



TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY
DEPARTMENT OF VETERINARY PREVENTIVE MEDICINE
MADRAS VETERINARY COLLEGE



International
e-Conference on

AN INTEGRATED
APPROACH TO
ELIMINATE CANINE
AND FELINE
VIRAL DISEASES
IN INDIA



30.11.2020 & 01.12.2020

ABOUT THE INTERNATIONAL e- CONFERENCE

Infectious diseases of viral, bacterial and haemoparasitic origin are clinically important and commonly encountered among companion animals. Of the various etiologies, virus imposes serious disease in both dogs and cats. In India, these viral diseases viz canine parvoviral enteritis, canine distemper, rabies, feline panleukopenia, rhinotracheitis and calici viral infections are life-threatening and endemic diseases in dogs and cats even with the availability of vaccines. Various attributes like semi and free ranging pattern of dogs and cats along with uncontrolled population with poor husbandry practices, lack of implementation of prevention and control strategies, epidemiology, global climatic variation, increased susceptibility, vaccination failures, lack of knowledge on early diagnosis, misdiagnosis, and lack of awareness among the pet parents are the influencing determinants for the endemicity of the above said diseases in our country. Globally, efforts to control some of these viral diseases have been achieved by implementing strict vaccination schedule and Veterinary services. In India, vaccines against CPV 2, corona, rabies, kennel cough, panleukopenia, calici, and rhinotracheitis are readily available, but how it is used successfully in the field is a question of concern. As a forerunner in Veterinary Science we at the department of Veterinary Preventive Medicine, MVC is currently focussing on molecular epidemiology, disease forecasting models, diagnostic approaches, and vaccine studies on various infectious diseases of companion animals continuously to aid in the treatment and devising control strategies. This e-conference was initiated with the aim to integrate

Veterinary scientist, faculties, research scholars, practitioners, students and pet parents to discuss on important developments and challenges happening in India and Global level on these viral diseases of dogs and cats through this virtual platform during this pandemic situation.

PET PARENTS play a pivotal role in breaking the transmission cycle of infectious agents in pets by implementing appropriate vaccination schedules and biosecurity measures. In this context, educating the pet parents about recent updates on vaccination and bioscecurity measures is of prime importance to create awareness. In continuation of past successful pet parents meet, this year we are organizing **NATIONAL PET PARENTS MEET** for the benefit of pet owners through online mode on 02.12.2020.

ABOUT THE HOST

Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) is one of the leading Universities among Veterinary and Animal Sciences University. Madras Veterinary College (MVC) is one of the pioneering oldest and constituent institute of TANUVAS started way back in 1903. Department of Veterinary Preventive Medicine was first of its kind started in the year 1958 at MVC and it is focussing on teaching and research on various infectious diseases of farm and companion animals. Till now more than 200 research scholars have graduated from this prestigious department. This department is currently working on molecular epidemiology, disease forecasting models, and vaccine studies on canine viral diseases, brucellosis, tuberculosis, Johne's diseases, toxoplasmosis, and other economically important diseases.

Organized by

DEPARTMENT OF
VETERINARY PREVENTIVE MEDICINE
MADRAS VETERINARY COLLEGE
CHENNAI - 600 007, TN, India

RESOURCE PERSONS

Time (IST)	Name of Speakers	Topics
DAY-1 - 30.11.2020		
SESSION - I		
9.30 AM - 10.30 AM	<p>Dr. MICHAEL LAPPIN Professor and Chair One Health Committee World Small Animal Veterinary Association (WSAVA) Small Animal Internal Medicine College of Veterinary Medicine and Biomedical Sciences Colorado State University, USA</p>	An Update on Canine Parvovirus Infections; The USA Perspective
SESSION - II		
11.15 AM - 12.00 AM	<p>Dr. G. DHINAKAR RAJ Director Centre for Animal Health Studies (CAHS), TANUVAS Madhavaram Milk Colony Chennai - 600 0051, India</p>	Canine Parvo Virus Vaccine - A Translational Sojourn
12.00 PM - 1.00 PM	Abstract Presentation Technical Session - I	Faculty, Researchers, PG, Ph.D., & UG (Final Year) Students
SESSION - III		
2.00 PM - 3.00 PM	<p>ALAN RADFORD Professor Veterinary Health Informatics University of Liverpool Institute of Infection and Global Health, UK</p>	Feline Calicivirus – A Rapidly Evolving Virus in a Slowly Changing World
3.00 PM - 4.00 PM	Abstract Presentation Technical Session - II	Faculty, Researchers, PG, Ph.D., & UG (Final Year) Students
DAY - 2 - 01.12.2020		
SESSION- IV		
Time	PRACTITIONER'S PERSPECTIVE	Problems in Infectious Disease (Viral Origin) Practice in India with Special Reference to Dogs and Cats
9.30 AM - 9.40 AM	<p>Dr. Lakshmi Srinivasan Private Veterinary Physician Hyderabad, India</p>	
9.40 AM - 9.50 AM	<p>Dr. Kunal Dev Sharma Private Veterinary Physician New Delhi, India</p>	
9.50 AM - 9.55 AM	<p>Dr. J. Venkatesh Private Veterinary Physician Chennai, India</p>	
9.55 AM - 10.00 AM	<p>Dr. Ramani Jairam Private Veterinary Physician Mumbai</p>	

RESOURCE PERSONS

SESSION- V		
10.00 AM - 11.15. AM	<p>RICHARD SQUIRES Associate Professor and Chairman, Scientific Advisory Committee WSAVA Vaccination Guidelines Companion Animal Medicine Discipline of Veterinary Science James Cook University Queensland 4811, Australia</p>	Canine and Feline Vaccinations and Main Reasons for Apparent Vaccination Failure
11.15 AM - 12.00 PM	<p>RICHARD SQUIRES Associate Professor Companion Animal Medicine Discipline of Veterinary Science James Cook University Queensland 4811, Australia</p>	A Special Talk on "Unusual Clinical Manifestations of Canine Leptospirosis"
SESSION - VI		
12.00 PM – 12.45 PM	<p>Dr. P.V. TRESAMOL Associate Dean College of Veterinary and Animal Sciences, KVASU, Mannuthy Thrissur, Kerala, India</p>	Canine Rabies-Control Strategy for India
12.45 PM – 01.45 PM	Abstract Presentation Technical Session - III	Exclusively for Private Practitioners and Vets from State Animal Husbandry Veterinary Services
SESSION – VII		
2.00 PM - 2.30 PM	<p>Dr. VISHAL CHANDER Scientist, Virology Lab., Centre for Animal Disease Research and Diagnosis (CADRAD) ICAR-Indian Veterinary Research Institute, Bareilly, UP, India</p>	Current Strategies on Infectious Canine Hepatitis in Dogs
3.00 PM - 3.30 PM	<p>Dr. M. NARAYANA BHAT Dean, Veterinary College Hebbal, Bengaluru, India</p>	Diagnosis and Prevention of Canine Distemper - A Relook

EXTENDED ABSTRACT PRESENTATION - RULES

Abstract Theme :	Canine and Feline Infectious Diseases: Viral, Bacterial, Fungal and Parasitic Origin
Title :	Times new Roman 14pt, Bold and Upper case
Author names :	Times new Roman/12pt/ V. First name ¹ (Underline the name of the presenting author), V. First name ² , V. First name ³*Phone number and email ID of the corresponding authors are to be given Affiliation ¹ (Times new Roman 10pt), Address ³ , Email ¹ Affiliation ² , address ³
AbstractFormat :	The extended abstract must contain the following sections: Abstract and keywords (3-5 words), introduction, methodology, results and discussion or findings, conclusion, and references. Section can be named differently and subsections can be included. The extended abstract should contain a minimum of 1000 words and a maximum of 2500 words. The extended abstract can contain figures, tables and images. Pages should not be numbered. The Research Paper should be data oriented and should reflect the major findings of the paper.
Communication :	Authors are requested to submit Abstracts via the conference email: pmdmvconference@gmail.com
Last Date for Submission :	25.11.2020

AWARDS FOR BEST PAPERS

Technical Session – I (Faculty, Researchers and Students)	MSD Animal Health Awards 	Best Abstract Presentation - Cash Awards for Rs. 10,000
Technical Session – II (Faculty, Researchers and Students)	Indian Immunologicals Awards 	Best Abstract Presentation - Cash Awards for Rs. 10,000
Technical Session – III (Exclusively for Private practitioners and State Animal Husbandry Veterinary Services)	Indian Immunologicals Awards 	Best Abstract Presentation - Cash Awards for Rs. 10,000
Technical Sessions	Veterinary Preventive Medicine MVC Award	OVER ALL BEST PAPER AWARD

ABOUT THE SPEAKERS



Dr. MICHAEL LAPPIN

Professor, Small Animal Internal Medicine
College of Veterinary Medicine and
Biomedical Sciences, Colorado State University, USA

Dr. Lappin graduated from Oklahoma State University and then completed his internship and PhD program at the University of Georgia. Dr. Lappin is the director of the "Center for Companion Animal Studies" and also the chair of the "WSAVA One Health Committee". His principal areas of

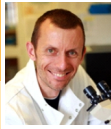
interest are prevention of infectious diseases, the upper respiratory disease complex, infectious causes of fever, infectious causes of diarrhoea, and zoonoses. His research group has published over 300 primary papers, book chapters concerning small animal infectious diseases. His awards include the Norden Distinguished Teaching Award, NAVC Small Animal Speaker of the Year, the European Society of Feline Medicine International Award for Outstanding Contribution to Feline Medicine, the Winn Feline Research Award, the ACVIM Robert W. Kirk Award for Professional Excellence, the WSAVA Scientific Achievement Award, and the AVMA Clinical Research Award.



Dr. G. DHINAKAR RAJ

Director, Centre for Animal Health Studies
Tamil Nadu Veterinary and Animal Sciences University
Madhavaram Milk Colony, Chennai - 600 051

He is the Director, Centre for Animal Health Studies at TANUVAS. Earlier he established the unique Translational Research Platform for Veterinary Biologicals (TRPVB) which is a partnership programme between TANUVAS and Department of Biotechnology, Govt for commercialization of research for the benefit of farmers. He has several awards to his credit, some of them include the Tamil Nadu Scientist Award (1994); DBT-National Bioscience Award (2007); He is the first veterinarian to obtain the DBT-Tata-innovation fellow (2012) and TANUVAS Best Researcher Award (2012). He has been the Principal Investigator (PI) of more than 20 external funded projects and Co-PI in 21 external funded schemes. He has more than 240 publications and has guided 6 Ph. D, 9 M. V. Sc, 5 M. Phil and 1 M. Tech student. He has filed 11 patents and has been granted one. He has been involved in the commercialized 18 products from TANUVAS and TRPVB. He has fostered collaborations with 13 national institutions and 3 international institutions. He is a member of the DBT Task Force and played a significant role in establishing the Veterinary Incubation Foundation (VIF) @TANUVAS.



ALAN RADFORD, BSc, BVSc, PhD, MRCVS
Professor of Veterinary Health Informatics
University of Liverpool, Institute of Infection
and Global Health, UK

Dr. Alan graduated from University of Liverpool in UK with degrees in veterinary science and molecular biology. He did his internship in Small Animal Medicine in Dublin and PhD in Liverpool on the evolution of feline calicivirus.

Since then he has continued using "next generation" sequence data to understand the biology of infectious diseases. Alan helped in establishing the Small Animal Veterinary Surveillance Network (SAVSNET). SAVSNET collects large volumes of companion animal electronic health data from veterinary practitioners and diagnostic laboratories across the UK and generates real-time data on diseases. These are collated centrally, and used for research and surveillance. Recent projects include demographics, ticks, babesiosis, antibacterial use, fly strike, and vaccination. Quarterly surveillance reports are published in the Veterinary Record.



Dr. RICHARD A. SQUIRES
PhD, DVR, Dip ACVIM, Dip ECVIM-CA,
Prof. of Companion Animal Medicine,
Discipline of Veterinary Science,
James Cook University, Queensland 4811, Australia
World Small Animal Veterinary Association's
Chairman, Scientific Advisory Committee
WSAVA Vaccination Guidelines

Dr. Richard graduated from Bristol veterinary school in England, obtained clinical training at the Universities of Cambridge and Pennsylvania and research training at Glasgow. He is a Diplomat of both the American and European Colleges of Veterinary Internal Medicine and holds the Royal College of Veterinary Surgeons Diploma of Radiology. His PhD involved a hunt for canine retroviruses. He held faculty positions at the Universities of Liverpool, Pennsylvania, Wisconsin and at Massey University in New Zealand. Most of his research has been on canine and feline infectious diseases. In New Zealand, he taught and carried out research in veterinary virology for 5 years. Richard was a member of the World Small Animal Veterinary Association's Scientific Advisory Committee from 2008 - 2019. He has been a member of the WSAVA Vaccination Guidelines Group since 2010 and recently became chair of that committee.



Dr. P.V. TRESAMOL, M.V.Sc & Ph.D
Associate Dean, College of Veterinary and
Animal Sciences, Mannuthy, Kerala

Dr. P.V. Tresamol has her expertise in the field of infectious diseases of livestock, companion and wild animals and birds. She graduated from College of Veterinary and Animal Sciences, Mannuthy and Post graduation from Madras Veterinary College. During the period of 26 years of service as a faculty, she was associated with teaching, research and extension activities in the field of Veterinary Epidemiology and Preventive Medicine. She has handled 20 research projects as principal/Co-principal investigator and has guided 40 PG scholars and 3 doctoral scholars as major/minor advisor. She organized various seminars, training programmes, health camps and disease outbreak investigations in University and in the field and she is recipient of several national and state awards. She has published around 140 research articles in various national and international journals.



Dr. VISHAL CHANDER
Scientist, Virology Laboratory, IVRI

Dr. Vishal graduated from College of Veterinary and Animal Sciences, Palampur and his Master's from IVRI. He joined as a Scientist during 2009 and is working at Virology Laboratory, CADRAD, ICAR-IVRI, in the area of surveillance, epidemiology and diagnosis of different viral diseases of Livestock, companion and wild animals. His area of interest is infectious diseases of animals and has focused on development of diagnostics, vaccines and therapeutics against different viral pathogens of animals. He is presently working on canine vaccines and understanding the events of pathogenesis of infectious canine diseases. The main emphasis is on the molecular epidemiology of various canine pathogens including canine adenovirus causing infectious canine hepatitis. He has filed a patent on a novel canine parvo virus vaccine candidate.



Dr. M. NARAYANA BHAT
Dean, Veterinary College, KVAFSU
Hebbal, Bengaluru - 560 024

Dr. Narayana Bhat was graduated from UAS, Bangalore and completed his MVSc from Bangalore and Ph. D. programme from TANUVAS, Chennai. He has 35 years of teaching and research experience. Dr. Bhat acted as Director, Institute of Wildlife Veterinary Research, Head of Division, Veterinary Clinical Science, KVAFSU, Professor and Head of Department of Veterinary Clinical Complex, Veterinary Medicine, and Veterinary Preventive Medicine, Veterinary Colleges of Bengaluru and Hassan. He acted as a Chief Editor, Frontier Journal of Veterinary and Animal Sciences (Official Journal of KVAFSU, Bidar). His awards include Soumya Nayakamma Gold Medal in Veterinary Medicine, best Ph.D. Thesis Award and best paper awards. He has published around 55 research and 50 extension articles on various infectious diseases.

Organizing Committee - International e-Conference

Chief Patron

Dr. C. BALACHANDRAN

Hon'ble Vice-Chancellor

Tamil Nadu Veterinary and Animal Sciences University
Chennai - 600 051, TN, India

Patron

Dr. P. TENSINGH GNANARAJ

Registrar

Tamil Nadu Veterinary and Animal Sciences University
Chennai - 600 051, TN, India

Convenor and Chairman

Dr. K.N. SELVAKUMAR

Dean,

Madras Veterinary College
Chennai - 600 007, TN, India

Organizing Secretary

Dr. M. VIJAYA BHARATHI

Associate Professor and Head

Dept. of Veterinary Preventive Medicine
Madras Veterinary College, Chennai - 600 007
TN, India

Co-organizing Secretaries

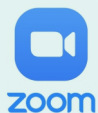
Dr. T. DEVI & Dr. H. PRABHAVATHY

Assistant Professors

Dept. of Veterinary Preventive Medicine
Madras Veterinary College, Chennai - 600 007
TN, India

Log in Time: Day 1 & 2: 9.15 AM

Hosted by: ZOOM



Registration Link for e-Conference: <https://forms.gle/uYEuEoc28SD2qu6T7>

Organized by

Dept. of Veterinary Preventive Medicine
Madras Veterinary College, Vepery, Chennai 600 007, India

Further Contact

Dr. M. VIJAYA BHARATHI, Organizing Secretary
Mob: +91 98401 61505, Phone: 2530 4000(Ext. 2063)
Email: pmdmvconference@gmail.com

Registration Criteria

Who can register?

1. Veterinary faculty
2. Veterinary Private Practitioners & Vets from State AH Veterinary Services
3. Veterinary UG (Final Year), PG and PhD students
4. Scientists working on canine and feline infectious diseases and epidemiology

Note:

1. Registration Fee: Free
2. Login ID, Meeting ID, Password and link will be provided to your registered mail after registration
3. Registration cut-off date: **Before 6.15 Pm on 29.11.2020**

e- certificate and e- compendium (ISBN number) will be sent to the registered mail after successful completion of all the sessions and submission of feedback form.

A Hard Copy of the certificates will be sent to your communication address (Conditions Apply)

Unusual Clinical Manifestations of Canine Leptospirosis

Richard A. Squires
Discipline of Veterinary Science,
James Cook University,
Townsville, QLD, Australia.

Update on point-of-care diagnostic tests for canine leptospirosis

A lateral flow assay (LFA) for detection of *Leptospira*-specific IgM recently became commercially available in Europe (Witness Lepto, Zoetis). In one recent study, this new “patient-side” test showed strong promise for diagnosis of acute leptospirosis in dogs.¹ Diagnostic sera from dogs submitted to a German university diagnostic laboratory were studied. Sensitivity and specificity of the LFA during the acute phase of illness were 75.7% and 98.3%, respectively. This compared favourably with microscopic agglutination testing.

In a second recently-published study,² two LFAs for diagnosis of canine leptospirosis were compared (again, Witness Lepto and Test-it™, LifeAssay Diagnostics). Weak positive results were obtained frequently using both tests. If these were interpreted as true positives, the positive predictive values of the two tests were 94% and 100% and the negative predictive values were 73% and 74%, respectively. The authors declared these two tests useful when used in conjunction with other confirmatory testing methods.

Unusual Clinical Manifestations of Canine Leptospirosis

Interesting and unusual clinical manifestations of canine leptospirosis (beyond the conventional) that are being increasingly recognised as strongly disease-associated, at least in some countries, include acute kidney injury (i.e. acute renal failure) in the absence of jaundice,³ pulmonary oedema and haemorrhage,⁴⁻⁶ uveitis and cholecystitis⁷ and small intestinal intussusception.^{8,9} It is not clear whether these interesting and unusual forms of leptospirosis in dogs are widespread or prevalent in every country.

Acute kidney injury in the absence of jaundice is the best established of the unusual clinical forms. This was first described in 1992 in the United States³ and hundreds to thousands of cases like this have been diagnosed since then. Many dogs affected with this new clinical form were infected with “new” or unexpected serovars, especially *Grippotyphosa* (but also sometimes with lower titres against *Pomona* and *Bratislava*).¹⁰ Interestingly, leptospirosis that caused severe renal disease without much evidence of hepatic disease has been described in three cats.¹¹ One of these cats was hyposthenuric (1.005) with marked neutrophilia and azotaemia. It had a very high titre against serovar *Pomona* and improved dramatically after ampicillin and doxycycline treatment. A second cat was polydipsic/polyuric, had haematuria with red blood cell casts in the urine sediment, had uveitis, forelimb lameness and azotaemia. It had moderately high titres against *Pomona* and *Bratislava*. It improved after appropriate antibiotic therapy but remained with uveitis. The third cat was severely ill, collapsed, and with severe azotaemia, thrombocytopenia and large irregular kidneys. It manifested CNS signs and dyspnoea and died shortly afterwards. Necropsy revealed severe tubulointerstitial nephritis. There were moderately high titres against four leptospira serovars.

An interesting, recently appreciated manifestation of canine leptospirosis, that has been recognised for many years in human medicine, is pulmonary haemorrhage.^{6,12} This complicates many typical cases of canine leptospirosis, but may not be recognised if it is mild. In other dogs, respiratory clinical signs are the reason for presentation and may be very

severe, leading rapidly to death. Haemoptysis may be present. A key observation is that a large majority of dogs affected by this unusual manifestation of leptospirosis are azotaemic, often severely, as well as being in respiratory distress. This is a key diagnostic point and is something that holds true for the other unusual forms of leptospirosis to be described later. Pulmonary oedema sometimes accompanies pulmonary haemorrhage and occasionally it is oedema rather than haemorrhage that is present.

Anterior uveitis is another possible manifestation of canine leptospirosis and again may be the main reason to presentation. It may cause an obvious change in colour of the iris, depending on the breed of dog affected, as reported in one case.¹³ In that case, leptospirosis caused anterior uveitis and suspected cholecystitis, diagnosed on the basis of ultrasonographic findings.¹³ Panuveitis has also been reported in a separate case report.¹⁴ This was an eight-year-old Jack Russell terrier with mild hyphaema, aqueous flare and partial serous retinal detachments in both eyes. This dog had a high titre against serovar *canicola*. Antibiotic treatment was followed by resolution of the uveitis and vision was regained.

In the United States and elsewhere, small breed dogs living in urban rather than rural environments are being diagnosed increasingly with leptospirosis. In some studies, seroprevalence of antibodies against pathogenic leptospires were more prevalent in urban dogs than in rural dogs.¹⁵ Very young dogs (less than six months of age) are being diagnosed with acute, fatal leptospirosis.⁴ At necropsy many have minimal renal and hepatic histological changes and may present a diagnostic challenge. Although the serum biochemistry in these young dogs with fatal leptospirosis is typically consistent with marked hepatic and renal disease, and some are jaundiced, necropsy reveals more pulmonary disease (oedema with haemorrhages) and less severe hepatic and renal histopathological damage.⁴

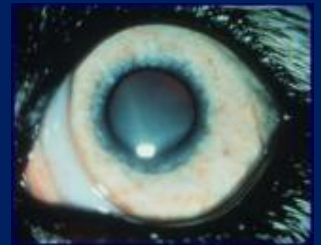
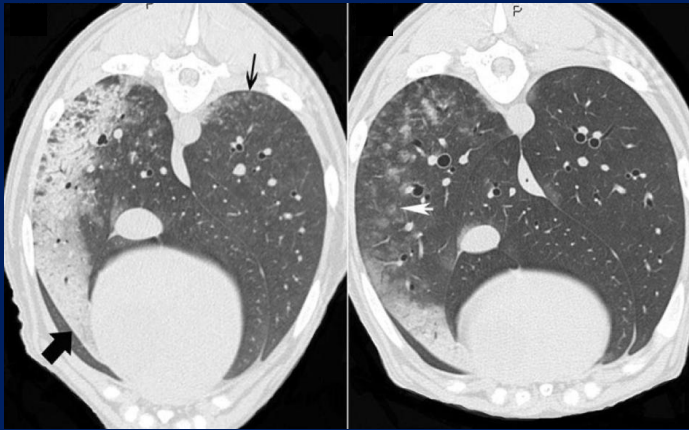
Interestingly, leptospirosis has been associated with small intestinal intussusception in five dogs.⁹ All five of these dogs had acute kidney injury and marked azotaemia as well as the intussusception and all were reported to have been infected by serovar *Australis*. The intussusception was diagnosed either at initial presentation or later during hospitalization. The azotaemia was present from admission, was severe, and was accompanied by thrombocytopenia. The dogs in this report were European, but it is interesting to consider whether dogs in other countries or regions might occasionally be affected in the same way. Dogs with intussusception and azotaemia might be diagnosed as having a severe prerenal azotaemia, due to the vomiting and consequent dehydration. However, the dogs in this report had azotaemia that was more severe than is typically encountered in the prerenal form of azotaemia and the azotaemia would not have resolved promptly, as would be expected after fluid therapy in a typical case of pure, uncomplicated prerenal azotaemia due to dehydration. However, this is rather subtle, and it is easy to see how some cases could be missed.

References

1. Lizer J, Grahlmann M, Hapke H, et al. Evaluation of a rapid IgM detection test for diagnosis of acute leptospirosis in dogs. *Vet Rec* 2017.
2. Gloor CI, Schweighauser A, Francey T, et al. Diagnostic value of two commercial chromatographic "patient-side" tests in the diagnosis of acute canine leptospirosis. *The Journal of small animal practice* 2017;58:154-161.
3. Rentko VT, Clark N, Ross LA, et al. Canine leptospirosis. A retrospective study of 17 cases. *J Vet Intern Med* 1992;6:235-244.

4. Rissi DR, Brown CA. Diagnostic features in 10 naturally occurring cases of acute fatal canine leptospirosis. *Journal of veterinary diagnostic investigation : official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc* 2014;26:799-804.
5. Kohn B, Steinicke K, Arndt G, et al. Pulmonary abnormalities in dogs with leptospirosis. *J Vet Intern Med* 2010;24:1277-1282.
6. Gendron K, Christe A, Walter S, et al. Serial CT features of pulmonary leptospirosis in 10 dogs. *The Veterinary record* 2014;174:169.
7. Gallagher A. Leptospirosis in a dog with uveitis and presumed cholecystitis. *J Am Anim Hosp Assoc* 2011;47:e162-167.
8. Schulz BS, Seybold N, Adamik KN, et al. Ileocolic intestinal intussusception in a dog with leptospirosis. *Tierärztliche Praxis Ausgabe K, Kleintiere/Heimtiere* 2010;38:403-405.
9. Schweighauser A, Burgener IA, Gaschen F, et al. Small intestinal intussusception in five dogs with acute renal failure and suspected leptospirosis (*L. australis*). *Journal of veterinary emergency and critical care (San Antonio, Tex : 2001)* 2009;19:363-368.
10. Brown CA, Roberts AW, Miller MA, et al. *Leptospira interrogans* serovar grippityphosa infection in dogs. *J Am Vet Med Assoc* 1996;209:1265-1267.
11. Arbour J, Blais MC, Carioto L, et al. Clinical Leptospirosis in Three Cats (2001-2009). *J Am Anim Hosp Assoc* 2012;48:256-260.
12. Klopfleisch R, Kohn B, Plog S, et al. An emerging pulmonary haemorrhagic syndrome in dogs: similar to the human leptospiral pulmonary haemorrhagic syndrome? *Vet Med Int* 2010;2010:928541.
13. Gallagher A. Leptospirosis in a Dog with Uveitis and Presumed Cholecystitis. *J Am Anim Hosp Assoc* 2011;47:E162-E167.
14. Townsend WM, Stiles J, Krohne SG. Leptospirosis and panuveitis in a dog. *Vet Ophthalmol* 2006;9:169-173.
15. Dhliwayo S, Matope G, Marabini L, et al. Seroprevalence of leptospirosis in dogs in urban Harare and selected rural communities in Zimbabwe. *The Onderstepoort journal of veterinary research* 2012;79:E1-6.

Canine leptospirosis – Some unusual presentations



PAPER

Diagnostic value of two commercial chromatographic “patient-side” tests in the diagnosis of acute canine leptospirosis

C. I. GLOOR*, A. SCHWEIGHAUSER*, T. FRANCEY*, S. RODRIGUEZ-CAMPOS[†], B. VIDONDO[‡], B. BIGLER[§]
AND S. SCHULLER^{*,1}

*Division of Small Animal Internal Medicine, Department of Clinical Veterinary Medicine, Vetsuisse Faculty, University of Bern, Bern 3012, Switzerland

[†]Institute of Veterinary Bacteriology, Vetsuisse Faculty, University of Bern, Bern 3012, Switzerland

[‡]Veterinary Public Health Institute, Vetsuisse Faculty, University of Bern, Bern 3097, Switzerland
[§]3007, Bern, Switzerland

¹Corresponding author email: simone.schuller@vetsuisse.unibe.ch



Paper

OPEN ACCESS

Evaluation of a rapid IgM detection test for diagnosis of acute leptospirosis in dogs

J. Lizer, M. Grahlmann, H. Hapke, S. Velineni, D. Lin, B. Kohn

Recently, a lateral flow assay (LFA) for detection of *Leptospira*-specific IgM in canine sera became commercially available in Europe. The present study aims to evaluate the diagnostic performance of this assay using canine sera from a collection of diagnostic accessions. Diagnostic sensitivity was assessed by testing 37 acute-phase and 9 corresponding convalescent-phase sera from dogs with a confirmed diagnosis of leptospirosis. Specificity was determined by testing sera from sick dogs with non-leptospiral infections (n=15) and healthy dogs with incomplete history of vaccination (n=45). During acute phase of illness, LFA scored positive for 28/37 sera with a sensitivity of 75.7 per cent while only 9/37 (24.3 per cent) samples were positive on microscopic agglutination test. The specificity of the LFA was 98.3 per cent (59/60). This test showed 89.7 and 100 per cent overall agreements with clinical diagnosis for acute-phase and convalescent-phase sera, respectively. The impact of vaccination on the LFA was also determined and vaccine-stimulated IgM responses were negative in 19/25 (76 per cent) dogs at 12 weeks post vaccination. In conclusion, the LFA is a rapid and reliable test for early detection of *Leptospira*-specific IgM during acute phase of canine leptospirosis. However, interpretation of a positive result must be made in the context of clinical signs and vaccination history.

WITNESS® | Lepto

Canine Leptospira Antibody Test Kit

WHY WAIT? CONFIDENTLY GO FROM SUSPECTING TO DETECTING*

A QUALITY, POINT-OF-CARE LEPTOSPIROSIS TEST THAT DELIVERS RAPID, RELIABLE RESULTS

WITNESS® Lepto detects the primary immune response (immunoglobulin M [IgM] antibodies) which develops within one week of exposure to canine leptospires.

TARGETS THE PREDOMINANT PRIMARY IMMUNE RESPONSE (IgM)



PURCHASE THIS ZOETIS PRODUCT SHOP NOW

NOW AVAILABLE



REPORTS OF LEPTOSPIROSIS
IN THE NEWS

PREVENT

For info on the Vanguard L4 vaccine, click here.

SIMPLY



More information on the clinical performance of the SNAP® Lepto Test is now available

IDEXX, as a leader in pet health-care innovation, developed an enzyme-linked immunosorbent assay (ELISA) for *Leptospira*-specific antibodies that can be performed as a point-of-care SNAP® test or as an IDEXX Reference Laboratories test. The SNAP® Lepto Test and the Canine *Leptospira* spp. Antibody by ELISA provide fast results at a low cost to assist veterinarians in diagnosing this potentially life-threatening infection. Summaries of two new papers based on research sponsored by IDEXX and published in the (peer-reviewed) *International Journal of Applied Research in Veterinary Medicine* on the performance of the ELISA for *Leptospira*-specific antibodies are provided below.

Performance of a recombinant LipL32-based rapid in-clinic ELISA (SNAP Lepto) for the detection of antibodies against *Leptospira* in dogs¹

A broad population of canine samples was tested to evaluate the overall agreement of the SNAP Lepto Test with the microscopic agglutination test (MAT).

Purpose

The purpose of this study was to compare the LipL32-based SNAP Lepto Test to the MAT for detection of anti-*Leptospira* spp. antibodies.

Study design

The canine serum samples included in this study were: 460 samples submitted for MAT testing, 150 MAT-negative samples from healthy dogs residing in Alaska, 52 samples positive for anti-*Borrelia burgdorferi* antibodies, and samples from 28 dogs following *Leptospira* vaccination.

Peak MAT titer	Number of samples	Number of SNAP Lepto Test positive	Percent SNAP Lepto Test positive
100	8	5	62.5%
200	20	11	55.0%
400	29	21	72.4%
800	53	37	69.8%
1600	34	25	73.5%
3200	13	10	76.9%
6400	19	16	84.2%
12800	32	29	90.6%
25600	14	14	100.0%
51200	18	18	100.0%
102400	19	19	100.0%
Total	259	205	79.2%

Table 1. SNAP Lepto Test performance with MAT-positive samples by peak titer

Case Example: Andy “An Old Classic”



- ▶ Andy, a 10-year-old male neutered Golden Retriever; lives on a farm
- ▶ Referred for icterus and azotaemia
- ▶ Presented in late Spring (after rain)
- ▶ Oliguric acute to subacute renal failure (< 2ml/kg/hour urine output)
- ▶ Developing jaundice
- ▶ Initial leptospirosis titres were all < 1:100

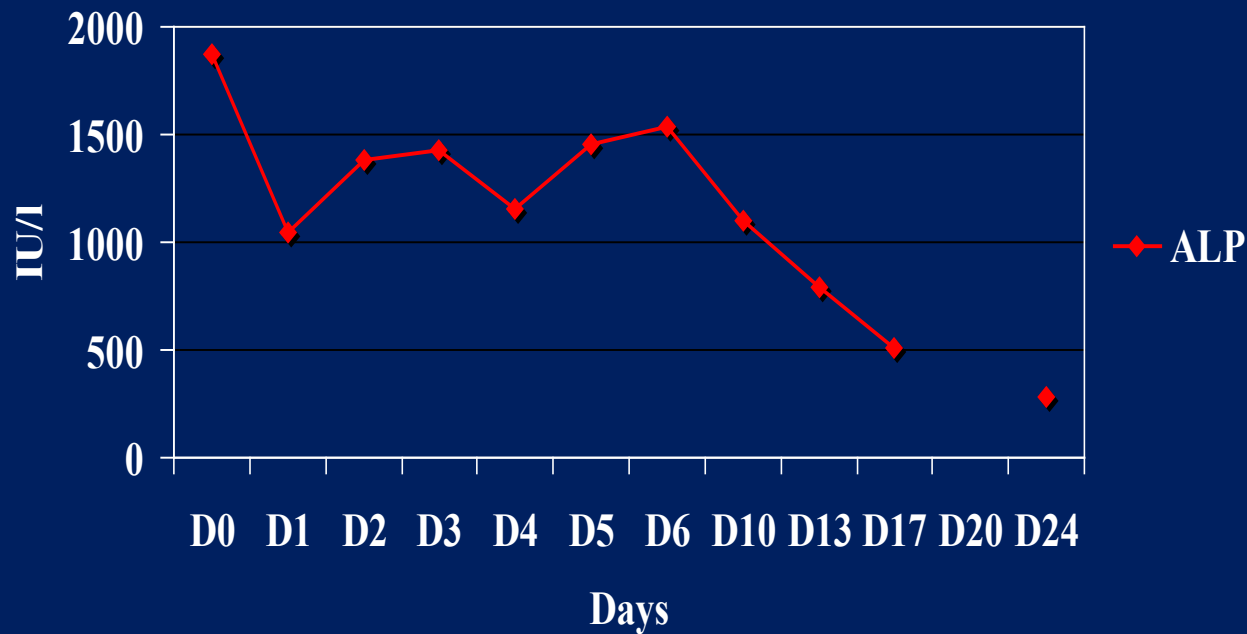
Andy “A Classic”

- ▶ Therapy
 - ▶ Intravenous fluid
 - ▶ Dopamine infusion
 - ▶ Furosemide iv
 - ▶ Penicillin G iv
 - ▶ Total parenteral nutrition
 - ▶ Doxycycline later



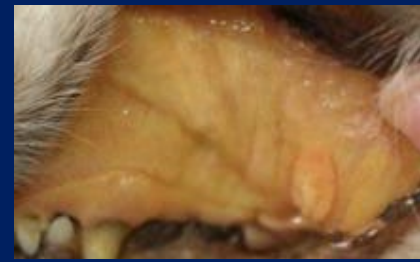
Andy: Liver Enzymes

Alkaline Phosphatase

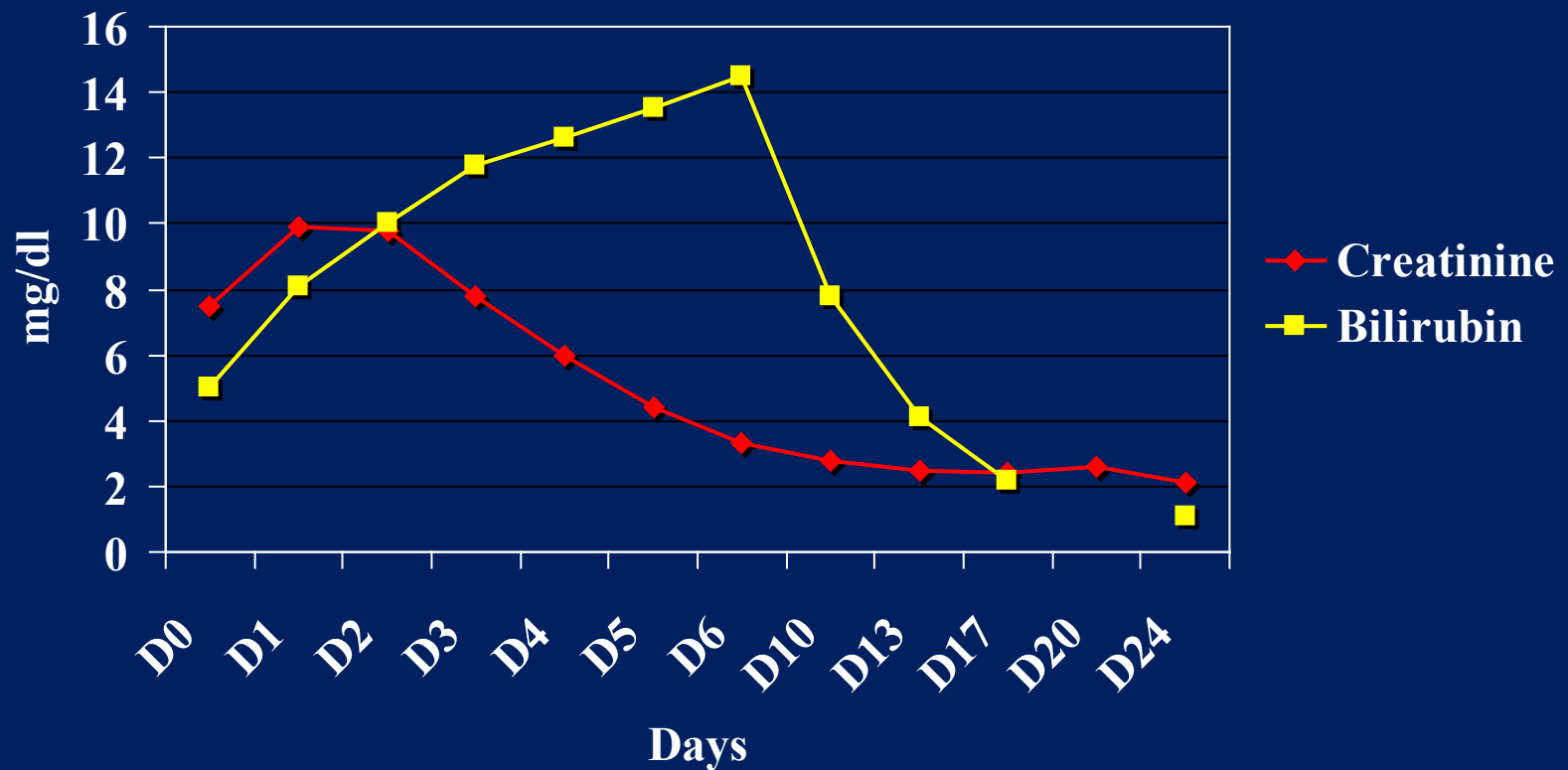


ALT remained normal throughout

GGT mildly elevated and paralleled ALP



Andy: Creatinine and Bilirubin





Andy: MAT Results from Day 10

<i>Serogroup</i>	<i>Titre</i>
Hardjo	< 1:100
Icterohaemorrhagiae	< 1:100
Canicola	< 1:100
Grippotyphosa	1:1600
Pomona	1:6400

Andy

“A Classic”



- ▶ Outcome
 - ▶ Improved with treatment
 - ▶ Essentially, back to normal, from the owner's perspective
 - ▶ Any decline in renal function was not measured (non-azotaemic and capable of making fairly concentrated urine).

Some fatal leptospirosis cases



Rapidly fatal leptospirosis

- ▶ **Young dogs, < 6 months**, with a severe hepatic and or renal syndrome
- ▶ Despite clinical severity, subtle renal changes on necropsy and histopathology
- ▶ Some with, and some without, jaundice
- ▶ Azotaemia more consistently present than jaundice
- ▶ Many with pulmonary oedema

Diagnostic features in 10 naturally occurring cases of acute **fatal** canine leptospirosis

Journal of Veterinary Diagnostic Investigation
2014, Vol. 26(6) 799–804
© 2014 The Author(s)
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1040638714553293
jvdi.sagepub.com

Daniel R. Rissi, Cathy A. Brown¹

Abstract. The current report describes the diagnostic features in 10 cases of acute fatal canine leptospirosis with minimal renal and hepatic changes that may present a diagnostic challenge for the pathologist. Most affected dogs were less than 6 months of age and had a biochemical profile consistent with hepatorenal dysfunction. Clinical signs consisted of vomiting, depression, icterus, dehydration, diarrhea, and anorexia. All dogs died or were humanely euthanized within 3–7 days after the onset of clinical disease. **Necropsy findings included pulmonary edema with hemorrhages, icterus, renal and hepatic pallor and swelling, and gastric edema with hemorrhage.** Despite severe azotemia, histological changes in the kidneys were subtle in all dogs, and included mild renal tubular simplification, with single-cell necrosis and attenuation, along with minimal interstitial lymphoplasmacytic inflammation, edema, and hemorrhage. Hepatic lesions included scattered hepatocellular single-cell necrosis and hepatocellular dissociation. Prominent extrarenal lesions typically associated with uremia including vascular fibrinoid necrosis in multiple organs, pulmonary mineralization with occasional fibrinosuppurative exudation, and gastric mineralization were also present. Postmortem diagnostic confirmation was based on the detection of leptospiral antigen on fresh renal samples by fluorescent antibody test and on the demonstration of intact spirochetes in sections of kidneys using immunohistochemical staining. **Acute fatal canine leptospirosis occurred as a fulminant hepatorenal disease affecting mainly young dogs, and the diagnosis was dependent on the recognition of the subtle renal changes** with confirmation via fluorescent antibody testing or immunohistochemical staining.

Key words: Acute leptospirosis; canine leptospirosis; *Leptospira* spp.; renal disease.

Journal of Veterinary Diagnostic Investigation
2014, Vol. 26(6) 799–804

Table 1. Signalment, clinical and biochemical findings, and serology in 10 cases of acute fatal canine leptospirosis.*

Case	Signalment	Clinical findings	Biochemical findings						Serology
			Serum BUN (mg/dl)	Serum creatinine (mg/dl)	Serum phosphorus (mg/dl)	Serum total bilirubin (mg/dl)	Serum ALP (U/l)	Serum ALT (U/l)	
1 ^D	3-month-old male Labrador	Vomiting, depression, icterus	NA	NA	NA	NA	NA	NA	1:800 (Grippytyphosa); 1:1600 (Icterohaemorrhagiae)
2 ^D	4-month-old female Labrador	Vomiting, anorexia, dehydration, icterus	NA	NA	NA	NA	NA	NA	NA
3 ^E	4-month-old male mixed breed	Anorexia, depression, dehydration, icterus	256	8.7	29.7	20.7	455	122	1:800 (Icterohaemorrhagiae)
4 ^E	4-month-old male mixed breed	Diarrhea, anorexia, icterus	↑	↑	NA	NA	NA	↑	NA
5 ^E	2-month-old male Vizsla	Vomiting, depression	112	6.6	17.3	1.4	423	15	NA
6 ^E	2-month-old female Vizsla	Vomiting, depression	144	7.5	16.8	3.3	549	47	NA
7 ^E	2-month-old male Vizsla	Vomiting, depression	141	5.4	16.3	1.6	490	58	NA
8 ^D	5-month-old female mixed breed	Vomiting, diarrhea, depression, icterus	98	4.5	9.5	5.8	681	244	1:800 (Grippytyphosa)
9 ^E	5-year-old male mixed breed	Vomiting, depression, icterus	145	8.4	14.4	27.2	1,139	NA	NA
10 ^E	2-month-old female Labrador	Vomiting, diarrhea, depression, dehydration	245	7.1	NA	NA	NA	125	NA

* BUN = blood urea nitrogen; ALP = alkaline phosphatase; ALT = alanine aminotransferase; D = spontaneous death; E = euthanasia; NA = data not available; ↑ (arrow) = increased (numeric values not available).

Acute, fatal leptospirosis: all young dogs (< 6 months) in this series

Table 2. Gross pathological findings, extrarenal and extrahepatic histological changes, and diagnostic confirmation in 10 cases of acute fatal canine leptospirosis.*

Case	Gross pathology	Extrarenal and extrahepatic histological changes	Diagnostic confirmation
1	Icterus, pulmonary edema and hemorrhage	Pulmonary edema and hemorrhage, myocardial necrosis with vascular fibrinoid change; bladder fibrinoid change	FAT and IHC
2	Icterus, pulmonary edema and hemorrhage	Pulmonary edema and hemorrhage with alveolar damage (fibrinosuppurative exudation) and septal mineralization; vascular fibrinoid change (heart, intestine) and mineralization (stomach)	FAT
3	Icterus, pulmonary edema and hemorrhage, hepatic and renal swelling and pallor, gastric edema	Pulmonary edema and hemorrhage	FAT
4	Icterus, pulmonary edema and hemorrhage, hepatic and renal swelling and pallor	Pulmonary edema and hemorrhage; gastric mineralization and ulceration	FAT and IHC
5	Icterus, pulmonary edema and hemorrhage, hepatic and renal swelling and pallor, gastric edema	Pulmonary edema and hemorrhage, encephalomalacia and myocardial necrosis with vascular fibrinoid change; gastric edema	FAT and IHC
6	Pulmonary edema and hemorrhage, hepatic and renal swelling and pallor, gastric edema	Pulmonary edema and hemorrhage; myocardial necrosis with vascular fibrinoid change; bladder fibrinoid change; gastric and colonic edema	FAT and IHC
7	Pulmonary edema and hemorrhage, hepatic and renal swelling and pallor, gastric edema	Pulmonary edema and hemorrhage with alveolar damage (fibrinosuppurative exudation) and septal mineralization; gastric edema	FAT and IHC
8	Icterus, pulmonary edema and hemorrhage	Pulmonary edema and hemorrhage with alveolar damage (fibrinosuppurative exudation) and septal mineralization; myocardial necrosis with vascular fibrinoid change; gastric mineralization with fibrinoid change and ulceration; colonic mineralization	FAT
9	Icterus, pulmonary edema and hemorrhage, gastric edema	Pulmonary edema and hemorrhage; gastric edema and ulceration	FAT
10	Icterus, pulmonary edema and hemorrhage, hepatic and renal swelling and pallor, gastric edema and hemorrhage	Pulmonary edema and hemorrhage with alveolar damage (fibrinosuppurative exudation) and septal mineralization; myocardial necrosis with vascular fibrinoid change; gastric edema and ulceration; colonic edema	FAT and IHC

* FAT = fluorescent antibody testing; IHC = immunohistochemical staining.

Another case of rapidly fatal leptospirosis: a young, small breed, indoor-outdoor, urban dog presented for coughing up blood (haemoptysis)



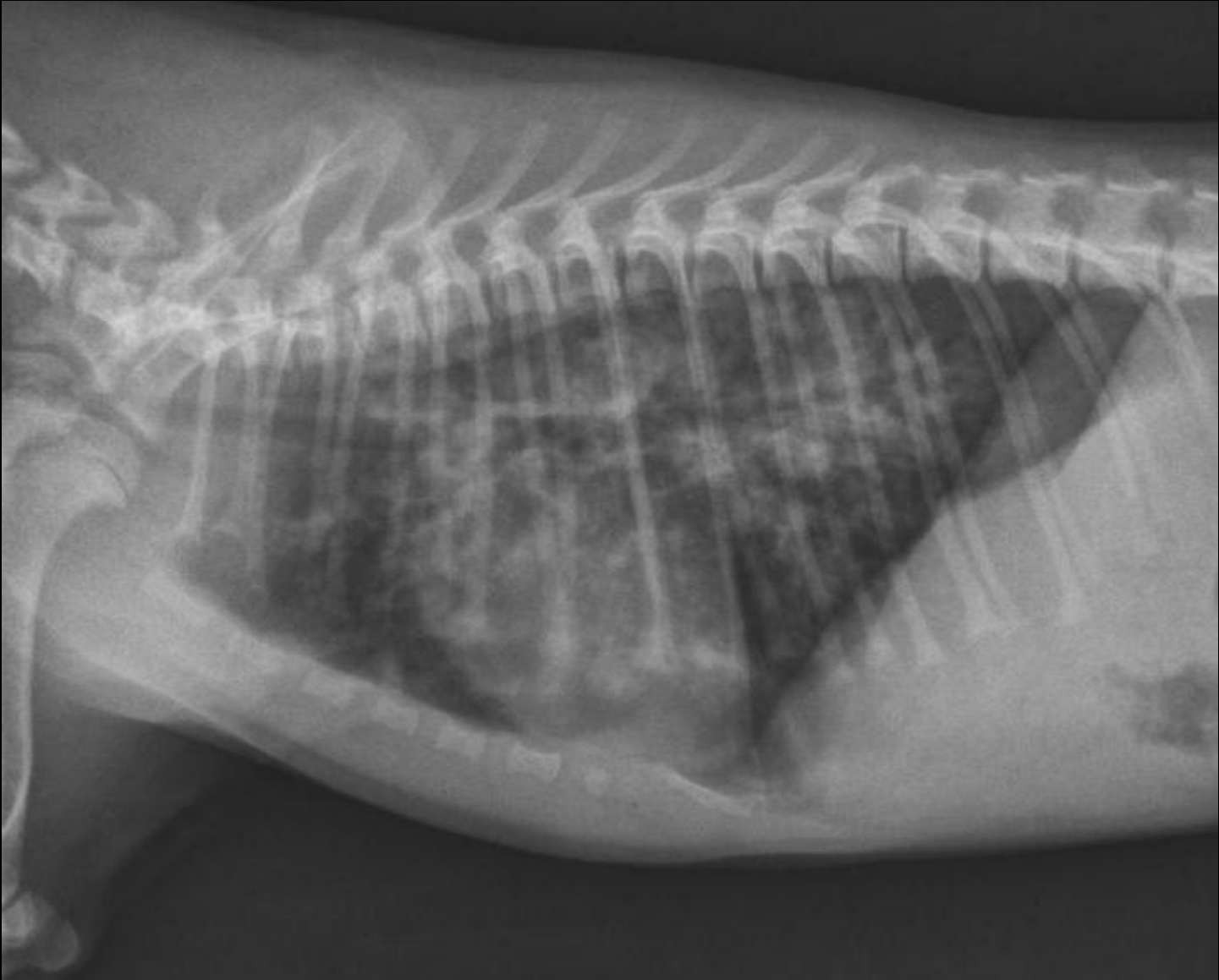
Dyspnoeic crisis, death soon afterwards

In retrospect, was severely azotaemic



Pulmonary haemorrhage and oedema

SAGE-Hindawi Access to Research
Veterinary Medicine International
Volume 2010, Article ID 928541, 7 pages
doi:10.4061/2010/928541



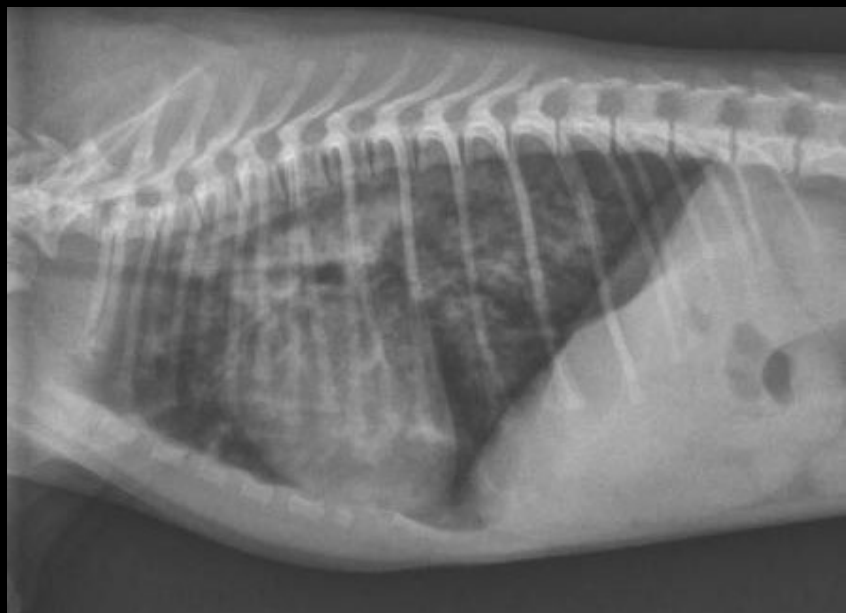
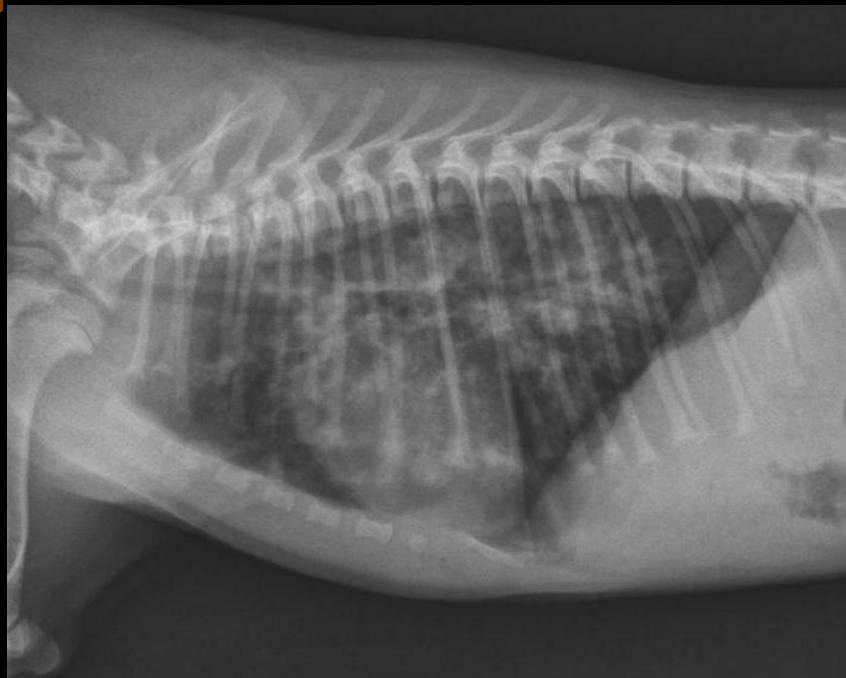


Much milder example of the same thing



Serial CT features of pulmonary leptospirosis in 10 dogs.

K. Gendron, A. Christe, S. Walter, A. Schweighauser, T. Francey, M. G. Doherr, J. Lang. *Veterinary Record* February 15, 2014.



If this were not leptospirosis, what could it be?

Case Report

An Emerging Pulmonary Haemorrhagic Syndrome in Dogs: Similar to the Human Leptospiral Pulmonary Haemorrhagic Syndrome?

**R. Klopffleisch,¹ B. Kohn,² S. Plog,¹ C. Weingart,² K. Nöckler,³
A. Mayer-Scholl,³ and A. D. Gruber¹**

¹ *Institute of Veterinary Pathology, Department of Veterinary Medicine, Freie Universität Berlin, Robert-von-Ostertag-Straße 15, 14163 Berlin, Germany*

² *Small Animal Clinic, Department of Veterinary Medicine, Freie Universität Berlin, Oertzenweg 19 b, 14163 Berlin, Germany*

³ *Department of Molecular Diagnostics, Federal Institute for Risk Assessment, Diedersdorfer Weg 1, 14191 Berlin, Germany*

Correspondence should be addressed to R. Klopffleisch, klopffleisch.robert@vetmed.fu-berlin.de

Received 24 November 2010; Accepted 17 December 2010

A large majority of these also have renal involvement (azotaemia) as a big, helpful clue...

Paper

Serial CT features of pulmonary leptospirosis in 10 dogs

K. Gendron, A. Christe, S. Walter, A. Schweighauser, T. Francey, M. G. Doherr, J. Lang

Leptospirosis pulmonary haemorrhage syndrome (LPHS) is a frequent manifestation of *Leptospira* infection in dogs and is associated with a high morbidity and mortality. Three helical 16-slice thoracic CT scans were performed in 10 dogs naturally infected with *Leptospira*, within 24 hours of admission, and three and seven days later. Patients were sedated and scanned without breathhold, with a protocol adapted for rapid scanning. One dog died of respiratory failure on the morning following the first scan. On the initial scan, imaging features of LPHS included ground-glass nodules (10/10), peribronchovascular interstitial thickening (10/10), diffuse or patchy ground-glass opacity (9/10), solid nodules (8/10) and consolidation (7/10). Temporary bronchiolar dilation was observed in all dogs in association with peribronchovascular interstitial thickening, which had completely resolved at day 7. Nodules were with few exceptions assigned to the centrilobular region. Regression of lesion severity was observed after each subsequent scan. Consolidation and solid nodules changed over time into lesions of ground-glass attenuation. Pleural effusion (3/10) and mediastinal effusion (2/10) were mild and transient. Lesion severity appeared unassociated with survival to discharge.

Serial CT features of pulmonary leptospirosis in 10 dogs.

K. Gendron, A. Christe, S. Walter, A. Schweighauser, T. Francey, M. G. Doherr, J. Lang. *Veterinary Record* February 15, 2014.

Haemostatic dysfunction in leptospirosis



Haemostatic dysfunction in canine leptospirosis



In leptospirosis, a mild to moderate thrombocytopenia is most frequently encountered. Not enough to cause bleeding on its own. There is very likely vasculitis causing / contributing to this low platelet count (consumption exceeding immediate supply from bone marrow)

Disseminated intravascular coagulation (DIC) is seen in some severely ill cases.

Case Example: Thor

- ▶ Big, strong, dark, male, previously healthy, German shepherd dog went into oliguric renal failure in a cold winter over the course of 1 – 2 weeks. “Sub-acute renal failure”.
- ▶ Suburban dog, no known access to toxins
- ▶ Slight neutrophilia, mild fever, no jaundice
- ▶ We had recently read Dr Rentko’s paper...
- ▶ Got MAT results very promptly on this one

- ▶ Escaped from the veterinary teaching hospital while being taken outside with a senior veterinary student, ran away into the snow, with iv line still in and shaved belly.
-20C, 50cm of snow that day...



Case Example: Thor



Thor: MAT Results from Day 3

<i>Serogroup</i>	<i>Titre</i>
Hardjo	< 1:100
Icterohaemorrhagiae	< 1:100
Canicola	< 1:100
Grippotyphosa	1:3200
Pomona	1:800

Case Example: Thor

- ▶ Ran out of the trees on Christmas Day in the Madison arboretum, to play with the other dog and owners
- ▶ Had lost 6kg (40kg → 34kg)
- ▶ No longer azotaemic, still producing dilute urine.
- ▶ MAT > 4-fold decline by Day 35.
- ▶ Home on 3 weeks of doxycycline
- ▶ Apparently complete resolution (but remaining renal reserve not measured)



Canine Leptospirosis

A Retrospective Study of 17 Cases

Virginia T. Rentko, VMD, Nancy Clark, DVM,
Linda A. Ross, DVM, MS, and Scott H. Schelling, DVM

Seventeen dogs were diagnosed with leptospirosis on the basis of clinical findings, laboratory abnormalities, and serology. This article summarizes and characterizes the historical and physical findings, laboratory data, serology, treatment, and outcome of these dogs. All of the dogs had serologic evidence of infection with interrogans serovars *pomona* and *grippotyphosa*. These findings are compared with previous reports of canine infection with *Leptospira interrogans* serovars *icterohaemorrhagiae* and *canicola*. The clinical presentation of these dogs did not correspond to the classic description of the disease in dogs in which concurrent renal and hepatic diseases are present. This may be due to infection with different serovars than those previously reported. In addition, this article suggests that canine leptospirosis should be considered in the differential diagnosis of dogs with acute or subacute renal failure. (*Journal of Veterinary Internal Medicine* 1992; 6:235-244)

New serovars implicated, clinical picture changing.
Acute to subacute renal failure without jaundice.

1996

J Am Vet Med Assoc. 1996 Oct 1;209(7):1265-7.

Leptospira interrogans serovar grippotyphosa infection in dogs.

Brown CA¹, Roberts AW, Miller MA, Davis DA, Brown SA, Bolin CA, Jarecki-Black J, Greene CE, Miller-Liebl D.

Author information

¹Athens Diagnostic Laboratory, College of Veterinary Medicine, University of Georgia, Athens 30602, USA.

Abstract

Leptospirosis attributed to infection with serovar grippotyphosa was diagnosed in 11 dogs. In naturally and experimentally infected dogs, a stereotypic serologic response to infection with *Leptospira* serovar grippotyphosa was detected. Although the highest serum antibody titers developed against serovar grippotyphosa, most dogs also had lower titers against serovars bratislava and pomona. Acute renal failure was evident in 10 dogs. One dog died prior to initiation of treatment; the remaining 10 dogs were treated with antibiotics and fluids. Two dogs were euthanatized, 2 dogs recovered without clinical or biochemical evidence of residual renal dysfunction, and 6 dogs recovered but had varying degrees of renal insufficiency. Hepatic involvement appeared to be a minor component of the disease in these dogs. Our results indicate that *Leptospira* serovar grippotyphosa infection is an important problem in dogs and should be considered when evaluating a dog with renal failure.

PMID: [8837647](#)

[PubMed - indexed for MEDLINE]

“Hepatic involvement appeared to be a minor component of the disease in these dogs.”



Source: Greene's Infectious Diseases of the Dog & Cat 4e. Web resources <http://www.greeneinfectiousdiseases.com/>

*And while we are considering
animals that only, or
predominantly, have renal
involvement...*

Clinical Leptospirosis in Three Cats (2001–2009)

Josianne Arbour, DVM, Marie-Claude Blais, DMV, DACVIM, Lisa Carioto, DVM, DVSc, DACVIM,
Doris Sylvestre, DMV, MSc

ABSTRACT

Based on previous research, cats were thought to have been resistant to the development of clinical signs following infection with *Leptospira* spp. This case report presents three confirmed, naturally infected clinical cases of feline leptospirosis. The cases presented were all indoor/outdoor cats that were known to hunt. They were also all presented at different stages of renal insufficiency; however, they did not show any liver involvement. The authors suggest that there may be a longer incubation period in cats than dogs and recommend further research in the form of a large, clinical study. (*J Am Anim Hosp Assoc* 2012; 48:256–260. DOI 10.5326/JAAHA-MS-5748)

JAAHA 48:256-260, 2012

Cat 1: Hyposthenuria (1.005), marked neutrophilia, azotaemia. Pomona 1:12,800. Complete response to ampicillin & doxycycline.

Cat 2: PU/PD, haematuria, RBC casts, uveitis, forelimb lameness, azotaemia. 1:1600 Pomona & Bratislava. Improved but persistent uveitis.

Cat 3: Collapsed, severe azotaemia, thrombocytopenia, large irregular kidneys, CNS signs, dyspnoea, death. Severe tubulointerstitial nephritis. Bratislava & Autumnalis 1:1600, Pomona & Icterohaemorrhagiae 1:3200

The dog whose eye changed colour...



- ▶ 7-year-old male castrated Australian shepherd dog. Lives on a farm.
- ▶ Sudden change of eye colour, plus lethargy, anorexia.



Initial Presentation



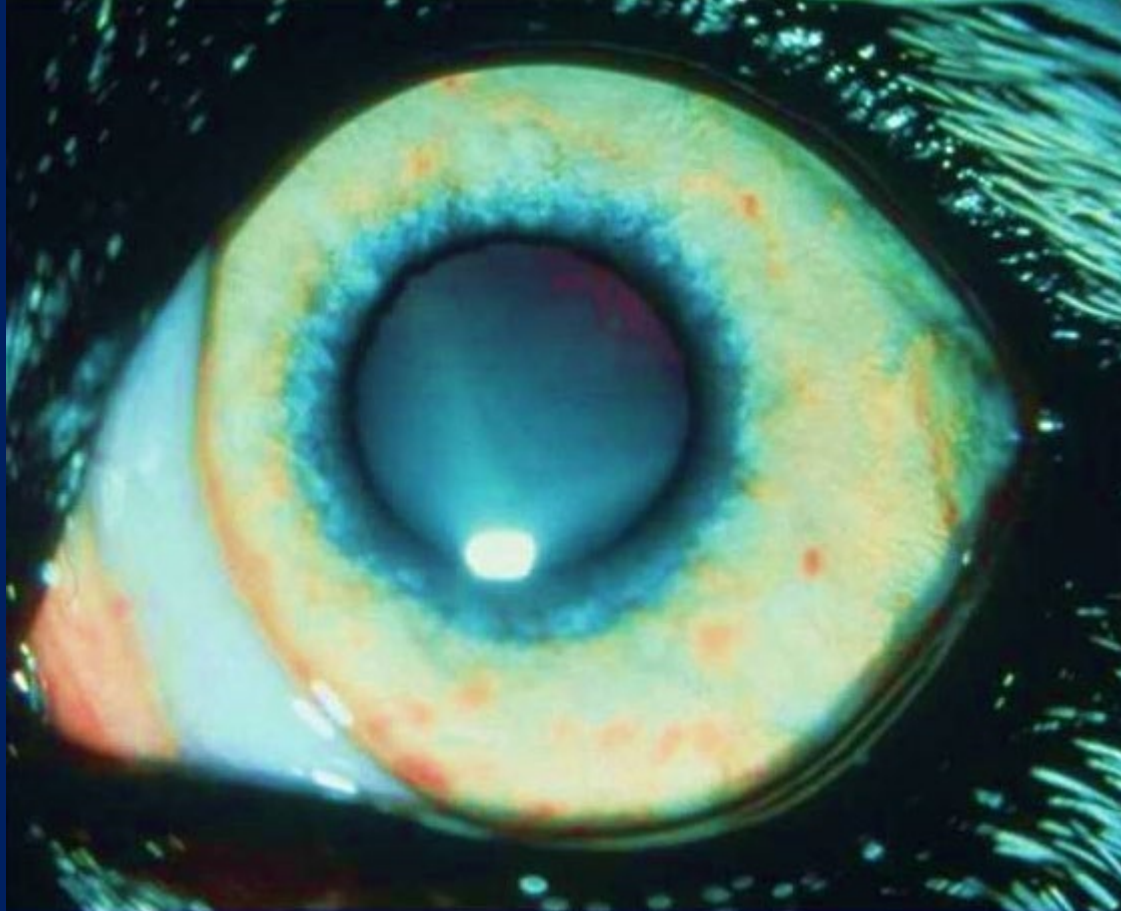
(*J Am Anim Hosp Assoc* 2011; 47:e162–e167. DOI 10.5326/JAAHA-MS-5590)

After standard treatment for leptospirosis



(*J Am Anim Hosp Assoc* 2011; 47:e162–e167. DOI 10.5326/JAAHA-MS-5590)

Anterior Uveitis



Courtesy of Dr Craig Irving

Anterior Uveitis



Courtesy of Dr Craig Irving

Leptospirosis in a Dog with Uveitis and Presumed Cholecystitis



Alexander Gallagher, DVM, MS, DACVIM*

ABSTRACT

A 7 yr old castrated male Australian shepherd dog was examined for acute change in iris color, lethargy, and anorexia. Uveitis, acute renal failure, and presumed cholecystitis were diagnosed. Based on clinical findings, leptosporosis was suspected, and the dog was treated with antibiotics and supportive care. The dog made a complete recovery, and leptospirosis was confirmed on convalescent titers. Due to the zoonotic potential, leptospirosis should be considered in cases of uveitis, as well as possible cholecystitis. (*J Am Anim Hosp Assoc* 2011; 47:e162–e167. DOI 10.5326/JAAHA-MS-5590)

(*J Am Anim Hosp Assoc* 2011; 47:e162–e167. DOI 10.5326/JAAHA-MS-5590)

Leptospirosis and panuveitis in a dog

Wendy M. Townsend, Jean Stiles and Sheryl G. Krohne

Department of Small Animal Clinical Sciences, School of Veterinary Medicine, Purdue University, West Lafayette, IN 47907–2026, USA

Address communications to:

Wendy M. Townsend

Tel.: (517) 353-5420

Fax: (517) 355-5164

e-mail: townsend@cvm.msu.edu

Dr Townsend's current address is the Department of Small Animal Clinical Sciences, Michigan State University, East Lansing, MI 48824-1314

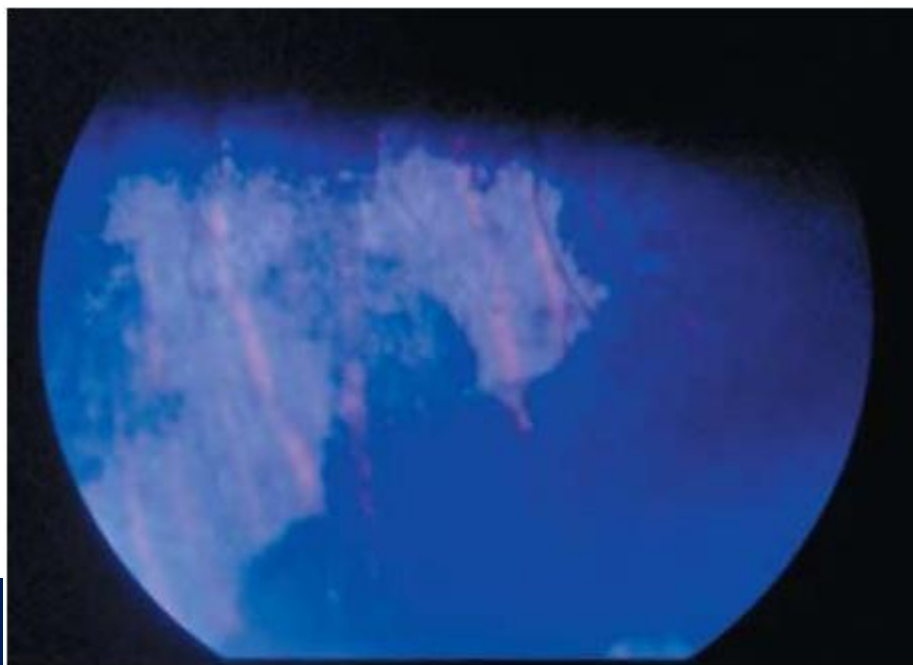


Figure 1. Appearance of the right fundus 1 month after presentation. A depigmented area exists in an area of previous retinal detachment. The left fundus had a similar appearance.

10-year-old Jack Russell
retinal detachments
serum microscopic
1 : 12 800 for *Leptospira*
therapy, the panuveitis
the initial presentation,
icterobemorrhagiae.
g, and current medical

uveitis



Case Example: Syd

- ▶ 8-month-old, mixed breed puppy (13kg) presented for 3 days of severe depression, vomiting, anorexia. Not passing faeces. Urban dog.
- ▶ Physical exam: banana-sized and – shaped painful mass in mid-abdomen





Small intestinal intussusception in five dogs with acute renal failure and suspected leptospirosis (*L. australis*)

Ariane Schweighauser, Dr med vet, DACVIM; Iwan A. Burgener, Dr med vet, DACVIM, DECVIM; Frédéric Gaschen, Dr med vet, DACVIM, DECVIM; Nicole Luckschander, Dr med vet, DACVIM, DECVIM; Andreas Hasler, Dr med vet, DACVIM; Johann Lang, Dr med vet, DECVDI and Thierry Francey, Dr med vet, DACVIM*

Abstract

Objectives – This case series describes 5 dogs with small intestinal intussusception and acute kidney injury due to infection with *Leptospira interrogans* serovar Australis.


Case Series Summary – Small intestinal intussusception was observed in 4 dogs diagnosed with acute kidney injury due to leptospirosis presented between 1997 and 2005. Intussusception was diagnosed at initial presentation or later during hospitalization. An additional dog fulfilling our inclusion criteria was presented to a small animal specialty clinic nearby and was included. Upon admission, all dogs were severely azotemic and thrombocytopenic. All 5 dogs showed the strongest microscopic agglutination test serology reaction to *L. interrogans* serovar Australis. Two dogs survived with no apparent residual renal damage, 1 survived with subsequent mild chronic kidney disease, and 2 dogs were euthanized at the owners' request due to a guarded prognosis.

New or Unique Information Provided – Intussusception can occur or may be seen in dogs with leptospirosis due to *L. interrogans* serovar Australis and patients should be monitored closely for this potential complication. As all 5 dogs described in this case series showed the highest titer for *L. interrogans* serovar Australis, these precautions may be especially applied in geographic areas where this particular serovar is seen.

(*J Vet Emerg Crit Care* 2009; 19(4): 363–368) doi: 10.1111/j.1476-4431.2009.00432.x

Keywords: gastrointestinal motility disorder, kidney

“Upon admission, all dogs were severely azotaemic.” – important clue



Could we be missing some cases of leptospirosis, even if we diagnosed all of these kinds?

- ▶ Isolated, unexplained PU/PD. Perhaps hyposthenuric. NOTHING ELSE. Consider leptospirosis
- ▶ Fever of “unknown origin”
- ▶ Mild thrombocytopenia in a sick or painful dog with no other laboratory abnormalities
- ▶ Polymyositis only (look for elevated serum creatine kinase)



Acknowledgements

- ▶ Dr Kathy Lunn (NCSU)
- ▶ Dr Craig Irving (Massey University)
- ▶ Authors and publishers of the various papers to which I have referred and from which several of the case examples have been derived