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Letters to the Editor

Prognosis for dogs with a spinal epidural abscess

We read with great interest the January 1, 2010, What Is Your Diagnosis? report[1] describing a dog with a spinal epidural abscess (also known as spinal epidural empyema [SEE]). We are concerned, however, with the authors' comments on the prognosis for dogs with this condition, which seem to perpetuate the historical notion that most dogs with a spinal epidural abscess have a poor prognosis. In their report, the authors stated that "There has been only 1 report of an affected dog that survived," but the reference cited for this statement[2] actually described two dogs with spinal epidural empyema, both of which were euthanized. In contrast, several case reports[3–9] have described dogs in which treatment of SEE was successful. In fact, five of seven dogs in one report[3] and four of five dogs in another[4] had a good outcome after treatment of SEE. In our experience, a successful outcome may be achieved by means of rapid and accurate diagnosis, early surgical intervention, and long-term antimicrobial administration.

The authors commented that "computed tomography, as well as magnetic resonance imaging, has emerged as a frontline diagnostic tool for identification of abscesses within the epidural space of the vertebral column." However, magnetic resonance imaging is currently the imaging modality of choice in people,[10] and although computed tomography following intrathecal contrast injection can be used when magnetic resonance imaging is not available, it is associated with a higher risk of seeding the subarachnoid space with infected material.[10] In addition, computed tomography without the use of intrathecal contrast injection may fail to accurately delineate the extent of the lesion.

The authors also stated that an advantage of computed tomography, relative to myelography, is that it "allows differentiation of epidural abscesses from other epidural lesions." However, computed tomography can only be used to define the location and extent of a lesion and its relationship to other structures. In contrast, SEE is a cytologic or histopathologic diagnosis.

Finally, we have two minor comments. First, we believe that the use of nonstandard nomenclature such as neural foramen and spinal nerve hyperesthesia hinders comprehension. Second, in both figures, contrast material is clearly visible within the renal cortex and pelvis, indicating that these images were obtained after administration of an iodinated contrast agent. However, the figure captions do not mention contrast administration.

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1. Bové CM, Roberts BK. What Is Your Diagnosis? *J Am Vet Med* Assoc 2010;236:33–34.
2. Dewey CW, Kortz GD, Bailey CS. Spinal epidural empyema in two dogs. *J Am Anim Hosp Assoc* 1998;34:305–308.
3. Lavely JA, Vernau KM, Vernau W, et al. Spinal epidural empyema in seven dogs. *Vet Surg* 2006;35:176–185.
4. De Stefani A, Garosi LS, McConnell FJ, et al. Magnetic resonance imaging features of spinal epidural empyema in five dogs. *Vet Radiol Ultrasound* 2008;49:135–140.
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9. Gemmill TJ. What is your diagnosis? Epidural empyema. *J Small Anim Pract* 2008;49:110–112.
10. Nussbaum ES, Rigamonti D, Standiford H, et al. Spinal epidural abscess: a report of 40 cases and review. *Surg Neurol* 1992;38:225–231.

The authors respond:

We thank Dr. Lavely et al for their comments on the January 1, 2010, What Is Your Diagnosis? report[1] describing a dog with spinal epidural empyema (SEE). After reviewing their retrospective study,[2] we agree that a successful outcome is possible if there is rapid diagnosis, early surgical intervention, and long-term antimicrobial administration. In this particular case,[1] the duration of the clinical signs (> 48 hours) and the extent of the lesion suggested a poor prognosis for the patient. It

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was not our intent to suggest that all dogs with SEE have a poor prognosis. However, owing to the low number of reported cases, to make the broad statement that, with rapid aggressive treatment, these dogs will have a good outcome[2] is premature.

Regarding magnetic resonance imaging (MRI), we concur that there are benefits to using it over computed tomography (CT) and that it is the imaging modality of choice for humans.[3] However, we disagree that CT with contrast administration offers more of a risk than myelography, as both have the potential to spread microorganisms into the subarachnoid space.[2] There has only been one published study[4] on the use of MRI in dogs with suspected SEE, but the technique clearly offers diagnostic benefits and will likely become the gold standard imaging modality for diagnosis of SEE in dogs.

In closing, we respect Lavely et al's comments and thank them for their expertise.

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1. Bové CM, Roberts BK. What Is Your Diagnosis? *J Am Vet Med* Assoc 2010;236:33–34.
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4. De Stefani A, Garosi LS, McConnell FJ, et al. Magnetic resonance imaging features of spinal epidural empyema in five dogs. *Vet Radiol Ultrasound* 2008;49:135–140.

Error in route of administration of penicillin G potassium

I was pleased to see an article about rabbit dentistry in the February 15, 2010, issue of *JAVMA*,[1] both because veterinarians are seeing rabbits more and more commonly in practice and because so many more people nowadays are willing to pay for full medical work up and treatment of pet rabbits.

However, I was concerned that an error with potentially severe consequences found its way into the article. It was stated that the rabbit had previously responded to three weeks of every other day oral treatment with penicillin G potassium. To my knowledge, however, oral administration of this drug poses a high risk of potentially fatal gastrointestinal dysbiosis, possibly resulting in *Clostridium spiroforme* overgrowth and enterotoxemia.

If I am mistaken, I would appreciate references in regard to safety of oral penicillin treatment in rabbits.

Thank you again for this article referring to the most common issue in pet rabbits—dental malocclusion—and for pointing out that a cure may be achieved with proper diagnostic testing and specific treatment.

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1. Boaz A, Sinclair KM. Diagnostic Imaging in Veterinary Dental Practice. *J Am Vet Med Assoc* 2010;236:405–407.

The authors respond:

The authors thank Dr. Goerlich for pointing out the error. "Oral" should have been "subcutaneous."

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Questions about ambulatory electrocardiography in Boxers

I read with interest the article "Ambulatory electrocardiographic evaluation of clinically normal adult Boxers" in the February 15, 2010, issue of *JAVMA*.[1] I would be grateful if the authors would answer the following questions.

I assume none of the dogs were receiving cardiac medications at the start of the study. Were recommendations made to begin such medications for any of the dogs as a result of the study?

If any of the dogs studied required general anesthesia, would any special precautions be advised?

Would measurement of N-terminal pro-B-type natriuretic peptide concentration be a useful test to run in conjunction with the Holter monitor?

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1. Stern JA, Meurs KM, Spier AW, et al. Ambulatory electrocardiographic evaluation of clinically normal adult Boxers. *J Am Vet Med Assoc* 2010;236:430–433.

The authors respond:

We thank Dr. Lugten for his interest in our manuscript. Our study focused on ambulatory electrocardiography in healthy Boxers only, and no study participants were receiving cardiac medications at the time of the study.

The few dogs with clinically concerning results were considered to potentially have subclinical arrhythmogenic right ventricular cardiomyopathy (ARVC). These results were forwarded to the referring veterinarians, and recommendations for further testing and treatment were made.

Although general anesthesia was not a part of our study, the authors do not generally advise any special precautions for anesthesia of clinically normal Boxers. Pursuit of diagnosis and treatment for ARVC is recommended prior to general anesthesia for those dogs with abnormal ambulatory electrocardiograms.

Sensitivity and specificity of using N-terminal pro-B-type natriuretic peptide concentrations to discriminate between healthy Boxers and Boxers with subclinical ARVC have not been evaluated. However, no significant difference in plasma concentration of brain natriuretic peptide (BNP) was identified between clinically normal Boxers and those with ARVC. In addition, BNP concentrations did not correlate with number of ventricular premature complexes in 24 hours.[1]

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1. Baumwart RD, Meurs KM. Assessment of plasma brain natriuretic peptide concentration in Boxers with arrhythmogenic right ventricular cardiomyopathy. *Am J Vet Res* 2005;66:2086–2089.