A 9-year-old, 11.2-lb (5.1-kg), spayed Pekinese presented with an acute onset of collapse and apparent obtundation. The history included a laminectomy (T13–L1) several years prior, from which the dog had recovered uneventfully. However, in the month before presentation, the owner had reported a recurrence of back pain, for which baby aspirin (unknown dose and quantity) was being administered. The owner had noted no other abnormalities before the acute collapse and stated that there was no possibility of toxin exposure.

Abnormalities noted on the initial examination included hyphema and miosis in the right eye. The remainder of the general physical examination was unremarkable. On neurologic examination, the patient was dull and minimally responsive with a left head tilt. An intermittent opisthotonic posture was noted. The menace response was absent in both eyes, and there was a resting vertical nystagmus along with a ventrolateral strabismus in the right eye. Postural responses were absent in all four limbs, and the dog was tetraparetic and nonambulatory, although voluntary motor activity was present in all four limbs. Segmental reflexes were within normal limits.

A complete blood count revealed a mature neutrophilia, hemoconcentration (hematocrit: 67.7%), and mild thrombocytopenia with a platelet count of 156 × 10³/μL (reference range: 175 × 10³ to 500 × 10³/μL). Results of a serum chemistry panel were unremarkable. In-house prothrombin time was prolonged at 52 seconds (reference range: 12 to 17 sec). Images obtained with abdominal ultrasonography and thoracic radiography were unremarkable. Magnetic resonance imaging of the brain was conducted using a 3.0-tesla Philips Achieva magnet. T1- and T2-weighted (FIGURES A AND B), T1 postcontrast (gadolinium), and fluid-attenuated inversion-recovery (FLAIR; FIGURE C) images were obtained.

1. What is your anatomic diagnosis?
2. What is your diagnosis based on the MRI abnormality?
3. Are additional diagnostics indicated?
4. What is this dog’s prognosis?

SEE PAGE E2 FOR ANSWERS AND EXPLANATIONS.
The presence of opisthotonos implies a lesion in the caudal fossa and may be seen with abnormalities of the rostral cerebellum. It is often observed when intracranial pressure is increased. The head tilt, vertical nystagmus, and postural deficits are suggestive of a central vestibular problem. Changes in mental status are often seen with prosencephalic disease but may also be observed when lesions in the brainstem impair the ascending reticular activating system. In this case, the miosis in the right eye was attributed to uveitis associated with hyphema.

2. Hemorrhagic infarct in the left cerebellar hemisphere and nuclei. There is severe associated edema with a mass effect compressing the brainstem on the left. This was presumed to be the reason why this patient displayed medullary signs despite the primary lesion being confined to the cerebellum.

3. With the high index of suspicion for coagulopathy in this patient, further tests such as a full coagulation profile (prothrombin time, partial thromboplastin time, fibrinogen, D-dimer, and PIVKA [proteins induced by vitamin K antagonism]) were recommended, but the owner declined. In this case, the hemorrhage was suspected to be secondary to chronic aspirin administration.

4. The prognosis for recovery after CNS infarction is highly variable and depends on whether there are underlying medical conditions that predispose the patient to recurrent CNS infarction (as opposed to patients with spontaneous or idiopathic nonhemorrhagic stroke). Infarctions can be classified as territorial, lacunar, and watershed. Infarcts result from compromise of one of the main arteries of the brain, whereas lacunar infarcts result from compromise of an intraparenchymal superficial or deep artery. Watershed infarctions arise in the interface between large arteries. The infarction type does not necessarily influence outcome, but in human patients, infarct size and location are prognostic indica-
In my experience, the severity of the initial clinical signs and the ability to accurately diagnose and treat underlying causes are the most important prognostic indicators. Unfortunately, despite the administration of mannitol (1 g/kg IV) and vitamin K (2.5 mg/kg SC), this patient experienced cardiac and respiratory arrest and expired several hours after magnetic resonance imaging was conducted.

References