

feline strains from Italy and Australia grouped together, as did the P[9] strains from the United States.

Thus, both the VP7 and VP4 genes of G3P[9] strain identified in this study were most closely related to a racoon dog rotavirus strain (RAC-DG5), suggesting an animal origin of this rotavirus strain. These strains are likely an example of an animal strain causing limited disease in humans, rather than existence of a true strain, which has entered and adapted to the human environment. Recent whole-genome sequencing of 2 G3P[9] strains isolated from children in Italy showed they were composed of genes of human, bovine, and feline origin (2); whether the G3P[9] strains from Malaysia identified in this study are also human/animal reassortant strains requires further study.

Identification of G3P[9] strains in Malaysia continues to highlight the presence of these rare strains in Asian communities. The close similarity of the strains to a G3P[9] strain from a racoon dog further highlights the transmission of rotavirus strains between animal and human sources. Whether this strain can establish itself in humans and cause disease is unknown, but the identification of rare strains illustrates that movement of rotaviruses between various hosts does occur from time to time.

**Ling-Sing Ch'ng, Way S. Lee,
and Carl D. Kirkwood**

Author affiliations: Murdoch Childrens Research Institute, Parkville, Victoria, Australia (L.-S. Ch'ng, C.D. Kirkwood); University of Melbourne, Melbourne, Victoria, Australia (L.-S. Ch'ng, C.D. Kirkwood); and University of Malaya, Kuala Lumpur, Malaysia (W.S. Lee)

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Address for correspondence: Carl D. Kirkwood, Enteric Virus Group, Murdoch Children's Research Institute, Royal Children's Hospital, Flemington Rd, Parkville, Victoria, 3052, Australia; email: carl.kirkwood@mcri.edu.au

Avian Malaria Deaths in Parrots, Europe

To the Editor: Avian malaria is an insect-borne disease induced by a so far unknown number of protozoan blood parasites of the genera *Plasmodium* and *Haemoproteus* (hematozoa) (1,2). The unintentional introduction of *P. relictum* to the Hawaiian Islands, USA, has had fatal effects for the native bird fauna (3). In Europe, asymptomatic blood infections by hematozoa have been regularly observed, with an especially high prevalence in songbirds (4). However, numerous outbreaks of fatal protozoan infections have been reported over the past 40 years, mainly among psittacines of Australia that have been kept in aviaries (5,6). Diagnosis in all these cases was based on histopathologic detection of protozoan cyst-like structures of unexplained origin in the heart and skeletal muscles and, to a lesser extent, in other organs. In most cases, the protozoans were identified as members of the genus *Leucocytozoon* because of their morphologic features. Recent studies suggest that these cases may, in fact, have been infections of *Besnoitia* spp. (Sarcocystidae) or other unknown hematozoa (5); however, genetic evidence is lacking.

In August 2010, sudden deaths of parrots were noticed in 2 separate aviaries in northern Germany and Switzerland (online Technical Appendix Table, www.cdc.gov/EID/content/17/5/950-Techapp.pdf). Nine yellow-crowned parakeets (*Cyanoramphus auriceps*), 3 barred parakeets (*Bolborhynchus lineola*), and 2 budgerigars (*Melopsittacus undulatus*) died within 2–5 days after a history of reduced general conditions and reduced activity and food intake before death. In addition, 2 budgerigars and 1 barred parakeet in the aviary in Germany showed

be a potential hazard for invading species. Avian malaria should therefore be considered a threat for exotic parrots in Europe until results of further epidemiologic and experimental studies are available. Because many European bird species have been introduced to the native range of the psittacines studied here, a concern has been expressed that these parasites already have become established in these areas and are affecting the natural populations.

**Philipp Olias, Maria Wegelin,
Wolfgang Zenker,
Sabrina Freter,
Achim D. Gruber,
and Robert Klopffleisch**

Author affiliations: Freie Universität, Berlin, Germany (P. Olias, S. Freter, A.D. Gruber, R. Klopffleisch); IDEXX Diavet Labor, Bäch, Switzerland (M. Wegelin); and Animal Clinic Neuwiesen, Uster, Switzerland (W. Zenker)

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Address for correspondence: Philipp Olias, Department of Veterinary Pathology, Freie Universität Berlin, Robert-von-Ostertag-Str. 15, 14163 Berlin, Germany; email: olias.philipp@vetmed.fu-berlin.de

Fatal Human Case of Western Equine Encephalitis, Uruguay

To the Editor: The genus *Alphavirus* (family *Togaviridae*) comprises 29 viral species (1), grouped in at least 7 antigenic complexes by their serologic cross-reactivity (2). They are maintained in nature through enzootic cycles involving arthropods as vectors with subsequent amplification in small mammals or birds, and epizootic cycles between mosquitoes and large mammals such as horses or humans.

Few reports have been made of the circulation of alphaviruses in Uruguay. A serologic study conducted in 1970

found antibodies to western (WEEV) and eastern equine encephalitis viruses by using complement fixation and hemagglutination inhibition tests in serum specimens from children (3). In 1972–1973, epizootics in horses caused by WEEV were reported in Argentina and Uruguay, and WEEV was isolated from a sick horse (4).

We report a fatal case of viral encephalitis in April 2009 in Montevideo, Uruguay, in a previously healthy 14-year-old boy. Four days before he sought treatment, he had fever, asthenia, and headaches. At hospital admission (April 12, 2009), he was febrile and without neurologic signs; amoxicillin treatment was initiated. Results of a computed tomography scan of the brain were normal.

On day 1, headache, vomiting, neck stiffness, and partial left seizures on the left side developed. Also exhibited were consciousness depression (Glasgow Coma Scale 12 points), hyperreflexia, and bilateral Babinski sign. A cerebrospinal fluid (CSF) sample was negative for bacteria in cultures. An electroencephalogram showed diffuse brain suffering. The patient was brought to the intensive care unit with a clinical diagnosis of viral encephalitis. Over the next 24–36 hours, intracranial hypertension developed, and medical treatment was given (sedation, hyperventilation, mannitol, and barbiturates). Consciousness depression progressed to a deeper level, and a computed tomography scan of the brain showed dilatation of the temporal ventricles and compression of the peritroncal and sylvian cisterns. During the next 48 hours, the coma level went deeper, reaching 6 on the Glasgow Scale. Another CSF specimen was taken, and PCR results were negative for herpesvirus and enterovirus. Glasgow Coma Scale level was 3 on April 15, and a decompressive craniectomy was done. Seventy-two hours after admission, the patient died.

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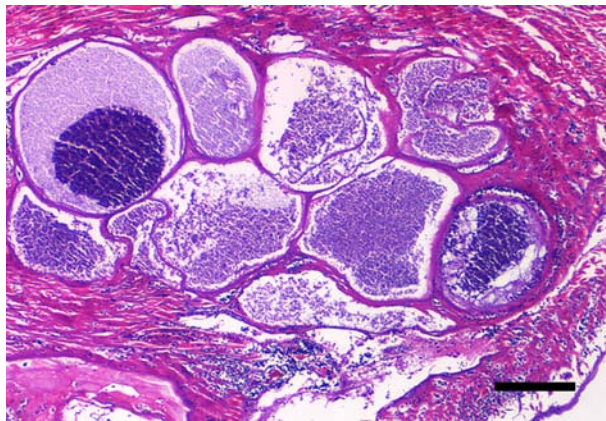
Technical Appendix

Technical Appendix Table. Complete list of animals in the affected aviaries, northern Germany and Switzerland, August 2010

Site location (species)	No. animals died/total	Histologic detection of <i>Haemoproteus</i> spp.		PCR detection of <i>Haemoproteus</i> spp. in blood
		Gametocytes in erythrocytes	Megalomeronts in heart and skeletal muscle†	
Aviary 1 (Germany), 52°16'N, 13°39'E				
Budgerigar (<i>Melopsittacus undulatus</i>)	2/20	0/18	1/1	3/18
Cockatiel (<i>Nymphicus hollandicus</i>)	0/6	0/2	ND	0/2
Barred parakeet (<i>Bolborhynchus lineola</i>)	3/6	0/5	1/1	1/5
Eastern rosella (<i>Platycercus eximius</i>)	0/2	0/2	ND	0/2
Chicken (<i>Gallus gallus domesticus</i>)	0/4	0/4	ND	0/4
Aviary 2 (Switzerland) 47°25'N, 8°50'E				
Yellow-crowned parakeet (<i>Cyanoramphus auriceps</i>)	9/18	ND	5/5	ND
Cockatiel (<i>Nymphicus hollandicus</i>)	0/6	ND	ND	ND
Domestic canary (<i>Serinus canaria</i>)	0/15	ND	ND	ND

*ND, not done.

†Confirmed by PCR.



Technical Appendix Figure. Myocardium of yellow-crowned parakeet that is severely infected with numerous large megalomeronts of *Haemoproteus* spp. Note the thick eosinophilic hyaline wall of megalomeront with internal septation and myriads of spherical basophilic merozoites. Surrounding muscle fibers are degenerated, necrotic, and hemorrhagic (hematoxylin and eosin stain). Scale bar = 150 μm .