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diagnostic **edge**

September 2005 Issue

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by Terri Wheeler, DVM, MS

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Featured Case Study: Four-year-old mixed-breed female dog, Riley

Terri Wheeler, DVM, MS

Riley Jordan



**SNAP® 3Dx®
Test Result**
Positive for
E. canis

Patient

Four-year-old female mixed breed

Signs

Healthy appearance

Clinical Presentation

Routine exam

"By adopting the SNAP® 3Dx® Test as a routine screening tool, we know *E. canis* is prevalent in our area and we can find dogs like Riley. She was identified positive during her annual visit. We routinely check all positives with a CBC, and we found Riley's platelet counts to be severely deficient at 60,000. In most cases, we find platelet counts are normal on these positives, but knowing the severity of this disease, it makes us feel good about screening when we uncover these hidden diseases."

Laura Lynch, DVM • Eastside Animal Health Center
Fort Smith, Arkansas

Presentation

Signalment: Four-year-old mixed-breed female

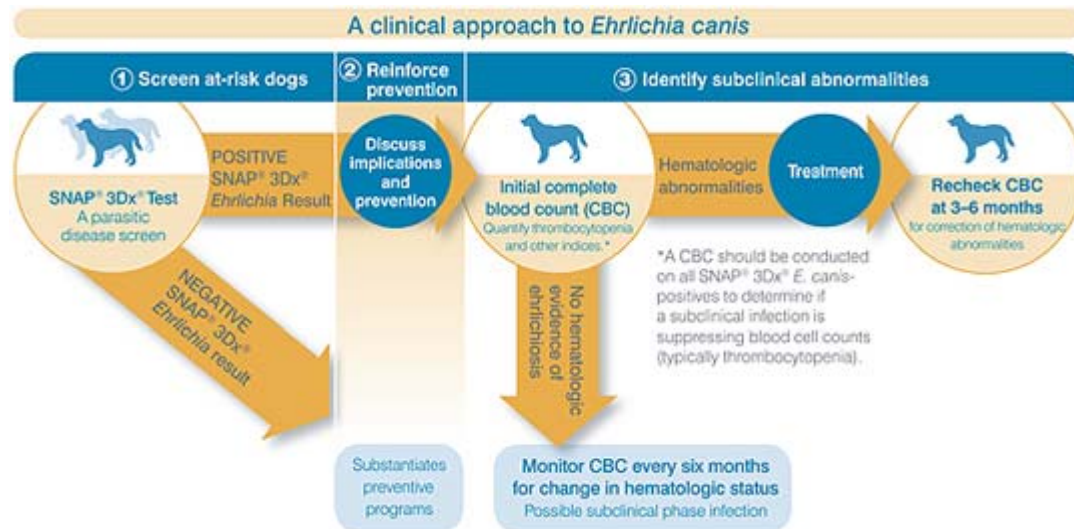
Presenting complaints: Routine physical exam

Physical exam: Normal

Serology: *E. canis*-positive on the [SNAP® 3Dx® Test](#)

Serology		
SNAP® 3Dx® Test	Heartworm antigen	negative
	<i>E. canis</i> antibody	positive
	Lyme C ₆ antibody	negative

The veterinarian used the recommended IDEXX clinical approach to a SNAP 3Dx *E. canis*-positive and performed a CBC and, in this case, a chemistry profile, on Riley.



Interpretive Summary

Hematology

The quantitative results of the CBC reveal a pancytopenia characterized by a thrombocytopenia, leukopenia and nonregenerative anemia. In addition to overwhelming inflammation, which is not likely considering the normal clinical presentation, potential decreased or ineffective bone marrow production infection with agents such as *Ehrlichia canis* (*E. canis*) must be considered. Evaluation of the peripheral blood film reveals no significant left shift in the neutrophil compartment, which is additional support for decreased production or ineffective production at the bone marrow level. Blood-film evaluation also confirms the thrombocytopenia since

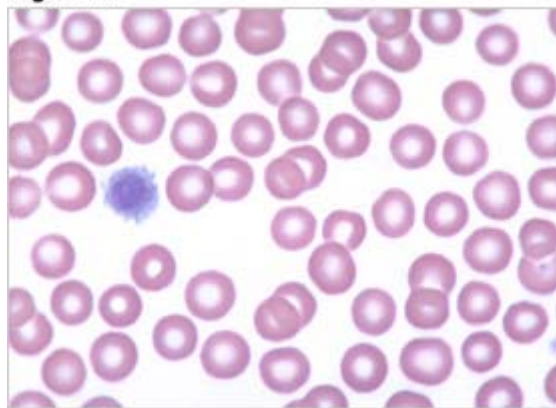
only 1–3 platelets are noted per 100x objective field-of-view (see Figure 1). Additionally, large platelets are noted, suggesting bone marrow response to a peripheral demand with an increased rate of thrombopoiesis, rather than decreased production. This is further support for potential infection with an agent such as *E. canis*.

Hematology							
RBC	=	5.25 M/ μ L	LOW	5.50	-	8.50	
Hct	=	31.2 %	LOW	37.0	-	55.0	
Hgb	=	10.6 g/dL	LOW	12.0	-	18.0	
MCV	=	59.43 fL	LOW	60.0	-	77.0	
MCH	=	20.19 pg		19.50	-	24.50	
MCHC	=	34.0 g/dL		31.0	-	37.0	
RDW	=	15.2 %		14.7	-	17.9	
% RETIC	=	0.2 %					
RETIC	=	10.5 K/ μ L					
WBC	=	3.54 K/ μ L	LOW	5.50	-	16.90	
NEU	=	2.63 K/ μ L		2.00	-	12.00	
LYM	=	0.39 K/ μ L	LOW	0.70	-	4.90	
MONO	=	0.46 K/ μ L		0.10	-	1.49	
EOS	=	0.04 K/ μ L	LOW	0.10	-	1.49	
BASO	=	0.00 K/ μ L		0.00	-	0.10	
PLT	=	55 K/ μ L	LOW	175	-	500	

Blood-Film Evaluation

The blood film pictured is a 100x objective field-of-view Wright's stain (Figure 1), which demonstrates that the decreased density of platelets supports the instrument-reported thrombocytopenia. In addition, the single platelet, seen in this field of view is enlarged, which is evidence of bone marrow response to a peripheral demand for platelets, rather than decreased production as a mechanism of thrombocytopenia. Note that erythrocytes are morphologically normal and that no

Figure 1.



leukocytes are seen in this field of view, which also supports the finding of leukopenia in the instrument-generated quantitative hematologic values.

Biochemical Profile

The only significant chemistry profile abnormalities include hypoalbuminemia and hyperglobulinemia. The hyperglobulinemia is most likely related to chronic antigenic stimulation, which is consistent with chronic *E. canis* infection. The most common cause for mild hypoalbuminemia is a decrease in albumin associated with inflammatory disease; however, causes such as loss through the kidney or decreased production by the liver must also be considered.

Biochemical profile							
BUN	=	13	IU/L	7.0	-	27.0	
Creatinine	=	1.1	IU/L	0.5	-	1.8	
Phosphorus	=	2.8	g/dL	2.5	-	6.8	
Calcium	=	9.5	g/dL	7.9	-	12.0	
Total Protein	=	7.9	g/dL	5.2	-	8.2	
Albumin	=	2.4	mg/dL	2.7	-	3.8	
Globulin	=	5.5	mg/dL	2.5	-	4.5	
ALT (SGPT)	=	50	mg/dL	10	-	100	
ALK Phos	=	179	mg/dL	23	-	212	
Total Bilirubin	=	0.1	mg/dL	0.0	-	0.9	
Glucose	=	89	mg/dL	77	-	125	

Diagnosis

E. canis infection

In light of the positive *E. canis* result on the SNAP® 3Dx® Test, the severe thrombocytopenia and the nonregenerative anemia, the dog's diagnosis is *E. canis*.

Additional Recommended Diagnostics

Co-infections with tick-borne diseases are quite common. Screening for additional tick-borne diseases would be prudent. Organisms such as *Anaplasma phagocytophilum*, *E. ewing*, and *Rickettsia rickettsii* can also show similar clinical signs. A complete

urinalysis investigating the possibility of protein-losing nephropathy, and if there is a suspected proteinuria, performing a urine protein:creatinine (UPC) ratio, would be indicated.

Treatment/Plan

At least a one-month course of doxycycline at 10 mg/kg/day should be initiated immediately.

- Repeat CBC within 72 hours to ensure platelet numbers are returning to reference-range values.
- Repeat CBC in 7–10 days to ensure that all parameters (including platelet count, hematocrit and leukocyte count) and distribution are returning to reference-range limits.

Prognosis

The lack of petechia and epistaxis, and the fact that the dog is still eating and active, indicates a good prognosis for Riley. Dogs in the acute stages of *E. canis* infection usually respond quickly to antibiotic treatment and supportive care. However, with severe thrombocytopenia and anemia, the dog's response must be followed closely to ensure that the platelet count and hematocrit return to the normal reference range following antibiotic treatment. Dogs that are in the chronic stage of *E. canis* infection that present with clinical signs have a more guarded prognosis.

Prevention

Prevention of *E. canis* infection includes using tick preventatives.

Zoonotic Potential

Since pets share our environment, they may incidentally become sentinels for disease. Although *E. canis* has only rarely been isolated in humans and has questionable clinical significance, the owner should be aware of other potential human tick-borne diseases in the area.

The recommendations contained in *Diagnostic Edge* educational materials are intended to provide general guidance only. As with any diagnosis or treatment, you should use clinical discretion with each patient based on a complete evaluation of the patient, including history, physical presentation and complete laboratory data. With respect to any drug therapy or monitoring program, you should refer to product inserts for a complete description of dosages, indications, interactions and cautions.

September is Senior Care Month—enjoy two specials on senior care from IDEXX

1. IDEXX Reference Laboratories Senior Panel Specials—Three Levels for Three Age Ranges.

■ **Promotional Mature Adult Screen** (ages 6–8):

Test Code: 20771

Special Price: **\$24.99***

- Chem 19
- Comprehensive CBC
- Urinalysis

■ **Promotional Senior Screen** (ages 9–11):

Test Code: 8651

Special Price: **\$39.99***

- Chem 25
- Comprehensive CBC
- Urinalysis
- T₄

■ **Promotional Geriatric Screen** (ages 11+):

Test Code: 20781

Special Price: **\$49.99***

- Chem 25
- Comprehensive CBC
- Urinalysis
- Free T₄ by Equilibrium Dialysis

"For seniors, prevention and early detection lead to early intervention and, therefore, improved treatment success."
Fred Metzger, DVM, DABVP

Follow up in-house senior testing with these three senior panels at [IDEXX Reference Laboratories](#).

To take advantage of these special prices, just request these tests in September.

Call us today to discuss other senior tests, customized to your needs, and for more information on how to set up a senior care program in your practice. Contact your sales representative at **1-888-433-9987**.

*Special pricing expires September 30, 2005. Offer available only in the U.S.

2. Integrate a Urine P:C Ratio into Your Senior Care Plan with this Special Offer:

Buy 24 [Urine P:C Ratios](#) (four boxes) for your [VetTest® Chemistry Analyzer](#) and receive a FREE Sample Preparation Kit.

Sample preparation kit includes:

- 50 pipette tips
- Two pipettors
(one 10- μ L, one 200- μ L)
- One bottle of solution



Contact your IDEXX distributor for the availability of this special offer.

training opportunities

Education and Events

FREE Webinar *Pending CE Credit Approval

How to Integrate UPC Ratios Into Your Practice and Uncover Early Renal Disease

Join Drs. Michelle Kahn and Fred Metzger

Wednesday, October 12, 2005 or
Thursday, November 17, 2005

[Register Now](#)

We offer a variety of seminars and teleconferences about emerging trends and best practices in veterinary diagnostics—in a forum designed to involve, educate and motivate you and your staff.

Here are some of the educational events in September:

- [A Practitioner's Approach to Feline Retroviruses](#) by Lynn Buzhardt, DVM
- [Blood-Film Evaluation in Dogs and Cats](#) by Rick Alleman, DVM, PhD, DAVBP, DACVP
- [Canine Lyme Disease for the Canine Practitioner](#) by Steven Levy, VMD
- [Vector Borne Diseases in Small Animals](#) by Terri Wheler, DVM, MS

Visit the [seminar and teleconference calendar](#), click the **date** to view the details, fill out and submit the form to register.

** This course has been submitted (but not yet approved) for 1 hour of continuing education credit in jurisdictions which recognize AAVSB's RACE approval; however participants should be aware that some boards have limitations on the number of hours accepted in certain categories and/or restrictions on certain methods of delivery of continuing education. Call Christina Peterson at **207-856-0379** for further information.*

quick tips

Make the most of senior care client brochures when speaking with your clients

With Senior Care Month upon us, many of you will be discussing wellness testing with your clients. One of the best ways to help get your message across is to use a brochure. A brochure provides support for your recommendation, and that goes a long way in the eyes of your clients.

Having brochures available in your waiting area does not mean that your clients will pick them up or ask for the product or service that the brochures recommend. The most effective way to use a brochure is for you to take a moment to sit down with your clients to discuss several key areas of the piece and then hand it to them personally.

Since almost all veterinary industry manufacturers and associations offer materials on senior wellness (most of them free), ask several of your sales representatives or look online for those available to you, and choose the one that best fits your style. After you have chosen a piece, decide which points you would like to highlight when talking with clients. It helps to practice. The more comfortable you are talking about the piece, the more confident your clients will be with your recommendations and the better chance your patients will receive the care they need.

The [IDEXX Senior Care brochure](#) (495 KB) is designed to make senior care discussions with clients easy. It has an age chart, a list of common medical conditions, a checklist of signs to watch for and a place to record the next appointment. To place an order, call IDEXX Customer Support at **1-800-248-2483** For a complete list of IDEXX Senior Care offerings,



contact your local IDEXX representative.

Good luck and have a great Senior Care Month!

interactive challenge

Test your senior care knowledge

1. Which of the following tests should you include in a senior care profile?

Urine P:C Ratio	SNAP® FIV/FelV Test	Comprehensive chemistry panel
Complete CBC	Electrolytes	T ₄
Urinalysis	Parasitic disease screen	

2. You suspect that a senior patient has arthritis. Which of the above tests will you run to determine if NSAIDs are safe to administer?

3. After baseline testing and the initial administration of an NSAID, how often should your patient be tested to monitor their health status (based on manufacturer's recommendations)?

4. On the recheck, which tests are you running and why?

Send your answer in an e-mail to: diagnosticedge@idexx.com. Please include your **name, practice name, address and telephone number**.

The first 10 respondents to identify all four questions correctly will appear in the next issue of the *Diagnostic Edge*.

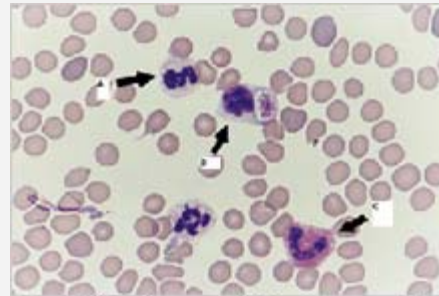
Winners and answers from last months's interactive challenge!

The following 10 people were the first to identify the three nucleated cells in the picture below and are the winners of last month's interactive challenge.


Nicole Calvert, Riverside Drive Animal Care Center, Dublin, Ohio
Maria Vandis, Tufts Veterinary School, North Grafton, Massachusetts
Amy Dixon-Jimenez, Cat Hospital of Orlando, Maitland, Florida
LeAnn Heidke, Boulder Animal Hospital, Boulder City, Nevada
Mariana Cabagna Zenklusen, LAV-Laboratorio de Análisis para Mascotas, Santa Fe, Argentina
Darren Shortt, Dandenong Veterinary Hospital, Dandenong, Australia
Lauren Switlick, Mosinee Veterinary Clinic, Mosinee, Wisconsin
Steve Watts, Metro Animal Hospital, Toronto, Canada
Stephen M. Yeomans, University of Tennessee, Department of Clinical Pathology, Knoxville, Tennessee
Elisabeth Parrague, Gladesville Veterinary Hospital, Gladesville, Australia

The correct answers were:

- A. neutrophil/pseudoeosinophil/heterophil
(all were acceptable)
- B. lymphocyte with a Kurloff body
- C. eosinophil



**Blood film from a clinically normal
two-year-old male guinea pig**

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