPRETATIVE INFORMATION:

• Negative: <8.0 EU
• Indeterminate: 8.0 - 9.9 EU
• Positive: 10.0 EU - 80.0 EU
• ALQ: >80.0 EU

METHODOLOGY: Semi-Quantitative Indirect Enzyme Immunoassay

LIMITATIONS: May cross-react with other fungi. The reference range and other method performance specifications have not been established for this test in CSF. The test results should be integrated into the clinical context for interpretation.