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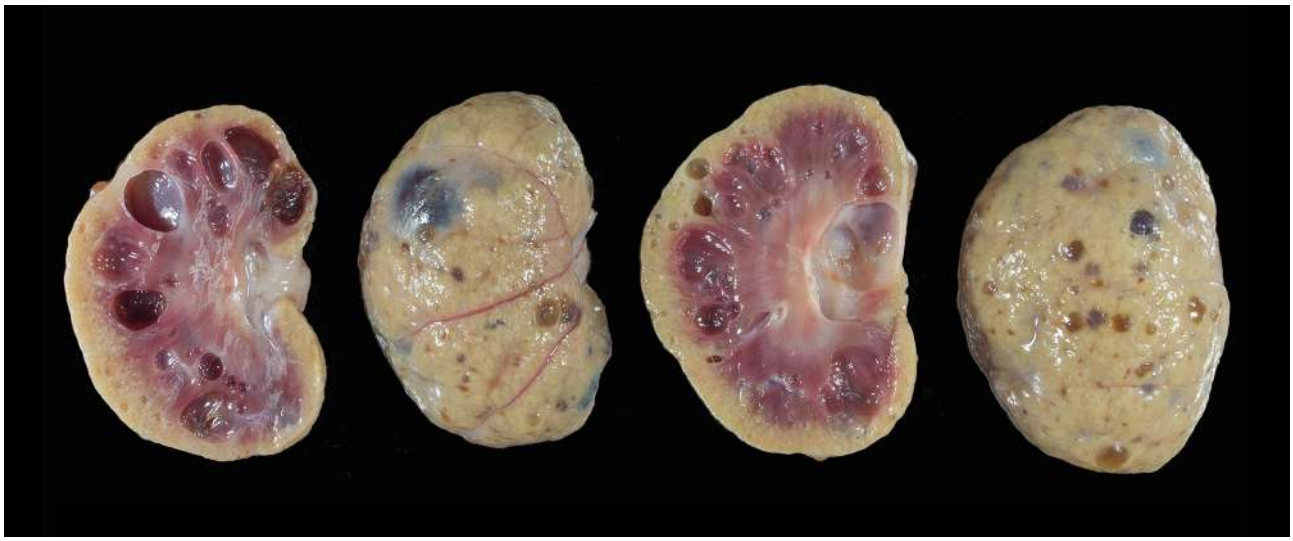
For the advancemet of veterinary
and comparative pathology

THE DAVIS-THOMPSON FOUNDATION NEWSLETTER

January

VOL. 54



The autosomal dominant form of this disease is most common in which cat breed?

A. Maine Coon
B. Siamese
C. Abyssinian
D. Persian

INSIDE THIS ISSUE

Monthly cover photograph winner:

Sawang Kesdangsakonwut

Department of Pathology, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand

Signalment: A 9-year-old, intact male Persian cat

Answer: D. Persian (Polycystic Kidney Disease)

-Dr. Katherine D. Watson - Cover Image Editor
-Dr. Donald M. McGavin - Cover Image Composition Analyst

MESSAGE FROM THE CEO

Dear colleagues,

Happy New Year and welcome to the January 2024 issue of the Davis-Thompson Foundation newsletter, with the compliments, as usual, of our outstanding managing editors Jeann Leal and Javier Asin.

As 2023 comes to an end, we celebrate the great achievements of the Foundation during the year, all of them thanks to our fantastic volunteers all over the world. And speaking of this, please have a look at our now regular "Volunteers Corner" where we highlight the tremendous work generously done by our Foundation's volunteers. Please consider reaching out to thank them for the terrific job they do.

As usual, this issue comes with abundant information on all our training activities around the globe, in English, Portuguese and Spanish.

Remember that the General Pathology Course is coming up in January/February. This standout and unique course provides essential education to trainees preparing for Board certification exams and anybody else interested in learning general veterinary pathology. And the whole course is virtual. Look up this and other courses here or on our web page (https://davisthompsonfoundation.org/).

This month's newsletter comes with two very interesting articles about an unusual outbreak of Western equine encephalitis in South America. And please do not miss the 2nd part of the fascinating article on "Evolution of uncertainty in surgical pathology" by Dr Paul Stromberg. Thank you Paul!

Last but not least, we share again the links to a large amount of exceptional teaching material on musculoskeletal pathology of multiple animal species, generously shared by Dr Roy Pool, from Texas A&M. This is a gold mine for trainees and pathologists interested in musculoskeletal pathology; enjoy!

Looking forward to seeing everyone in one of our seminars.

Francisco (Paco) Uzal
Chief Executive Officer
Davis-Thompson Foundation

THE EXPERT'S CORNER

Evolution of uncertainty in surgical pathology

Part 2: Management

Paul C. Stromberg DVM, PhD, DACVP
Professor Emeritus, Ohio State University

"*We shall not cease from exploration*
And the end of all our exploring
Will be to arrive where we started,
And know the place for the first time."
T.S. Elliot

"Life is short, the art is long
Opportunity is fleeting,
Experience delusive.
Judgement difficult."
Hippocrates of Cos, 466BC

The management of uncertainty begins with your acceptance that errors in judgment occur and that you will eventually make them. Dr. Groopman has told us we all make these errors. I hate it when I make a mistake and that is what keeps me centered on avoiding them if possible. There is voluminous literature about this in human medicine but very little in the veterinary literature. None of us wants to confront our mistakes or suffer incorrect diagnoses. If you are in denial about this, you are still in "The Danger Zone." Management of uncertainty begins with the desire to manage it.

"Uncertainty Should Stimulate Description"

We teach our students to consciously step by step deconstruct the image pattern before them into its component parts. Find the elements that, when assembled, make the lesion pattern associated with a diagnostic entity. What are the elements that define a mast cell tumor, cirrhosis, blastomycosis, cyclical flank alopecia? Look for those features and when identified, make your diagnosis. However, with experience, we abandon this step by step process and immediately, subconsciously "see" or "recognize" the pattern of a disease entity in an intuitive way cognitive psychologists call a **"Pattern Recognition"** or **"Gestalt" Diagnosis."** This is a real skill that marks the expert pathologist many of you will eventually acquire. The analogy is what you perceive when you meet an old friend or former student. You subconsciously

THE EXPERT'S CORNER

observe their face without enumerating all the various parameters that make it up. Unlike the facial recognition software on your smart phone which rapidly compares the various elements identified as "You" to those stored in your phone, you see your friend and instantly perform a pattern recognition identification. Your phone does what we teach our students to do with pathologic processes but you don't.

I gradually began to experience this about 5 years after I started to study pathology. It's i**ncredibly helpful but it's also inherently dangerous.** You should trust this skill (and eventually you will learn to) but always take the time to verify your first impression by looking for the unique combination of elements in the pattern that define the particular pathologic entity before you. Ironically a pattern recognition diagnosis without verification is an error made by experienced pathologists not students because students lack the experience and awareness of pattern recognition and so rely on deconstructing the image as they are taught. **"Cogent pathologic evaluation combines the first impression in pattern recognition with deliberate analysis."** Research in human medicine indicates experts form an opinion in about 20 seconds. I often look at a plasmacytoma and make a pattern recognition diagnosis in about 2 seconds! But then I pause and force myself to verify it by searching for and finding the critical elements which define it. Resist the temptation to make the diagnosis and go on to the next case without at least some verification. Powerful forces may impel you to take the shortcut. What else is going on in your life that could distract you? Are you in a hurry to finish your cases? Are you tired, sick? Yes, this slows you down and we all understand that time is the most precious commodity in medicine. None of us have unlimited time in our diagnostic tasks but if you try to rush things, you risk making an error. How many times have you approached someone you thought was an old friend and quickly discovered it was a stranger? Pure pattern recognition identification is sometimes wrong. Remember accurate diagnosis is the most important goal in surgical pathology. Rapid report generation is secondary.

If I look at an image and cannot "see" a familiar pattern or have trouble finding the essential elements right away, I set the case aside and come back to it later. Sometimes a few hours is sufficient. Often for me it's over night and occasionally a couple of days. Sometimes I begin to write out a description of what I see similar to what we do on the cer-

THE EXPERT'S CORNER

tification examination. That helps me clear my mind, start over, find the critical elements of the pattern and unlock the diagnosis in my mind. Adopt the aphorism that **"Uncertainty stimulates description."** This forces you to slow down and go back to first principles of deconstructing the pattern before you make a diagnosis. Frequently when I do this, I see the pattern elements quickly and wonder why I had difficulty with it before. It also decreases my uncertainty and gives me confidence that I made the correct diagnosis. Secondly it reinforces confidence in my judgment. Usually I do the pattern deconstruction mentally. Personally I try to avoid lengthy descriptions in biopsy reports because it's wasteful of time and effort which can generate fatigue and lead to errors in judgment. Only in cases of excess uncertainty do I engage in writing out my observations. When I do that it is less for the clinician's benefit and more as a mechanism to slow my thought processes and ensure I see all the diagnostic elements of the pattern. I used to tell clinicians that "The certainty of my diagnosis is inversely proportional to how much I write." When I generate a biopsy report, I remember that I intend to communicate with five people; 1) The primary care clinician who sent me the biopsy, 2) The specialist to whom the clinician may refer the the case, 3) The pet owner who has a right to see my report; 4) An attorney who may be involved in the case later and finally 5) Myself. If I have to relook at the case at a later date it reminds me what I saw and what I was thinking. The guiding principle is give each of them what they need to manage the case.

"Be Aware of the Cognitive Traps That Can Impair Your Judgment"

Confirmation Bias is a well-known principle of cognitive psychology. It is the tendency to search for or interpret new information in a way that reinforces our first impression ("Pattern recognition" diagnosis) and avoids or ignores information that contradicts or would lead us away from our prior belief. The common aphorism for this is **"We see in the data (pattern) what we want to see."** It's a constant threat to accurate diagnosis in surgical pathology. This is why it's important to remain uncommitted in our diagnosis until we have seen all the critical elements and what makes "Gestalt" diagnosis without

THE EXPERT'S CORNER

deliberate analysis dangerous. Put succinctly, **"Describe first…then interpret."** This is why I set aside difficult cases for a short time. It clears my mind so I can return to it later and reduces the risk of committing confirmation bias. I teach our students preparing for the histopathology cases on the certification examination to briefly look at the slide to get oriented first but do not make a pattern recognition diagnosis. Then start by noting the various processes until you think you have seen everything important. THEN make your morphologic diagnosis and interpret a cause or name of the disease entity. A common mistake on this part of the examination was seen among the candidates who began their essay by stating the diagnosis followed by a description of the critical elements of their diagnosis. Sometimes their initial conclusion was wrong but their description would be an enumeration of the elements of that misdiagnosed entity when in fact those elements were not present on the specimen before them. It seems such an error is not possible but I saw it many times. They made a diagnosis and so were predisposed to see its essential elements even though they weren't present. **"We see in the data what we want to see."** A classic manifestation of confirmation bias. You can do the same thing on biopsy cases if you are not careful. **"Describe first… then interpret!"** Again for most of your cases you do the image deconstruction in your head and only write out a description for the confusing cases.

Anchoring occurs when we do not consider multiple diagnoses but quickly and firmly latch on to our first impression and ignore discrepancies that would argue to reject it. This often follows confirmation bias (we only see what we want to see) and so become "anchored" to our diagnosis. Once anchored, it is very difficult to change your mind. It is vitally important to remain uncommitted in your opinion until you are sure you have seen all the elements in the pattern.

A third cognitive trap is **Search Satisfaction** or the tendency to stop searching when we find something important. Often there is more than one important pathologic process in biopsy samples which we may overlook if we stop after we find something important and make a diagnosis. Histopathology essays on the certification exam are a test of a candidate's ability to find all the elements in an image pattern and assemble them into a diagnosis (es). Occasionally the certification examination contains a few **"Two-fors"** (a slide or gross photo with more than one entity present

THE EXPERT'S CORNER

in the image pattern) because there is often more than one pathologic process in surgical biopsies. Analysis of the histopathology essays revealed a high correlation between successful candidates and the ability to see all the changes in the cases. So thoroughly evaluate the entire biopsy and don't stop looking when you find something important. "Two-fors" are placed on certification examinations because they occur in biopsies and they are very discriminating and predictive of success.

"Total Patient Evaluation is the Way to Go"

Total Patient Evaluation is a foundational principle in medicine. Clinicians do not make a final judgment and formulate a treatment plan until they have all the facts possible. It should be the same for pathologists but we are 100% dependent on clinicians to provide this information and they are failing us too frequently. Generally this is not a problem in academic veterinary medical centers but mostly in those private practices that submit biopsies to commercial diagnostic laboratories. Often I am not told what species the patient I am not told what species the patient is much less a good history, description, location, distribution of the lesions and what the clinician thinks etc. Such information orients us by framing the clinical problem and adds objective data to the case that may unlock a thought pathway leading to the correct diagnosis. **It can also make you aware of a diagnosis that you may not have considered.** Clinicians must frame the case for us. "Don't tell the pathologist anything, you will bias them" is wrong headed. Research in human medicine shows that without proper framing the potential for an error is considerable. It is the pathologist's responsibility to control bias. Clinicians should share with them what they know. I often tell clinicians to **"Help the pathologist to help you!"**

Promote the "Diagnostic Biopsy" concept to clinicians. What is a diagnostic biopsy? It's a sample submitted to the pathology lab that has the highest probability of generating an accurate, unambiguous diagnosis in a timely manner that is useful to the clinician. The essential elements of such a sample are 1) an adequate amount of tissue 2) representative of the pathologic process 3) free of artifacts that obscure the pattern of the lesions 4) accompanied by a signalment, history, description of the

THE EXPERT'S CORNER

lesions 5) and what the clinician thinks (DDx) and wants (Rule Outs). In other words give the pathologists what they need to make a total patient evaluation. In 2 to 4 percent of cases I see, I am not told what species the patient is. "I can't diagnose FIP unless I know the patient is a cat."

There will be cases when your uncertainty is fueled by external conditions that can't be mitigated by more time such as insufficient sample, crush artifact, poor fixation, freezing, all of which can fuel uncertainty. This is beyond our control but I explain this to clinicians so they know why I cannot be certain but only "favor" a diagnosis. It also gives them feedback that what they do during the biopsy can impact our judgment. I frequently tell practitioner groups in evening CE seminars, **"What you do during the biopsy matters. What you do NOT do after the biopsy matters even more!"**

"Make the Surgical Biopsy a Multiple Choice Quiz"

It also helps to know what your differential diagnosis is for the group of patterns you are observing. We assembled these lists when preparing for the certification examination. Keep these in your head or in notes somewhere. Life (and pathology) is not a multiple choice test but it's helpful if you know the range of choices to consider when looking at lesion patterns. The mass is a round cell tumor or a spindle cell tumor, superficial perivascular dermatitis, or interstitial pneumonia. As new literature defines new entities, add these to your lists. Proper framing by clinicians may add new possibilities to your list that you may have left out or forgotten. If your uncertainty is such the pattern does not seem to fit into your DDx list, it's time to stop and reconsider. **Slow the perception and analysis process. "Time opens the mind!"**

"Judgment! How do I Teach Judgment?"

"Primum non nocera (First or above all do not harm)!" You have to know how you can cause harm to avoid it. For us mostly it's an incorrect diagnosis. It starts by knowing the ramifications of your diagnosis, whether it's correct or

THE EXPERT'S CORNER

incorrect. You should understand this for most of the diagnostic entities you are considering. What if you diagnose lymphoma when it's really lymphoid hyperplasia? What if you diagnose lymphoid hyperplasia when it's really lymphoma? What is the impact of your mistaken diagnosis? Often it's a radically different prognosis that can result in emotional distress, financial loss and delayed treatment. When the difference has potential to cause "significant harm", I set more stringent criteria for my interpretation. That is good judgment. As your experience grows you will learn to "juggle" contradictory bits of data in your mind while seeking other information to bolster your confidence and help make a decision. **("Judgment difficult").** This is where the science of pathology gives way to the art. "Little competes with honesty in the biopsy report." Tell the clinician when you have significant uncertainty and why so that he/she can manage THEIR uncertainty in the best interest of the patient or owner. There is no escape from uncertainty. Judgments in pathology have to be made every day in the face of uncertainty and we need to adjust to it. Don't be paralyzed by your uncertainty. Accept it and learn to manage it. Dr. Groopman tells us that doctors learn best by recognizing their mistakes and keeping them close at all times. The problem for most surgical pathologists is we often make a diagnosis and never learn if we were right or wrong. Take every opportunity you can to get feedback on your cases and remember your errors. **("Opportunity is fleeting.").** I never look at spindle cell proliferations without thinking twice about that nasal granulation tissue case I had many years ago.

So, on the back side of our exploratory journey through pathology we indeed arrive where we started and know, perhaps for the first time, the nature of uncertainty. It doesn't go away. It can be managed by application of our skills blended with an awareness of potential errors and the methods to minimize them. At this juncture surgical pathology becomes as much an "Art" as "Science."

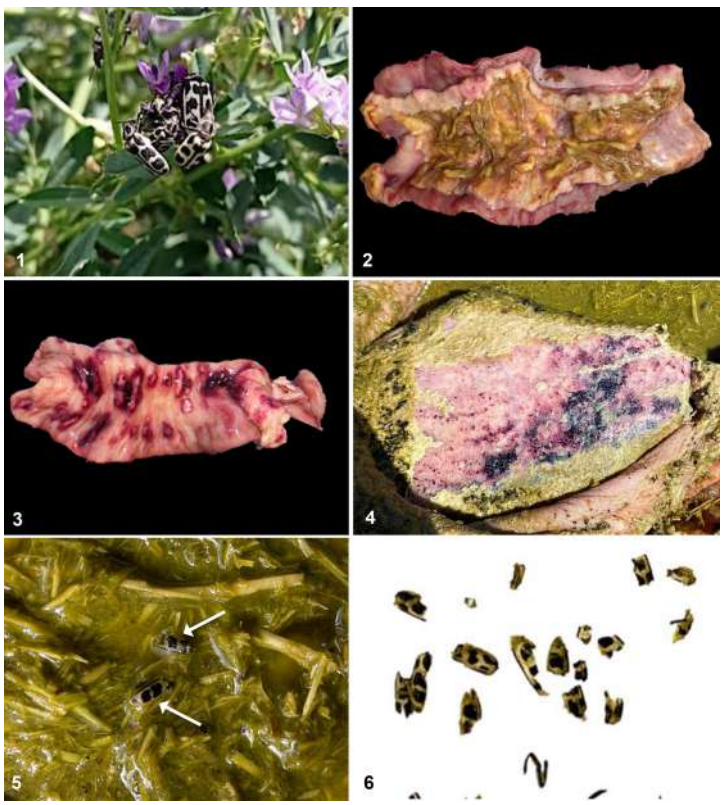
Dr. Paul Stromberg

JVDI IN FOCUS

Our January focus is an article appearing in the January issue: **"Pollen beetle (Astylus atromaculatus)-associated gastroenteric disease in cattle: report of 6 natural outbreaks"** by Juan A. García, Juan M. Livio, Carolina Matto, Fernando Dutra, Valeria Scioli, Federico Giannitti, James Langston, Robert H. Poppenga, Germán J. Cantón, Francisco A. Uzal.

J Vet Diagn Invest 2024;36(1):95–102. https://journals.sagepub.com/doi/abs/10.1177/10406387231215756

Astylus atromaculatus is a pollen beetle native to South America, commonly found in crop flowers. Experimental intoxication of sheep and guinea pigs by this beetle resulting in fibrinonecrotizing enteritis has been reported. We describe here 6 natural outbreaks of intoxication in cattle associated with consumption of alfalfa (5 of 6) and mixed native (1 of 6) pastures heavily contaminated with *A. atromaculatus*. The outbreaks occurred during the summer (January–February) of 2023 in Argentina (n = 4) and Uruguay (n = 2), in beef cattle under extensive or semi-extensive rearing systems, with overall cumulative incidence and mortality of 22.3% and 17.8%, respectively. The main clinical signs included acute onset of anorexia, lethargy, hyperthermia, hindlimb weakness, reluctance to move, and diarrhea, for up to 15 d. In 2 outbreaks, sudden death was observed. Eight Hereford, Angus, and/or crossbreed heifers, cows, steers, and/or calves were autopsied. Gross and microscopic findings included multifocal necrosis with fibrinous pseudomembranes in the forestomachs and/or small and large intestines. Fragments or whole specimens of *A. atromaculatus* were identified in the ruminal content of all animals. Testing for multiple gastroenteric pathogens was negative as was testing of *A. atromaculatus* for cantharidin and batrachotoxin. GC-MS and LC-MS/MS performed on the beetles did not identify any known toxic compounds. Based on the exposure to *A. atromaculatus*–contaminated pasture, gross and microscopic lesions, and negative results of all testing for multiple gastroenteric pathogens, a diagnosis of intoxication by *A. atromaculatus* is proposed. Disease caused by *A. atromaculatus* consumption has not been reported previously in cattle, to our knowledge.



Figures 1–6. *Astylus atromaculatus* and gross findings in cattle naturally intoxicated with this insect. **Figure 1.** *A. atromaculatus* pollinating alfalfa flowers. Note characteristic yellow elytra with bilaterally symmetric black spots. **Figure 2.** Diffuse necrotic jejunal enteritis covered with fibrinous pseudomembranes. **Figure 3.** Multifocal-to-coalescing ulcerations throughout the jejunal mucosa. **Figure 4.** Focally extensive detachment of ruminal mucosa with necrohemorrhagic surface. **Figure 5.** Ruminal content with elytra fragments (arrows) from A. atromaculatus. **Figure 6.** Fragments of *A. atromaculatus* collected from ruminal content, mainly elytra and legs.

The Journal of Veterinary Diagnostic Investigation is the official journal of the American Association of Veterinary Laboratory Diagnosticians. The mission of the Journal is to educate by informing readers of progress in veterinary laboratory medicine and related fields of endeavor. The key objectives of the JVDI are to promote the science of veterinary laboratory medicine and the betterment of animal and public health. JVDI fully supports diversity, equity, and inclusion in our publishing activities.
Editor-in-chief, Dr. Grant Maxie / https://journals.sagepub.com/home/VDI

VOLUNTEER CORNER

Hello! I'm Paula Ribeiro

What's your background?

I'm Brazilian, born and raised in Minas Gerais. I received my DVM in 2019 from the Universidade Federal de Lavras and my MSc degree from Universidade Federal do Rio Grande do Sul. I'm currently working on my PhD at the same university and recently joined the pathology team at LSU to develop part of my research on FeLV infection and lymphoma in cats. I'm passionate about small animal diseases, especially oncology.

What's your role?

I edit videos, make flyers, host and moderate webinars. I love to connect with great pathologists from all over the world. I have had excellent opportunities to learn more, even while backstage!

Tell us more about yourself!

My main goal as a pathologist is to better understand the diseases affecting small animals to provide a comprehensive diagnosis to aid treatment and prognosis. I'm working to complete my PhD in collaboration with LSU and once that is done, I want to join a residency program and sit for the ACVP boards. Regarding my personal life, I was born and raised in the state of Minas Gerais, arguably (there is no argue here!), where the best cuisine in Brazil can be found. One of our best culinary creations is pão de queijo. If you ever need to bribe me, pão de queijo will do it!

DIAGNOSTIC EXERCISE

Case #: 226; **Month:** December; **Year:** 2023

Contributors: Fernanda G. Cony, DMV, MSc; Fernanda F. Perosa, DMV, MSc; Bianca S. de Cecco, DVM, MSc, PhD; Luan C. Henker, DMV, MSc, PhD; Welden Panziera, DVM, MSc, PhD; Saulo P. Pavarini, DVM, MSc, PhD. Setor de Patologia Veterinária, Faculdade de Medicina Veterinária, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. Corresponding author: Universidade Federal do Rio Grande do Sul. fgcony@gmail.com

Clinical History: A two-year-old Angus heifer showed respiratory distress, nasal bleeding, and fever. These clinical signs started 24 hours before death. This heifer was part of a herd with 70 animals kept in native pastures, in an extensive grazing system. The animal was medicated but died during the night.

Gross Findings: The heifer was in good body condition. The ocular conjunctiva was markedly pale tan. Multifocal hematomas were observed in the subcutaneous tissue. Extending throughout approximately 50% of the omasal serosal surface were multiple ill-defined confluent areas of marked hemorrhage. Multiple ill-defined variably sized hemorrhages were observed in the mucosa of the omasum, abomasum and multiples organs, such as the intestines. Marked hemorrhage and edema were present in the retropharyngeal region. In the endocardium and epicardium, there were multifocal areas of severe hemorrhage.

Follow-up questions:

- *Cause?*
- *Toxic Compound?*
- *Forms of intoxication?*

DIAGNOSTIC EXERCISE

Figure 1

Figure 2

Figure 3

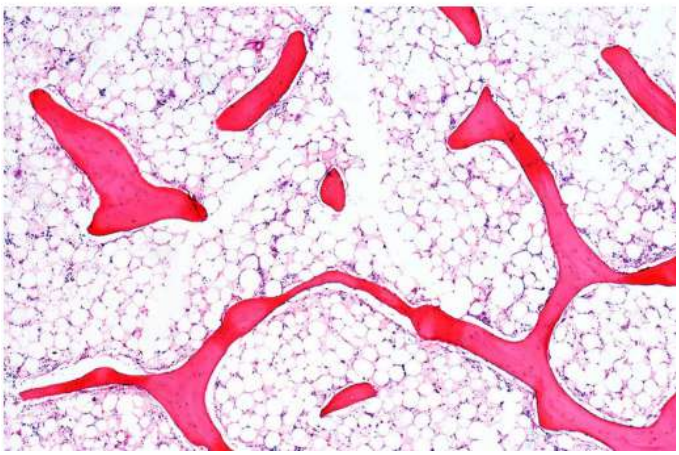


Figure 4

Click here for answers

Editor-in-chief: Claudio Barros
Associate Editor for this Diagnostic Exercise: Saulo Pavarini

*The Diagnostic Exercises are an initiative of the Latin Comparative Pathology Group (LCPG), the Latin American subdivision of The Davis-Thompson Foundation. These exercises are contributed by members and non-members from any country of residence. Consider submitting an exercise! A final document containing this material with answers and a brief discussion will be posted on the CL Davis website (https://davisthompsonfoundation.org/diagnostic-exercise/).

SEMINAR REVIEWS

Latin American Descriptive course

by Roberto Olivares DVM, PhD, DACVP

From December 15 to 18, the Latin American Descriptive Pathology Course 2023 was held at the San Francisco de Asis School of Veterinary Medicine and Surgery, located in San Jose, Costa Rica. The course was dictated by Dr. Jey Koehler, Dr. Patty Pesavento and Dr. Ana Alcaraz.

This course was the result of months of joint work between the lecturers and the local organization in charge of Dr. Roberto Olivares.

The course was a great success, with 31 participants from Costa Rica, Peru, Mexico, El Salvador and Panama, making it an excellent training opportunity for people from the region. The attendees practiced macroscopic and microscopic lesions with scanned slides on the University's computers, shared lunches and the four days of the course were held in an atmosphere of great camaraderie.

Fig.1. Attendees and speakers of the Latin America Descriptive Course

SEMINAR REVIEWS

Fig.2. Drs Pesavento and Olivares lecturing on microscopic descritpion.

Fig.3. Dr Koheler explaining parasite description on tissue sections

Fig.4 Mock histology exam

Fig.5 Organizer and Speakers

SEMINAR REVIEWS

XXIII Interinstitutional Seminar of Histopathology in Argentina

by Dra. Gabriela C. Postma and Dr. Leonardo Minatel

The XXIII Interinstitutional Histopathology Seminar in Argentina was held at the Faculty of Veterinary Sciences of Buenos Aires University (UBA) on December 14, 2023.

These meetings are organized by the Pathology Area of the Faculty of Veterinary Sciences (UBA) and the Animal Pathology Laboratory "Dr. B. Epstein" of the Faculty of Veterinary Sciences of La Plata National University, two or three times a year since 2012. The main objective of these seminars is to practice the description and evaluation of microscopic lesions, as well as developing the skills for diagnostic interpretation. These meetings provide a great and safe space to share interesting cases, exchange ideas and train teachers and advanced students in histopathology.

The seminar was attended by a total of 43 participants, including pathologists and professors from 17 institutions, postgraduate students and private practitioners from Argentina. Some of them participated virtually from different provinces of the country and overseas.

In this opportunity, the traditional histopathology seminar included the presentation of 9 exciting cases in domestic and non-domestic species, from seven different institutions or private practitioners. The sections were scanned by Dr. Fernando Delgado and collaborators (INTA Castelar); therefore all the participants were able to view the cases virtually before the seminar.

Thank you to all the participants!

SEMINAR REVIEWS

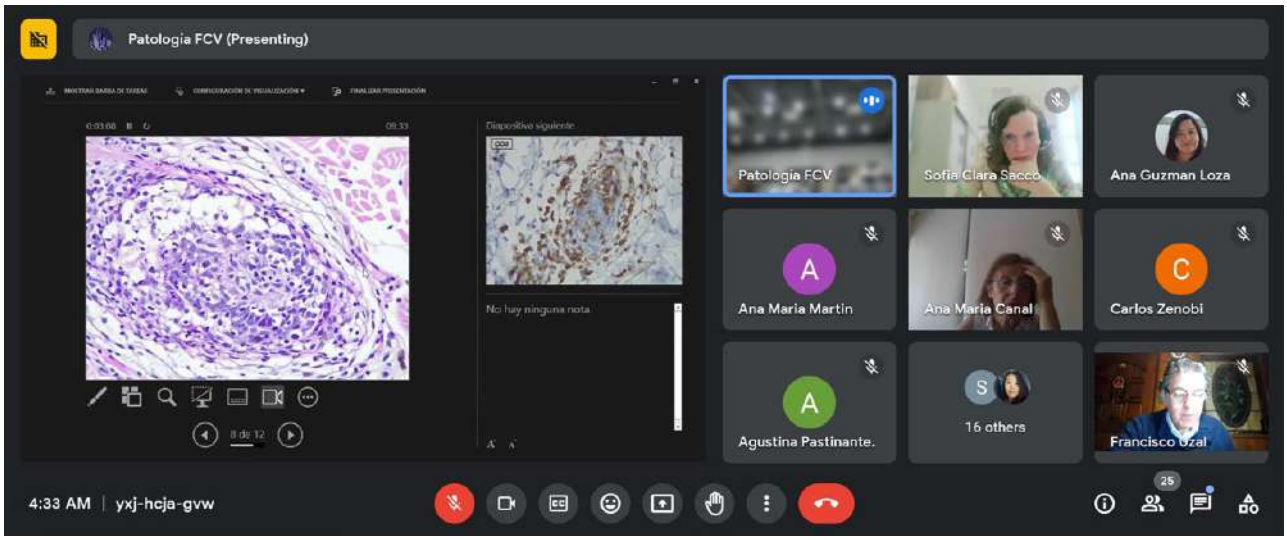


Figure 1. Dr. Leonardo Minatel is presenting a case of alopecia areata in a dog

Figure 2. In person and virtual attendees of the XXIII Interinstitutuinal Seminar of Histopathology

GENERAL PATHOLOGY REVIEW COURSE

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CURSO DE NECROPSIA

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EASTERN EUROPEAN MEETING

Click here to register

BSTP CORNER

BRITISH SOCIETY OF TOXICOLOGICAL PATHOLOGY

Notice of Future Meetings

Virtual Continuing Education Symposium 9: Digestive System
20th – 29th February 2024
Tuesday, Wednesday and Thursday
13.00 – 17.00 (GMT+0, London/UCT+0/ET-5)

CES 9 will be held over two weeks - on the afternoons of Tuesday 20th, Wednesday 21st, Thursday 22nd, Tuesday 27th, Wednesday 28th and Thursday 29th February 2024, from 13.00 – 17.00 (GMT+0, London/UCT+0) each day.

REGISTRATION IS NOW OPEN WITH AN EARLY BIRD DEADLINE OF FRIDAY 26th JANUARY 2024

This CES will give you the opportunity to have an overview of the normal anatomy and physiology of the digestive system; repair and regeneration mechanisms; spontaneous lesions of the rodent, rabbit, and non-human primate GI tract; toxicology and carcinogenesis of the exocrine pancreas; health monitoring of laboratory rodent colonies; pathology of infectious GI diseases of rodents, rabbits and non-human primates; anatomy, physiology, histology and pathology of the teeth. Other topics to be covered include spontaneous pathology and infectious disease in the canine and minipig digestive system; rodent models of inflammatory bowel disease; from biomarkers to AI; bioaccumulation of therapeutic drugs.

Reduced fee funding opportunities are also available for trainee/early career pathologists as well as a number of free registration bursary places.

If you would like further information, have any queries, or would like to reserve a place, please contact the Hg3 Conferences Ltd - events@hg3.co.uk

This symposium will be organised by Hg3 Conferences Ltd, who have been appointed by the Council of the BSTP to take over the administrative organisation of all BSTP events – events@hg3.co.uk

or visit: **https://www.bstp.org.uk/events/ces-9-digestive-system/**

Virtual Continuing Education Symposium 10: Urinary System
9th – 18th July 2024
Tuesday, Wednesday and Thursday
13.00 – 17.00 (GMT+1, London/UCT+1)

CES 10 will be held over two weeks – on the afternoons of Tuesday 9th, Wednesday 10th, Thursday 11th, Tuesday 16th, Wednesday 17th and Thursday 18th July 2024, from 13.00 – 17.00 (GMT+1, London/UCT+1) each day.

This CES will give you the opportunity to learn about the urinary system. There will also be roundtable/share knowledge discussions and questions.

Updated information about this symposium will be posted on the BSTP website and BSTP group LinkedIn pages as it becomes available.

If you would like further information, have any queries or would like to reserve a place, please contact the Hg3 Conferences Ltd - events@hg3.co.uk

This symposium will be organised by HG3 Conferences Ltd, who have been appointed by the Council of the BSTP to take over the administrative organisation of all BSTP events – events@hg3.co.uk

or visit: **https://www.bstp.org.uk/events/ces-10-urinary-system/**

For registration and more information about the events, visit the BSTP website:
https://www.bstp.org.uk/events/bstp-events/

BSTP CORNER

Webinars 2024

BSTP/STP Webinars

Details of webinars taking place in 2024 will be available in due course.

ESTP/SFTP/BSTP/ECVP/ESVP Webinars

Details of webinars taking place in 2024 will be available in due course.

If you would like your details adding to the mailing list or have any queries regarding webinars that the BSTP are involved in, please contact the BSTP Secretariat - **bstpsecretariat@gmail.com**

Future BSTP events are due to take place as follows:

20th – 29th February 2024	**CES 9 – Digestive System**
9th – 18th July 2024	**CES 10 - Urinary System**
November 2024	39th Annual Scientific Meeting & AGM
March 2025	CES 11 - Cardiovascular System
July 2025	CES 12 - Endocrine System
November 2025	40th Annual Scientific Meeting & AGM
March 2026	CES 13 - Lymphoid & Haematopoietic Systems
July 2026	CES 14 - Musculoskeletal System & Skin
November 2026	41st Annual Scientific Meeting & AGM

The order of the CES will depend on the availability of high-quality speakers who are world experts in their particular field to present at the relevant meeting. Details of future meetings are correct at the time this booklet is generated, the BSTP will not be held responsible for any changes to dates, topics and venues of these meetings.

For up to date information on any events organised by the BSTP, please check out the website – **https://www.bstp.org.uk/bstp-events/**

As a reminder, all future CES and ASM events will be organised by Hg3 Conferences Ltd, who have been appointed by the Council of the BSTP to take over the administrative organisation of all BSTP events – events@hg3.co.uk

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IDEXX CASECONNEXX CORNER

Signalment: 7-year-old, male neutered, rabbit

Source/ History: Left testicle from routine castration

Histopathologic Description:
Expanding and largely replacing the normal testicular tissue, is a fairly well-demarcated, moderately to densely cellular, unencapsulated, neoplastic mass. The mass is comprised of round to polygonal neoplastic cells arranged in sheets and vague clusters separated by thin fibrovascular septa. The tumor cells have abundant finely to coarsely granular eosinophilic cytoplasm and occasional mild vacuolation; the cells have variably distinct cellular borders. The nuclei are oval to round with stippled chromatin and generally one small nucleolus. There is mild to moderate anisocytosis and mild anisokaryosis. There are a few compressed atrophic seminiferous tubules in the parenchyma adjacent to the mass.

Periodic acid–Schiff (PAS) and PAS with diastase:
Neoplastic cells contain variably PAS positive and diastase resistant cytoplasmic fine to coarse granules.

Interpretation:
Compatible with a granular cell tumor
Mitotic count (per 2.37 sq mm; per ten high power fields): 2
Vascular invasion: Not observed

Comments:
Histologic examination revealed a round to polygonal cell neoplasm with cytoplasmic granules that are variably PAS positive and diastase resistant. These histologic findings are compatible with a granular cell tumor, though a Leydig (interstitial) cell tumor was considered as a possible differential.

Testicular granular cell tumors are uncommonly described in the rabbit. The histogenesis of granular cell tumors is uncertain; however, they are thought to be derived from Schwann cells or related cells. In general, granular cell tumors are typically slow growing, benign masses that rarely recur following complete excision.

Testicular interstitial cell tumors (ICT) are a more commonly reported testicular tumor in rabbits and can histologically appear similar to testicular granular cell tumors. However, in a recent report, all cases previously histologically diagnosed as ICT were reclassified as granular cell tumor based on PAS staining (interstitial cell tumors lack PAS-positive and diastase-resistant cytoplasmic granules). Transmission electron microscopy can also be useful to demonstrate the membrane-bound granules reported for granular cell tumors and help rule out an interstitial cell tumor.

References: Irizarry-Rovira AR, Lennox AM, Ramos-Vara JA. Granular cell tumor in the testis of a rabbit: cytologic, histologic, immunohistochemical, and electron microscopic characterization. Vet Pathol. 2008 Jan;45(1):73-7; Web J et al. (2018). Characterization of Testicular Granular Cell Tumors in Domestic Rabbits (Oryctolagus Cuniculus). Journal of Exotic Pet Medicine. 29. 10.1053

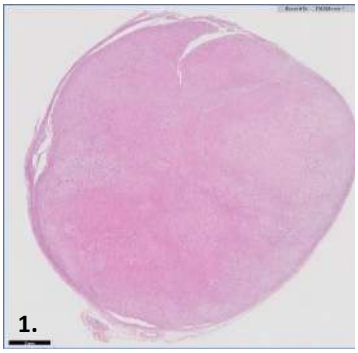
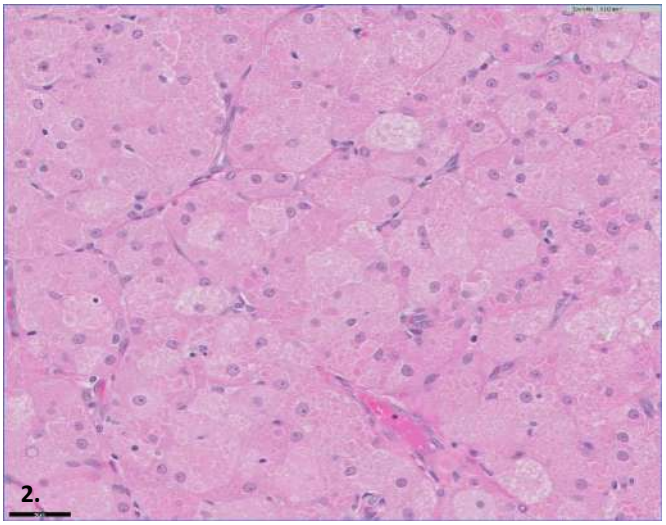
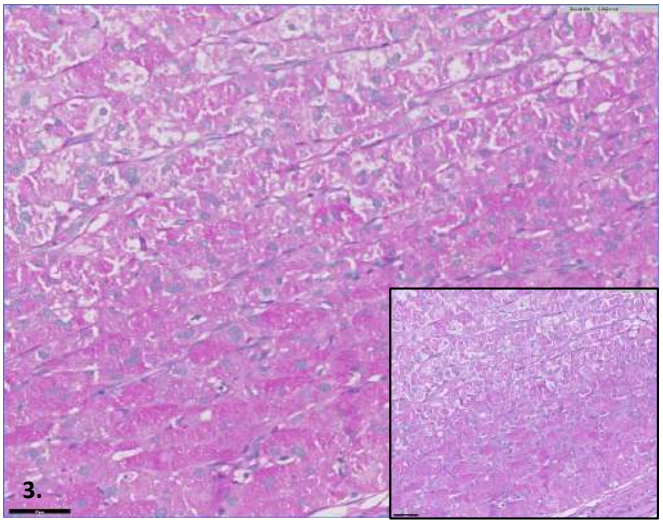


Figure 1. (0.5X magnification, H&E stain) Expanding and largely replacing the normal testicular tissue, is a fairly well-demarcated, moderately to densely cellular, unencapsulated, neoplastic mass.

Figure 2. (40X magnification, H&E stain) The mass is composed of round to polygonal neoplastic cells arranged in sheets and vague clusters separated by thin fibrovascular septa. The tumor cells have abundant finely to coarsely granular eosinophilic cytoplasm.

Figure 3. (40X magnification, PAS and inset PAS with diastase). Neoplastic cells contain PAS positive and diastase resistant cytoplasmic fine to coarse granules.





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IDEXX

Case by
Joseph Malatos, DVM, DACVP

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2024 LCPG & DTF ACTIVITIES IN LATIN AMERICA

Country	Name of Seminar	Dates	Place/University	Speakers	Organizers
Argentina	XVIII Seminar of the Argentinean Subdivision of the Davis-Thompson Foundation and XII Forum on Teaching Veterinary Pathology.	Final date TBD	Rosario, Argentina. Facultad de Ciencias Veterinarias, Universidad Nacional de Rosario	TBD	Javier Sarradell
Argentina	Latin American roadshow: Gastrointestinal pathology	Oct 24-25	Buenos Aires, Argentina. Universidad de Buenos Aires.	Francisco Uzal	Leonado Minatel
Chile	Pathology of wildlife	Final date TBD	Valdivia, Chile. Universidad Austral de Chile	Enrique Paredes, Mauricio Navarro, Manuel Moroni.	Mauricio Navarro
Colombia	Latin American roadshow: Gastrointestinal pathology	Nov 1-2	Barranquilla, Colombia. Universidad San Martin	Francisco Uzal	Paola Barato
Costa Rica	Workshop in freshwater fish medicine and pathology in Latin America	Mar 22-23	San Jose, Costa Rica. Escuela de medicina y cirugia veterinaria San Francisco de Asis	Esteban Soto, Paola Barato	Roberto Olivares
Guatemala	Latin American roadshow: Gastrointestinal pathology	Nov 4-5	Ciudad de Guatemala, Guatemala. Universidad de San Carlos.	Francisco Uzal	Deborah Rodriguez
México	IV on-line necropsy course	Apr 8-19	México (On-line)	Elizabeth Rodriguez, Maria del Carmen Carmona, Alfredo Perez, Mario Bedolla, Carlos Gonzalez, Elizabeth Morales, Gerardo Salas, Mireya Juarez, Luis Garcia-Marquez, Diana Galvan, Ruben Lopez, Laura Romero, Francisco Carvallo.	Roben Lopez
México	V seminar of the mexican subdivision of the Davis-Thompson Foundation	Final date TBD	Tamaulipas, Mexico. Universidad Autonoma de Tamaulipas	TBD	Ubicelio Martin
Paraguay	Latin American roadshow: Gastrointestinal pathology	Oct 28-29	Asuncion, Paraguay. Universidad Nacional de Asuncion.	Francisco Uzal	Leila Maidana, Mirtha Suarez
Uruguay	Latin American roadshow: Gastrointestinal pathology	Oct 21-22	Montevideo, Uruguay. Universidad de la Republica.	Francisco Uzal	Jose Manuel Verdes
Venezuela	II Seminar of the Venezuelan Subdivision of the Davis-Thompson Foundation	Final date TBD	TBD	Francisco Uzal	Yaritza Salas

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Western equine encephalitis outbreak in Argentina: 2023

Sofia Clara Sacco, Ana Canal, María del Rocío Marini

GAAPAVET (Grupo de Anatomopatología Argentina Veterinaria)

Last November, the Argentinean National Health and Food Safety Service (SENASA), declared a health emergency due to an outbreak of western equine encephalitis (WEE) in horses. To date, 19 cases have been confirmed and 664 cases remain suspects. Cases were detected in the provinces of Buenos Aires, Chaco, Corrientes, Córdoba, Santa Fe, Entre Ríos, Formosa, Santiago del Estero and Río Negro. Cases have also occurred in Uruguay and Brazil. One human case has been confirmed in Argentina. Clinical signs in horses included hyperexcitation, ataxia, incoordination, depression, hyperthermia and recumbency. Gross findings revealed mostly meningeal congestion (Figure 1). Histopathology showed lymphocytic encephalitis with focal neuronal necrosis (Figure 2). The diagnosis was confirmed by PCR done at the The National Institute of Agricultural Technology and the National University of Cordoba. Restriction of animal movements, vaccination and mosquito control are amongst the main control measures taken by SENASA. WEE, Eastern equine encephalitis (EEE), and Venezuelan equine encephalitis (VEE) are mosquito-borne, zoonotic encephalitides caused by alphaviruses. In Argentina, EEE and WEE viruses were isolated for the first time in 1930 and 1933, respectively, but VEE is still considered an exotic disease. The latest outbreak of WEE reported in Argentina before the current one was in 1988. It has been suggested that the main predisposing cause of this outbreak was the change from mandatory to voluntary vaccination in 2016. Gross and microscopic pathology, followed by molecular tests such as PCR, are critical components of the diagnostic work up for these diseases.

Additional information about the outbreak can be found at:

- https://www.argentina.gob.ar/senasa/encefalomielitis-equinas
- https://www.paho.org/en/documents/epidemiologal-alert-risk-human-health-associated-western-equine-encephalitis-virus

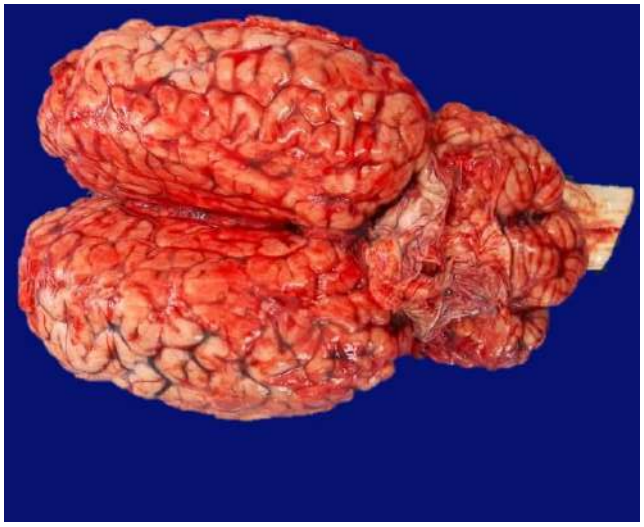

Figure 1: Congested and edematous brain of a horse with WEE

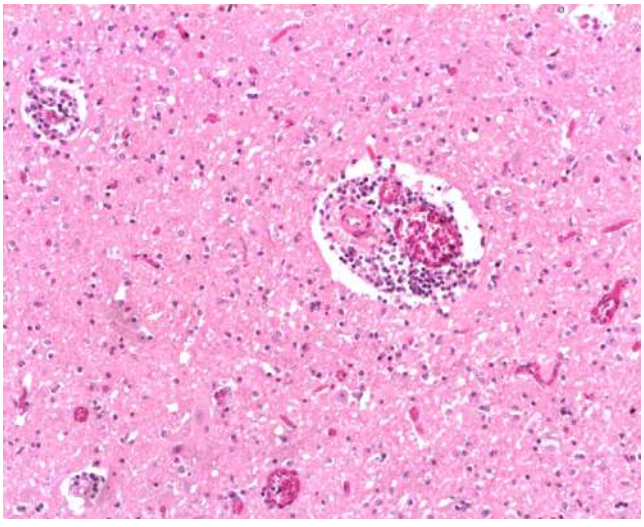

Figure 2: Perivascular cuffing of mononuclear cells in the brain of a horse with WEE

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Western equine encephalitis (WEE) outbreak in Ururguay

Fernando Dutra, Carolina Matto, Agustín Romero, Fabiana López,

Joaquín Armúa, Florencia Pieruccioni

Laboratorio DILAVE Miguel C. Rubino, Ministerio de Ganaderia Agricultura y Pesca,

Uruguay

The current outbreak of Western equine encephalitis (WEE) caused by WEE virus (WEEV; Alphavirus, Togaviridae) affects a broad area of the temperate region of Argentina and the entire Uruguay. The first cases in Uruguay were notified on November 24, 2023 by the Farming, Agriculture, and Fishing Ministry (MGAP), and, on December 5, WEE was confirmed by Sanger sequencing (Ministry of Public Health). Up until December 21, more than 250 cases had been notified including more than 300 individual equids affected, and more than 100 casualties.

It is important to highlight that, even though WEE outbreaks occurred during rainy summers in the decades of 1970' and 1980', there were no cases of the disease since then. However, a human case was documented in 2010, which points to viral circulation in Uruguay. (https://doi.org/10.3201/eid1705.101068).

Figure 1. Equine. Eighteen-month-old Criollo foal with signs of Western equine encephalitis. The case was confirmed by histopathology and RT-PCR. Treinta y Tres, Uruguay, December 2023.

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In Uruguay, the diagnosis during the current WEE outbreak is based on histologic lesions and/or positive results of RT-PCR on brain and/or cerebrospinal fluid.

A summary of the pathology of the cases examined until now (December 22, 2023; N = 34) in the laboratories of Paysandú, Montevideo, Tacuarembó, and Treinta y Tres, is presented below.

Grossly, all equids had cerebral edema with flattening of the gyri and diffuse cortical and meningeal hyperemia (Fig. 2A). In serial coronal sections (1-cm), microhemorrhages were observed in all the regions of the central nervous system, including the gray matter of the spinal cord (Fig. 2B); in some cases, there were small foci of parenchymal softening in the midbrain.

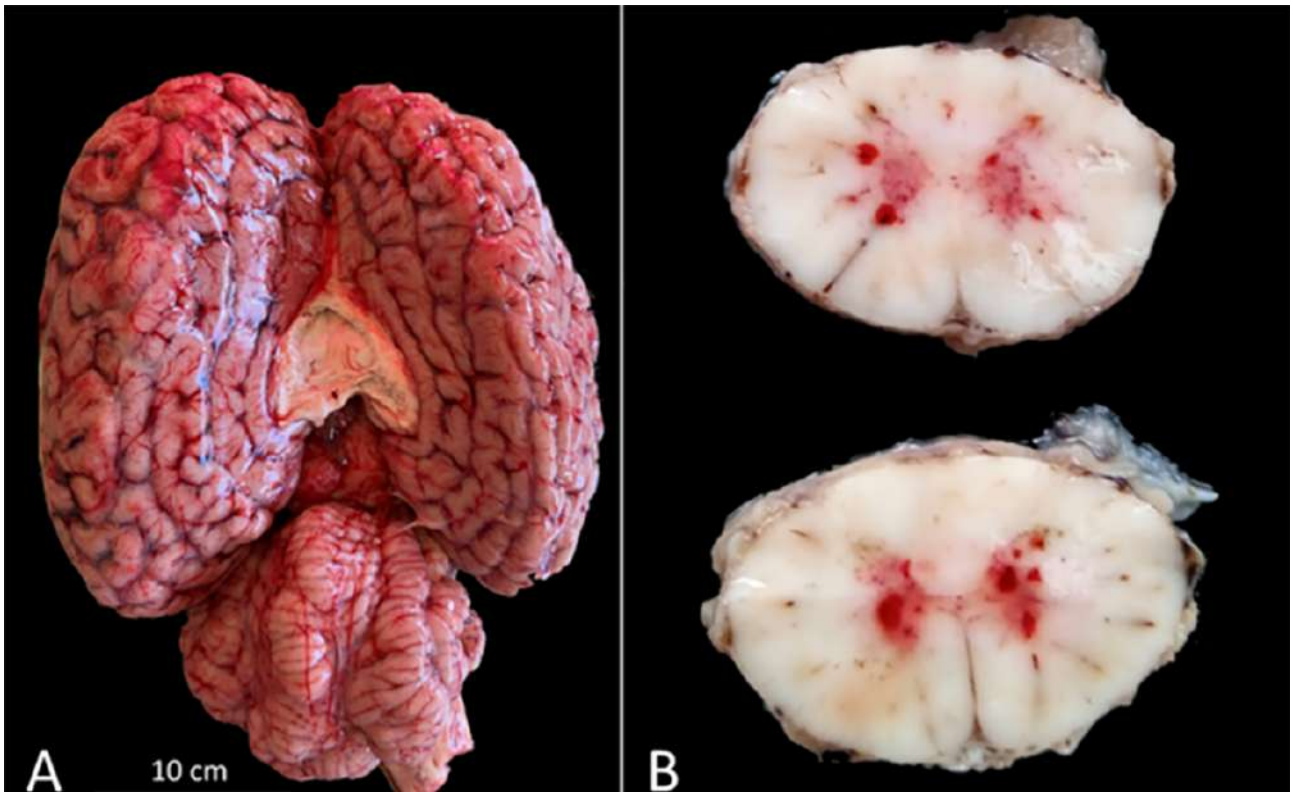

Figure 2. Equine: (A) Brain, 18-year-old foal. Congestion and edema in the cerebrum and cerebellum; (B) Thoracic spinal cord with hemorrhages in the gray matter.

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The microscopic changes in the central nervous system were diffuse and affected both the brain and the spinal cord, although with different severity. The cerebral cortex, including the olfactory, frontal, parietal, occipital and temporal lobes, as well as the basal nuclei and the thalamus, were the regions more severely affected (Fig. 3A).

There were two main types of histologic lesions, which is similar to what is observed in other equine encephalitides (e.g., Western, Eastern, and Venezuelan equine encephalitis), although not pathognomonic. One type of lesion was characterized by perivascular cuffs that expanded the Virchow-Robin space and generally spread to the adjacent neuropil (Fig. 3B). Those cuffs were mainly composed of small lymphocytes, macrophages and a variable number of neutrophils. Often, edema and hemorrhage was observed around small vessels. In all cases, there was moderate non-suppurative leptomeningitis.

The second type of lesion type was characterized by multiple small foci of necrosis with infiltrates of mononuclear inflammatory cells, microglial proliferation, and degenerated neutrophils (Fig. 3C). Multifocally, there were coalescing necrotic foci or extension of the inflammatory reaction toward the neuropil around the perivascular cuffs. In the central areas of those infiltrates, there was occasionally a central capillary blood vessel. In the gray matter, in the center of inflammatory foci there were frequent degenerative changes in the neurons, including central chromatolysis or shrinkage and pyknosis, and abundant degenerated neutrophils and lymphocytes (Fig. 3D). Neuronal necrosis and neuronophagia were frequent and affected randomly the neurons of every cortical area (Fig. 3C and 3D). The latter were small well-circumscribed and overall mild, and were located in the cerebral cortex. There were no intranuclear or intracytoplasmic inclusion bodies in any of the animals examined.

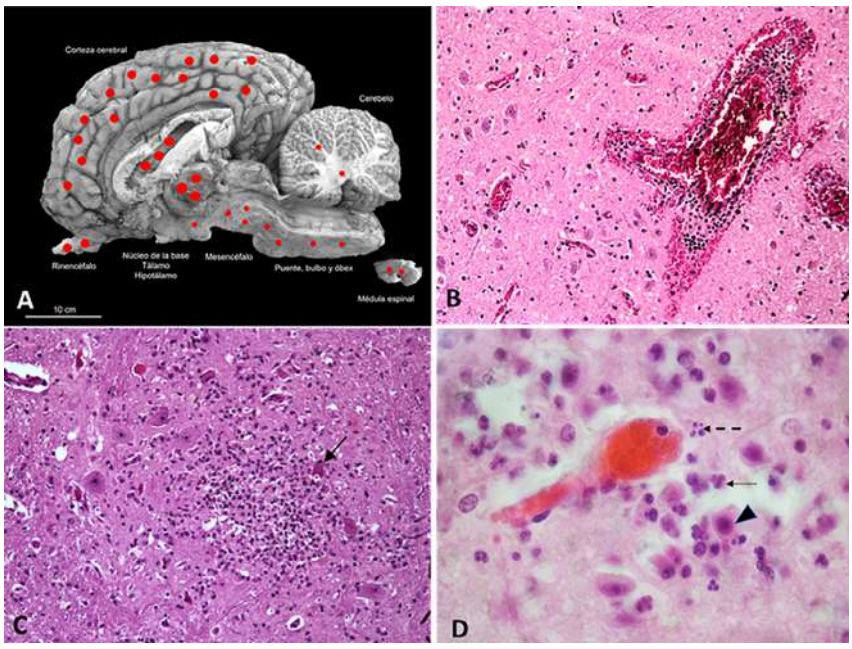

Figure 3. Equine. (A) distribution of the lesions in the central nervous system and approximate severity (circle size) in 34 cases of WEE examined; (B) perivascular cuffs and hemorrhages in the cerebral cortex; (C) inflammatory and microglial foci in the thalamus with neuronal necrosis (arrow); (D) inflammatory cells around a capillary vessel and neuronal necrosis in the occipital lobe (arrowhead); note presence of neutrophils (arrow) and karyorrhectic debris (dashed arrow). H&E, 10x, 40x.

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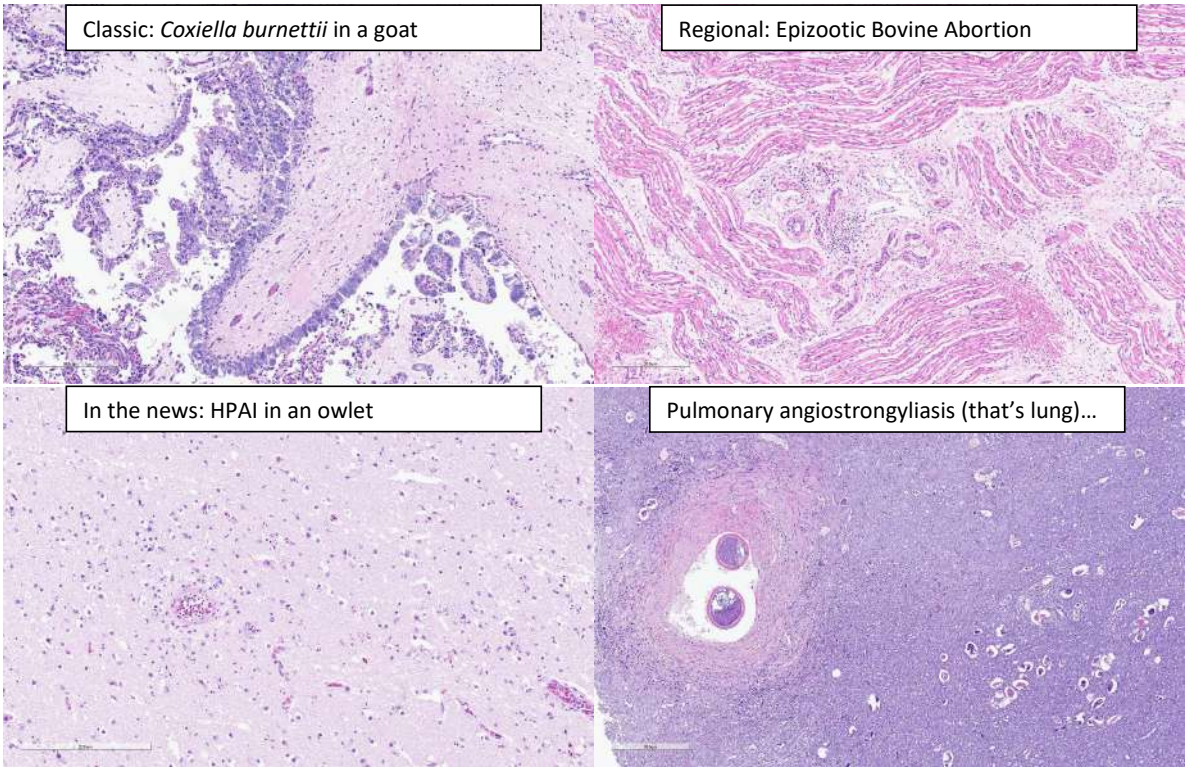

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Complimentary Equine Musculoskeletal Pathology PowerPoint slideshows!

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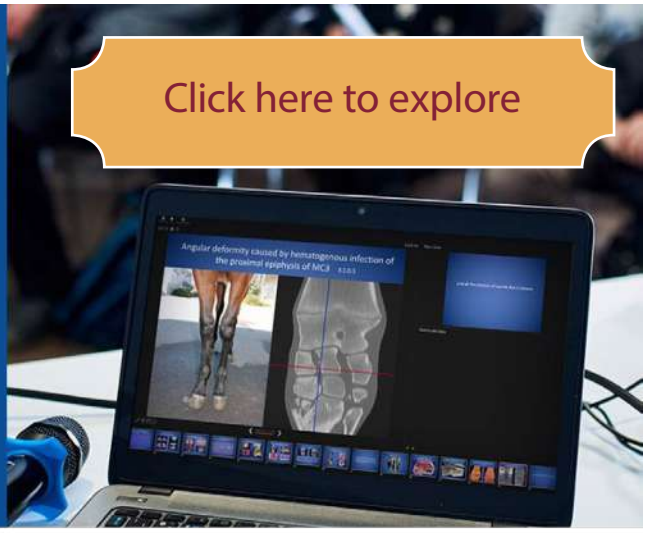
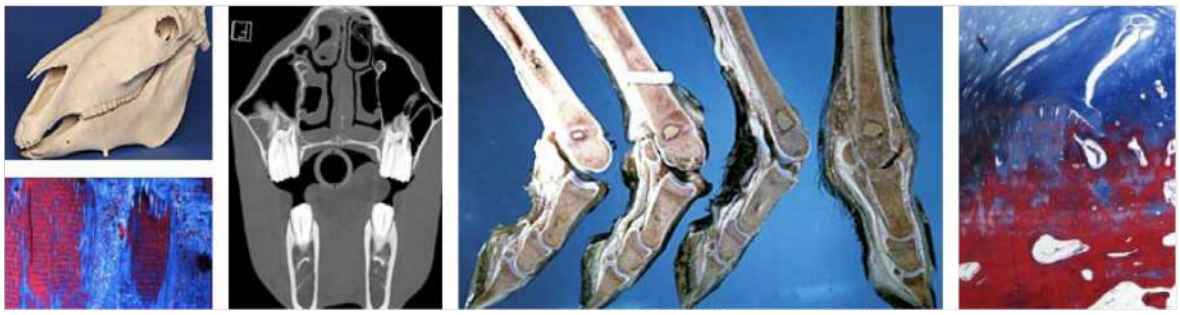


Roy Pool, DVM, PhD, Clinical Professor, Veterinary Pathobiology, and the Department of Small Animal Clinical Sciences in the School of Veterinary Medicine and Biomedical Sciences at Texas A&M University, have released a complimentary library of Equine Musculoskeletal Pathology PowerPoint slideshows.



The Equine Musculoskeletal Pathology library contains both photographic and radiographic images of equine disorders of the head, spine, appendicular skeleton, bones of face, sinuses, mandible, dental arcade, and vertebral column. The library also addresses and contains examples of mechanical loading, inflammatory effects on bones/joints, stem cell nodules, disorders of the carpus and metacarpus, navicular disease, and laminitis. Review the extensive collection, download resources of interest, and use these resources in your own lectures and presentations at: **https://go.veteducator.com/equine-pathology**.

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Free Feline Musculoskeletal Pathology slideshows have been released!

COMPLIMENTS OF

Roy Pool, DVM, PhD,
Clinical Professor, Veterinary Pathology

Dr. Pool's Feline Musculoskeletal Pathology library of PowerPoint slideshows contains photographic and radiographic images of feline orthopedic diseases and musculoskeletal tumors. There are scores of images of tumors, spindle cells, osteosarcomas, cancellous bones, malignant transformations, pleomorphic liposarcomas, giant cell stromas, osteogenesis imperfecta, and so much more.

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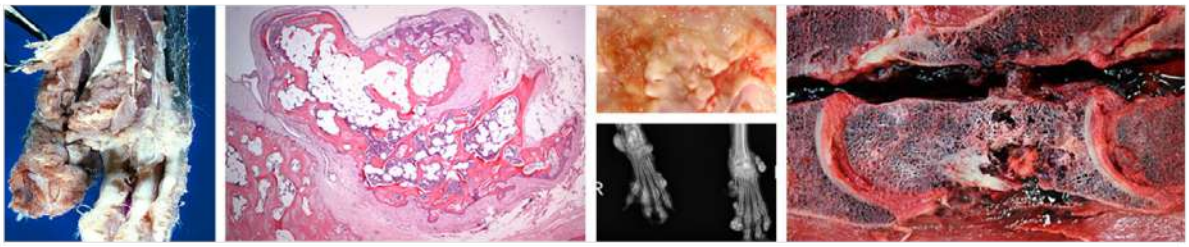
The Stem Cell library brings together images, radiographs, and commentary that Dr. Pool has accumulated for decades. View the slideshows to see scores of examples of blastulas, MSCs in limbs, gap healing, bilateral hip dysplasia, osteoblastomas, carcinosarcomas, lymphosarcomas, epithelioid osteosarcomas, synovial tumors, synovial chondromas, etc. Review the extensive collection, download resources of interest, and use these resources in your own lectures and presentations at: **https://www.veteducator.com/stem-cell-library**.



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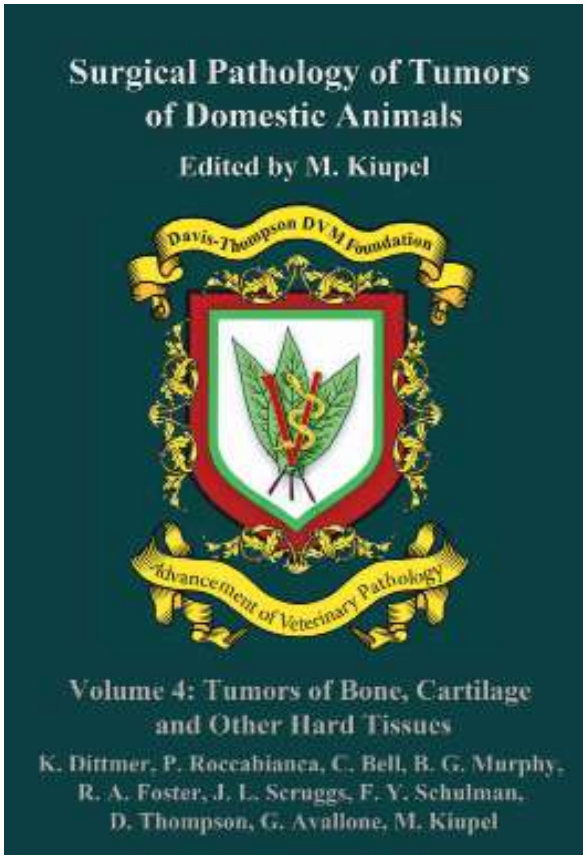

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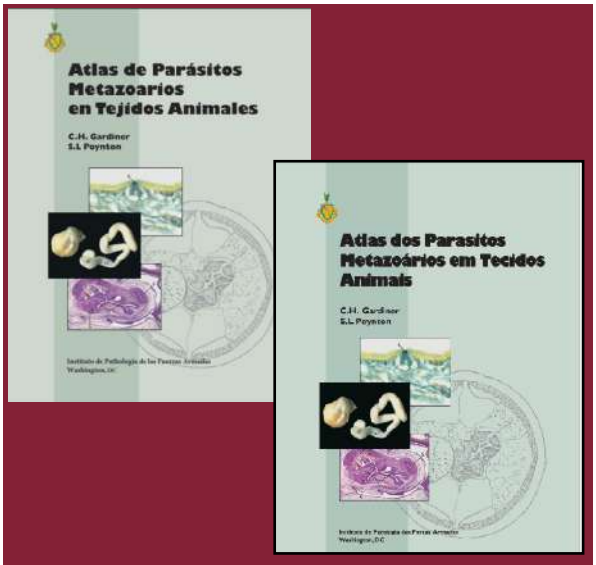

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