

# Avian Digest

## New Information on Feather Picking Parrots

### In This Issue:

- Feather Picking
- Mycobacteriosis
- *Cryptococcus*
- Chlamyophilosis
- MRSA Infection
- *Salmonella*

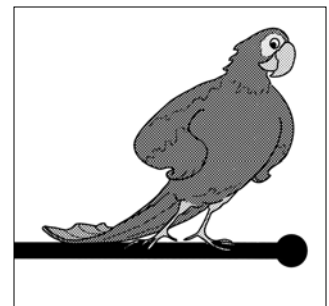
### Feather-picking Psittacines: Histopathology and Species Trends

M.M. Garner, S.L. Clubb, M.A. Mitchell, and L. Brown. *Veterinary Pathology*. 2008; 45:401-408.

**Background:** Feather picking and destructive behavior are common problems in parrots. Etiologies including infection (bacterial, parasitic, or fungal), behavior, nutrition, allergy, and underlying diseases have often been proposed. Two recent papers presented here have examined feather-

picking in parrots. The first paper summarized histologic findings in 408 feather-picking parrots. The second paper compared several diagnostic parameters in normal African grey parrots and those demonstrating feather damaging behavior.

**Summary:** A retrospective study was conducted using paired biopsies from birds with feather loss, feather-picking, or feather damaging behavior. Inflammatory skin disease was distinguished on the basis of perivascular inflammation in clinically affected and unaffected sites. Traumatic skin disease had an absence of inflammation at the



unaffected sites. Inflammatory skin disease was found in 51.5% of the samples and was most commonly observed in macaws, lorikeets, and Amazon parrots. Traumatic skin disease was observed in 48.5% of the cases and the group was dominated by cockatoo and African grey parrot species. There were no geographic  
*See page 3*

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## What is the Avian Digest?

The *Avian Digest* is prepared and published by the Division of Comparative Pathology of the University of Miami Miller School of Medicine.

The division's faculty has access to many journals that publish papers of interest

and importance to the avian veterinary community. The goal of the digest is to briefly review these papers and give our ideas on their clinical impact. The latter is why we found the particular paper interesting to present to you and your clinic staff.

This is our second issue to focus on this interest. Please contact the lab with questions and comments about how we can improve future issues. Also, if you come across an interesting article, please send it to us!



DNA technology proving the cases of this difficult to diagnose infectious agent.

## Avian mycobacteriosis in companion birds: 20-year survey

G. Manarolla, E. Liandris, G. Pisoni, D. Sassera, G. Grilli, D. Gallazzi, G. Sironi, P. Moroni, R. Piccinini, and T. Rampin. *Veterinary Microbiology* 2008, in press.

**Background:** The actual agents which cause avian mycobacteriosis often elude definition due to difficulty in culture and identification. Previous case reports have implicated *Mycobacterium avium-intracellulare* complex (MAI) and *Mycobacterium genavense*.

**Summary:** The primary goal of this retrospective study was to determine the mycobacterial species in-

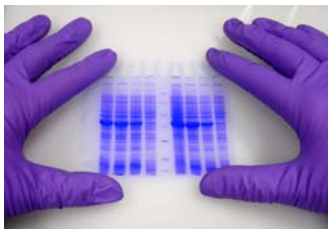
involved in cases diagnosed by histopathology. PCR and DNA sequencing were employed on paraffin embedded tissues from cases over a 20 year span (since 1987) which were submitted to this Italian laboratory for necropsy. The species included in the study were finches, canaries, and Amazon parrots. All the birds, with the exception of one green finch, were infected with *M. genavense*. The finch was

infected with *M. avium*.

**Clinical Impact:** This paper joins previous publications in Europe indicating that *M. avium* is not prevalent in avian species. Whether this is related to regional or geographic influences remains to be addressed. The use of molecular techniques makes an ideal approach for the diagnosis of infection.

## Humoral response to *Mycobacterium avium* subsp. *avium* in naturally infected ring-neck doves (*Streptopelia risoria*)

P.L Gray, M.D. Saggese, D.N. Phalen, and I. Tizard. *Veterinary Immunology and Immunopathology* 2008;125:216-224.



**Background:** Antemortem diagnosis of mycobacteriosis in avian species is notoriously difficult. Western blot based serological tests have been employed with some success in human diagnostics as well as some wildlife species.

**Summary:** Serum samples were examined from ring-neck doves which were exposed to *M. a. avium* in a flock with a

recent history of mortalities confirmed to be of mycobacterial origin.

Of doves which known to be infected, 88% had demonstrable antibodies. Of those exposed doves known to be non-infected, 100% were seronegative. A higher seropositive status was observed in those birds with diffuse lesions.

**Clinical Impact:** This study offers important findings of a high specificity and sensitivity assay for the detection of antibodies in ring-neck doves. In addition, it lays essential groundwork for further studies of the avian immune response to mycobacteria and the possible application of Western blot techniques to the antemortem diagnosis of this disease in other avian species.

## Feather-picking parrots *continued from pg 1*

seasonal, or gender based trends. These two diseases appear to be distinct pathologies. Examination of unaffected and affected sites provides key evidence in distinguishing the type of feather-picking disorder and may further aid in the diagnosis and treatment plans.

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### Comparison of Selected Diagnostic Parameters in African Grey Parrots (*Psittacus erithacus*) with Normal Plumage and Those Exhibiting Feather Damaging Behavior

S.L. Clubb, C. Cray, K.L. Arheart, and M. Goodman *Journal of Avian Medicine and Surgery* 2007;21(4):259-264.

Summary: African grey parrots exhibiting feather

damaging behavior (FDB) were the focus of this study. A total of 51 parrots were examined including 24 with FDB. Birds were given TSH and both pre and 6 hour post samples were examined. A stress hemogram was found in both normal and FDB birds although FDB birds exhibited a significantly higher heterophil:lymphocyte ratio indicating they may have a higher stress response to handling.

Whereas resting levels of thyroxine were found to be the same between the two groups, the magnitude of the increase after TSH administration was found to be lower in the FDB group. FDB birds were also found to have significantly higher levels

of alpha globulins and lower levels of gamma globulins. FDB birds had higher levels of antibody to *Aspergillus*. No differences were found in the following assessments: histamine, corticosterone, serotonin, and antibody to *Candida*.

Clinical Impact: These two papers provide considerably new and valuable information on feather-picking parrots. The Garner paper provides solid histological evidence of two diseases that should aid in diagnosis and treatment. The Clubb paper suggests a multifactorial etiology of FDB in African grey parrots and provides a basis for future studies to address the roles of allergy, thyroid function, and stress.



**More information on feather-picking parrots...**

## *Cryptococcus neoformans* Isolated from Passerine and Psittacine Bird Excreta in the State of Parana, Brazil

C. Lugarini, C. Goebel, L. Condas, M. Muro, M. de Farias, F. Ferreira, and M. Vainstein. *Mycopathologia* 2008;166:61-69.

Background: Cryptococcosis is a serious disease commonly found in immunosuppressed humans. The incidence has greatly increased in recent years with the increased incidence of AIDS and the use of immunosuppressive drugs. Bird excreta, especially from pigeons, has been implicated as a pri-

mary source of this pathogen which is acquired by inhalation.

Summary: The current study sampled 141 passerine and psittacine excreta using culture techniques and then further speciated by molecular techniques. Nearly 25% of the passerine samples were positive

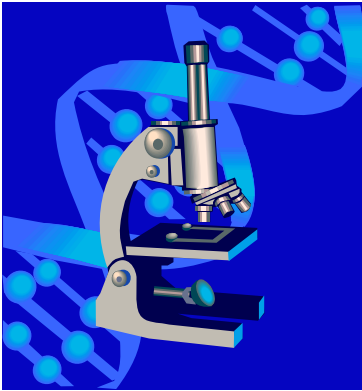
and 2% of psittacine samples. *Cryptococcus neoformans* var. *grubii* was identified in from both the avian as well as nearly all the local hospital isolates acquired from humans.

Clinical Impact: These findings support the link to avian species in this important zoonotic disease.



## Real-time PCR Detection and Quantitation of *Chlamydomphila psittaci* in Human and Avian Specimens from a Veterinary Clinic Cluster

J.M. Branley, B. Roy, D.E. Dwyer, and T.C. Sorrell. *European Journal of Clinical Microbiology and Infectious Disease*. 27:269-273.




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*DNA technology can be implemented for epidemiological investigations..*

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**Background:** Avian chlamydophilosis is a concern in veterinary and human medicine. In humans, diagnosis is difficult with reliance on serological assays. DNA technology is available but not widely used for humans.

**Summary:** A Rosella parrot was found sick by a roadside in Australia. The bird was examined by the veterinary staff and was housed overnight but subsequently died. Within 8 to 11 days after exposure to the bird, the staff members became sick with headaches, fever, fatigue,

and respiratory distress. Antibiotic therapy was given to the veterinarian and his assistant who recovered over the following weeks. A technician recovered without treatment.

Using PCR techniques, Chlamydial DNA was found in throat swabs and the blood from the veterinarian and his assistant. In addition, swabs from the bird's conjunctiva, liver, and spleen were also positive. *C. psittaci* was also cultured from the bird. Samples from the technician were negative. The

humans were seropositive.

**Clinical Impact:** Although the bird exhibited symptoms of chlamydophilosis, no precautions were taken when it was handled. In fact,  $10^5$  copies of *C. psittaci* DNA were isolated from the avian samples (vs <10 copies in the human samples) indicating a high infectious load in the affected bird. Post mortem diagnosis of affected birds by DNA testing is underutilized and the technique is likely well suited to use in humans.

## The Detection of *Chlamydomphila psittaci* Genotype C Infection in Dogs

L. D. Sprague, E. Schubert, H. Hotzel, S. Scharf, and K. Sasche. *The Veterinary Journal*. In press, 2008.

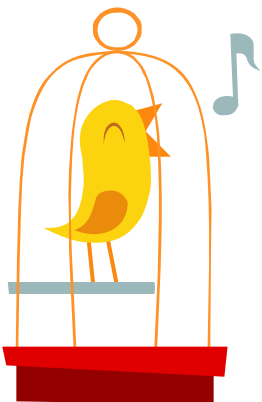
**Background:** Historical reports of canine chlamydophilosis are rare although chlamydial species are known to infect a wide range of animals including horses, koalas, avian species, and reptiles. Sub acute, acute, and chronic infection have been demonstrated in dogs.

**Summary:** Four dogs from one owner presented over a two month period for severe dyspnea. Over the previous 5 year period,

these dogs had several episodes of dyspnea and conjunctivitis. The owners also had recurrent respiratory distress. The appearance of the clinical signs were consistent with the purchase of canaries and a parrot which were clinically normal. The humans were found to be seropositive and positive for chlamydial inclusions by immunofluorescence of pharyngeal swabs. Chlamydial DNA was amplified from all 4 dogs and one

dog was also positive by culture techniques. There was no testing of the birds.

**Clinical Impact:** The data is suggestive of animal to human transmission but it is unknown of the specific role the dogs may have had in transmitting the disease. It is important to note that the dogs were shedding the organism. Chlamydial infection should be considered in dogs with respiratory and conjunctival signs.



## Methicillin-resistant *Staphylococcus aureus* (MRSA) Isolated from Small and Exotic Animals at a University Hospital During Routine Microbiological Examinations.

B. Walther, L.H. Wieler, A.W. Friedrich, A. Hanssen, B. Kohn, L. Brunberg, and A. Lubke-Becker. *Veterinary Microbiology*. 2008, 127:171-178.

**Background:** MRSA, the so called super bug, has gained much fame for difficult to treat infections in humans. Since the early 1970's infection of large and companion animals have been reported mostly in case report form.

**Summary:** A diagnostic laboratory reviewed 869 clinical specimens received during an 18 month period. A total of 61 *S. aureus* isolates were found with 27 (44%) of the isolates determined to be

MRSA. The majority of the MRSA were isolated from wound infections and 56% of the MRSA isolates were found in dogs. Other MRSA positive species included cat, bird, rabbit, guinea pig, turtle, and a bat.

Over the study period, the rate of positive samples was not constant with significant increases in a two month period. The overall incidence was 1.85 cases per 1000 admissions. Using DNA fingerprint

analyses, 5 different types of MRSA were found. The most dominant type was an isolate found previously in human and veterinary hospitals.

**Clinical Impact:** Nosocomial infection with MRSA is common not only in human but also veterinary hospitals. In this particular location, a single genotype of MRSA appears dominant in both settings. Moreover, it appears to be able to infect a wide range of species.



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*Molecular technology leading further definition of bacterial infections.*

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## Molecular Diagnosis of *Salmonella* Species in Captive Psittacine Species

M.C. Allgayer, C.A. V. Lima-Rosa, T.A. Weimer, C.R. Rodenbusch, R. A. Pereira, A.F. Streck, S. D. Oliveira, and C.W. Canal. *The Veterinary Record*. 2008, 162:816-819.

**Background:** *Salmonella* species are common bacteria capable of infecting humans and animals including birds. Infection of birds can result in subacute, acute, or chronic infection. Some birds can be clinically normal yet be a carrier of this organism.

**Summary:** In the current study, cloacal swabs were collected from 280 captive parrots in Brazil, repre-

senting 13 species. Using PCR techniques, 13% of the birds were found to be positive for *Salmonella* genus specific DNA. Notably, none of the samples were positive by culture. Amazon parrot species were most likely to be found positive by PCR.

**Clinical Impact:** This study is the first to address the application of PCR tech-

niques to the detection of *Salmonella*. Previous studies reported a lower incidence of positive birds using less sensitive methods. Importantly, although the birds were clinically normal, the current data suggests they were excreting the organism. PCR methodology should be further considered for diagnostic and epidemiological investigations in avian species.



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