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News

August • 2000

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AVIAN & EXOTICS UPDATE – NEW DIAGNOSTIC PROFILES

Polyomavirus infection and psittacosis [*Chlamydia psittaci* infection] in psittacine birds, and pasteurellosis [*Pasteurella multocida* infection] in rabbits can be challenging diseases to accurately diagnose.

Antech Diagnostics is offering new, state-of-the-art diagnostic profiles for each of these infections. These profiles combine serology and polymerase chain reaction [PCR] technology to better define the disease state of the patient. Test results should be evaluated in conjunction with clinical signs, bloodwork abnormalities, and sometimes with biopsy results to ensure accurate interpretation.

SEROLOGY

A positive antibody titer indicates exposure to the organism in question, but does not specify whether the host is actively infected. A negative titer in the absence of very recent exposure or peracute disease indicates that there has been no exposure, therefore ruling out the possibility of disease. (A patient with a negative titer may have recent exposure and insufficient time to seroconvert or may be significantly immunocompromised and unable to mount a detectable antibody response.) Detection of IgM directed against a particular organism usually indicates recent infection. A rising titer in samples collected two or three weeks apart (and ideally tested simultaneously) also indicates active infection or exposure.

PCR

PCR is an exceptionally sensitive method of detecting organism-specific sequences of nucleic acid and is typically done on whole blood, or swabs taken from the cloaca, from secretions, or from tissues at necropsy. Although a positive PCR result indicates the presence of organism-specific nucleic acid sequences, the significance of this finding needs careful consideration. A positive test result could be

from a patient with clinical disease, exposure of the patient without infection or disease, from a subclinically infected patient, or due to a contaminated sample.

The combination of serology and PCR testing enables more complete interpretation of the test results. Negative test results on both serology and PCR, even in an ill patient, reduce the likelihood that the specific agent is involved, whereas a positive PCR test in a patient with a negative antibody titer may indicate an immunocompromised animal, insufficient time to convert, or an environmental contaminant (in which case environmental testing is warranted).

AVIANS

POLYOMAVIRUS

Polyomavirus can cause disease in both psittacine and passerine species. Feather abnormalities and increased neonatal mortality in budgerigars, and sudden death in young parrots [including amazons, African greys, macaws, eclectus, ring-neck parrots, cockatoos, and conures] and finches have been ascribed to polyomavirus infection. These birds typically are serologically positive and have positive PCR tests on blood and/or cloacal swabs prior to death. Necropsy findings include hemorrhages, hepatomegaly and splenomegaly. On histology, intranuclear inclusion bodies can be seen, but are not necessarily present in all cases. Testing for polyomavirus nucleic acid in tissue (*in situ* hybridization) may be necessary to confirm the diagnosis.

Clinical disease in adult parrots due to polyomavirus infection is uncommon, although death of adult birds has been described either alone or in conjunction with *Chlamydia psittaci* or psittacine beak and feather disease virus infection. Adult parrots develop subclinical infections and may subsequently serve as a reservoir of infection through intermittent viral shedding in their droppings. Either a positive antibody titer or a positive PCR test result on whole

AVIAN & EXOTICS – NEW DIAGNOSTIC PROFILES (CONT'D.)

blood supports viral exposure and/or viremia. Documentation of viral shedding can be done via PCR testing of cloacal swabs. However, shedding may be intermittent and repeated cloacal swab PCR tests may be needed to confirm the presence of a carrier state.

In a closed, polyomavirus-free aviary, testing for polyomavirus should be done prior to the introduction of new birds. The carrier status of new birds should be investigated during quarantine.

PSITTACOSIS

Psittacosis refers to infection of parrots with *Chlamydia psittaci*. Ornithosis is the same disease in other avian species, and infection in people is referred to as chlamydiosis. (Chlamydiosis is the preferred term and can be used to describe all infections with *C. psittaci*.) There are numerous strains of *C. psittaci* that are infective across a wide range of hosts. Many mammals, as well as reptiles and insects, can be infected by *C. psittaci*.

In parrots, ruffled feathers with lime green droppings (biliverdinuria) and a history of exposure to a new bird is the classical presentation for chlamydiosis. The clinical course usually is several weeks before either death or recovery (resulting in a potential carrier bird), although acute deaths may also occur. Affected birds typically show leukocytosis and an increase in the enzyme aspartate transaminase (AST). Protein electrophoresis usually shows hypoalbuminemia and hypergammaglobulinemia. The diagnosis can be confirmed in a sick parrot with a positive or rising antibody titer, and a positive PCR test from a combined choanal/cloacal swab. In clinically normal parrots, a negative titer and negative PCR test result [on whole blood or combined choanal/cloacal swab] indicates absence of *C. psittaci* infection. A positive result with either serology or PCR testing in a normal parrot with no increase in either white cells or AST indicates exposure, rather than clinical disease. A carrier state exists in many adult birds

which serve as the reservoir for further disease outbreaks. There is no definitive testing to confirm a carrier bird, but a persistent IgG titer is a common finding.

Testing for chlamydiosis should be done prior to introducing new birds to an aviary, and as a screening test for a new pet, breeding bird, and for birds being exposed to ill or immunosuppressed individuals.

RABBITS

PASTEURELLOSIS

Pasteurella multocida is commonly found in the upper respiratory tract of rabbits and has been reported to cause clinical disease involving many organs. The classical presentation is an initial serous, and later, a white to yellow mucopurulent, nasal discharge and sneezing. Other signs are usually related to abscess formation in a wide range to tissues including dental roots, bone, skin, and other organs. These signs are not pathognomonic for pasteurellosis, however, as other bacteria may cause similar signs with respiratory disease and abscesses.

There are no consistent changes on routine blood testing. A positive culture is diagnostic, but false negatives limit the sensitivity and therefore the usefulness of cultures. A positive or rising titer and a positive PCR test from a nasopharyngeal swab confirms *P. multocida* as the causative agent, whereas a negative result on both serology and PCR indicates that *P. multocida* is not involved. Nasal swabs are less sensitive than nasopharyngeal swabs for PCR testing.

Regardless of the type of diagnostic testing being performed, proper sample collection and handling are paramount for accurate test results. Refer to the table below for guidance in collecting the appropriate specimen. Further questions can be directed toward our specially trained Avian and Exotics Customer Service representatives or Veterinary Consultants.

NEW AVIAN AND EXOTIC PROFILES

TEST	TEST CODE	SAMPLE	COMMENTS
Chlamydia Profile (Psittacosis)	85206	1 unspun GRT (± gel), 1 spun GRT (with gel); or 1 spun SST, & combined choanal/cloacal swab	Includes 2 antibody titers (IFA titer which detects mainly IgG and EBA titer which detects mainly IgM), and PCR tests on blood and combined choanal/cloacal swab. Culturette® swabs are preferred for PCR tests. If using a Copan swab, do not insert the swab into the transport gel. Each of the profile tests also can be requested separately.
Polyoma Profile	85188	1 unspun GRT (± gel), 1 spun GRT (with gel); or 1 spun SST, & cloacal swab	Includes antibody titer, and PCR tests on whole blood and cloacal swab. Culturette® swabs are preferred for PCR tests. If using a Copan swab, do not insert the swab into the transport gel. Each of the profile tests also can be requested separately.
Pasteurella Profile	85209	1 spun GRT (with gel) or 1 spun SST & nasopharyngeal swab	Includes antibody titer (detects IgG) and PCR test on nasopharyngeal swab. Nasal swabs can be used but are less sensitive than nasopharyngeal swabs. Plasma or serum cannot be hemolyzed or lipemic. Culturette® swabs are preferred for PCR tests. If using a Copan swab, do not insert the swab into the transport gel. Each of the profile tests also can be requested separately.

KEY

GRT – Green top microtainer tube (heparinized). Comes with or without separator gel.

SST – Serum separator microtainer tube.