

## Interpretive Summaries

### SMALL ANIMALS

#### Age-related variations in hematologic and plasma biochemical test results in Beagles and Labrador Retrievers

Age-related variations in results of hematologic and blood biochemical tests were investigated in dogs of 2 common breeds. Blood samples were collected multiple times throughout their lives from 34 Beagles and 44 Labrador Retrievers; 589 samples were collected from the Beagles, and 964 samples were collected from the Labrador Retrievers (age at the time of sample collection ranged from 22 days to 15 years). White blood cell and RBC counts; hemoglobin concentration; Hct; mean cell volume; mean cell hemoglobin concentration; alkaline phosphatase, alanine aminotransferase, and aspartate aminotransferase activities; and calcium, phosphorus, cholesterol, urea, protein, and albumin concentrations were measured.

For all tests, there were significant effects of age on test results. There was a significant interaction between age and breed for all tests except hemoglobin, albumin, and phosphorus concentrations. Changes were most evident during the first year of life, reflecting growth and maturation of the puppies. In some instances, values for puppies diverged markedly from those for adults, necessitating the use of age-specific reference ranges for the interpretation of clinical data.—E. J. Harper et al (*J Am Vet Med Assoc* 2003;223:1436–1442).

#### Complete ventral ankyloglossia in three related dogs

Two 8-month-old and one 7.5-month-old Anatolian Shepherd dogs were examined because of excessive drooling and poor weight gain. The 2 older dogs were full brothers, and the younger dog was their half sister; all 3 had the same sire. Physical examination revealed that the dogs were unable to protrude their tongues properly. In all 3, the tip of the tongue was notched and deviated ventrally when the dog attempted to protrude the tongue. In addition, a thin tissue band between the sublingual surface of the tongue and the floor of the oral cavity was seen; this tissue band extended from the lingual frenulum to the gingiva of the mandibular incisors. Frenuloplasty was performed to correct the complete ventral ankyloglossia. Immediately after surgery, the tongue was more mobile, and during recheck examinations, the dogs appeared to be able to use their tongues normally and could protrude their tongues when panting. They had gained weight and weighed almost as much as their

healthy siblings. In all 3 dogs, the tip of the tongue retained a “W” shape.—M. D. Temizsoylu and S. Avki (*J Am Vet Med Assoc* 2003;223:1443–1445).

#### Intrapelvic granuloma formation six years after total hip arthroplasty in a dog

A 9-year-old Golden Retriever that had undergone left total hip arthroplasty 6 years previously was evaluated because of constipation and tenesmus. Abdominal radiography and ultrasonography revealed a large intrapelvic mass that was contiguous with a mass of polymethyl methacrylate that had been extruded through a defect in the medial wall of the acetabulum at the time of total hip arthroplasty. Clinical signs resolved following resection of the mass and associated polymethyl methacrylate from the pelvic canal. Results of histologic examination of the mass were consistent with a diagnosis of foreign body granuloma, most likely secondary to particulate debris. There was no clinical or radiographic evidence of aseptic loosening of the acetabular or femoral components, and the mass may have represented a response to wear debris.—C. B. Freeman et al (*J Am Vet Med Assoc* 2003;223:1446–1449).

#### Implications of presumptive fatal Rocky Mountain spotted fever in two dogs and their owner

A dog was examined because of petechiation, an inability to stand, pale mucous membranes, a possible seizure, and thrombocytopenia. Tick-borne illness was suspected, but despite treatment, the dog died. Eight days later, a second dog owned by the same individual also died. The dog was not examined by a veterinarian, but Rocky Mountain spotted fever (RMSF) was suspected on the basis of clinical signs. Two weeks after the second dog died, the owner was examined because of severe headache, fever, nausea, vomiting, decreased appetite, lethargy, and a fine rash on the body, face, and trunk. Despite intensive treatment for possible RMSF, the owner died. Although results of an assay for antibodies to *Rickettsia rickettsii* were negative, results of polymerase chain reaction assays of liver, spleen, and kidney samples collected at autopsy were positive for spotted fever group *Rickettsia* spp. These cases illustrate how dogs may serve as sentinels for RMSF in humans and point out the need for better communication between physicians and veterinarians when cases of potentially zoonotic diseases are seen.—B. N. Elchos and J. Goddard (*J Am Vet Med Assoc* 2003;223:1450–1452).

### **Increased toxicity of P-glycoprotein-substrate chemotherapeutic agents in a dog with the MDR1 deletion mutation associated with ivermectin sensitivity**

Lymphoma was diagnosed in a 4-year-old spayed female Collie, and treatment with a combination chemotherapy protocol incorporating prednisone, L-asparaginase, vincristine, vinblastine, doxorubicin, and cyclophosphamide was initiated. The dog had signs of gastrointestinal tract toxicosis and myelosuppression after treatment with P-glycoprotein-substrate drugs (vincristine, vinblastine, and doxorubicin) even when dosages were reduced, but did not have signs of toxicosis after treatment with cyclophosphamide, a non-P-glycoprotein-substrate drug, even when administered at the full dosage. It was postulated that a deletion mutation in the canine MDR1 gene ( $\Delta$ MDR1 295–298) could be responsible for the drug toxicoses in this dog. This mutation has been identified as the cause of a functional P-glycoprotein defect in Collies susceptible to the toxic effects of ivermectin, another P-glycoprotein-substrate drug. The MDR1 genotype of this dog consisted of 1 normal and 1 mutant MDR1 allele. Because P-glycoprotein contributes to renal, biliary, and intestinal excretion of P-glycoprotein-substrate drugs, it is possible that drug excretion was delayed in this patient, resulting in clinical signs of toxicosis.—K. L. Mealey et al (*J Am Vet Med Assoc* 2003;223:1453–1455).

### **Neurologic complications after melarsomine dihydrochloride treatment for *Dirofilaria immitis* in three dogs**

Melarsomine dihydrochloride is highly effective against both sexes of adult and L5 *Dirofilaria immitis*. Common adverse reactions include injection site irritation and reluctance to move. Neurologic complications associated with IM injection of melarsomine dihydrochloride for treatment of heartworm disease in 3 dogs are described. Different degrees of neurologic complications have been identified; the pathophysiologic features are unknown. It is speculated that the compound migrates out of the injection site via fascial planes and causes an ascending inflammation along nerve roots. The resulting extradural cord compression secondary to extensive inflammation and necrosis of epidural fat could induce a variety of neurologic deficits. Alternatively, inappropriate injection technique may result in direct contact of melarsomine with neural tissue. A heightened awareness of proper injection technique might prevent the development of most neurologic complications.—B. F. Hettlich et al (*J Am Vet Med Assoc* 2003;223:1456–1461).

### **Surgical management of cricopharyngeal dysphagia in dogs: 14 cases (1989–2001)**

Medical records of 14 dogs with cricopharyngeal dysphagia (CPD) that underwent cricopharyngeal myotomy or myectomy were examined. A total of 16

surgical procedures were performed on the 14 dogs. Dysphagia was completely resolved immediately after surgery in 1 dog, and clinical signs did not recur (follow-up time of 8 years); a second dog also had immediate complete resolution of dysphagia, but follow-up time was only 10 days. Three dogs had transient complete resolution, with a mean time to recurrence of dysphagia of 12.3 weeks (range, 2 to 36 weeks). Three dogs had permanent partial resolution. Six dogs had no improvement after surgery. Eight of the 14 dogs were euthanized because of problems related to CPD, including persistent dysphagia (n = 8) and aspiration pneumonia (5). Results suggest that the failure rate for dogs undergoing surgical treatment of CPD may be high, particularly if concurrent aspiration pneumonia or malnutrition is not addressed prior to surgery. For those dogs with concurrent diseases, more aggressive medical management, such as enteral tube feeding, may be warranted rather than surgery. In dogs with CPD complicated by other anatomic or functional conditions, such as myasthenia gravis, laryngeal paralysis, and esophageal stricture, surgery may also not be indicated.—J. J. Warnock et al (*J Am Vet Med Assoc* 2003; 223:1462–1468).

## **EQUINE**

### **Injection of corticosteroids, hyaluronate, and amikacin into the navicular bursa in horses with signs of navicular area pain unresponsive to other treatments: 25 cases (1999–2002)**

Medical records of 25 horses with signs of navicular area pain unresponsive to corrective shoeing and systemic nonsteroidal anti-inflammatory drug administration that were treated with an injection of corticosteroids, sodium hyaluronate, and amikacin into the navicular bursa were reviewed. Seventeen horses had bilateral forelimb lameness, 7 had unilateral forelimb lameness, and 1 had unilateral hind limb lameness. Mean duration of lameness was 9.2 months. All horses had been treated with corrective shoeing and nonsteroidal anti-inflammatory drugs for at least 6 months; 18 had previously been treated by injection of corticosteroids and sodium hyaluronate into the distal interphalangeal joint. Fourteen horses had mismatched front feet, and 21 horses had signs of pain in response to application of pressure over the central aspect of the frog. Palmar digital nerve anesthesia resulted in substantial improvement in or resolution of the lameness in all horses. Twenty (80%) horses were sound and returned to intended activities 2 weeks after navicular bursa treatment; mean duration of soundness was 4.6 months. Two horses that received numerous navicular bursa injections had a rupture of the deep digital flexor tendon at the level of the pastern region. Results suggest that navicular bursa treatment may provide temporary improvement in horses with chronic signs of navicular area pain that fail to respond to other treatments.—R. M. Dabareiner et al (*J Am Vet Med Assoc* 2003;223:1469–1474).

## RUMINANTS

### Duodenal obstruction caused by malposition of the gallbladder in a heifer

A heifer with clinical findings suggesting obstruction of the proximal portion of the intestine was admitted for diagnostic evaluation. Ultrasonographic examination of the abdomen failed to locate the gallbladder in its normal anatomic position. Exploratory laparotomy and manual examination of the proximal portion of the

intestine revealed obstruction of the duodenum caused by abnormal positioning of the gallbladder. The obstruction was relieved by replacing the gallbladder to its normal position; however, relapse occurred within 2 days. To resolve and prevent the recurrence of the obstruction without compromising gallbladder function, a novel surgical technique to provide fixation of the gallbladder to the liver was performed. The heifer recovered rapidly, proceeded to develop normally during the following year, and became pregnant.—D. Boerboom et al (*J Am Vet Med Assoc* 2003;223:1475–1477).



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