

SCIENTIFIC REPORTS

Interpretive Summaries

SMALL ANIMALS

Owner assessment of the outcome of total hip arthroplasty in dogs

Surveys were mailed to owners of 353 dogs that underwent total hip arthroplasty (THA) between 1982 and 1996 to evaluate the owners' perceptions of the outcomes of their dogs' surgery. The response rate was 41%. For owners who responded to the survey, time from surgery to completion of the questionnaire ranged from 6 months to 11 years. Overall, 122 respondents (84.1%) rated results of THA in their dog as excellent or good.—C. T. Skurla et al (*J Am Vet Med Assoc* 2000;217:1008–1010).

Evaluation of transdermal fentanyl patches for analgesia in cats undergoing onychectomy

A randomized controlled clinical trial was performed to evaluate the efficacy and safety of using transdermal fentanyl patches (TFP; 25 µg/h) for postoperative analgesia in cats undergoing onychectomy with or without surgical sterilization. Cats were randomly assigned to be treated with a TFP or butorphanol; TFP were applied 4 to 6 hours before surgery (approx 8 hours prior to extubation). Rectal temperature, heart rate, respiratory rate, force applied by the forelimbs, and serum fentanyl concentration were measured, and temperament, recovery, degree of sedation, severity of pain, severity of lameness, and appetite were scored before and periodically for up to 40 hours after surgery.

Cats treated with the TFP had better recovery scores, lower pain scores, and lower sedation scores at various evaluation times, compared with cats treated with butorphanol. Use of a pressure-sensitive mat to evaluate force applied by the forelimbs did not reveal any differences between groups but did reveal a significant difference between preoperative and postoperative values. Mean ± SD serum fentanyl concentrations were 1.56 ± 1.08, 4.85 ± 2.38, 4.87 ± 1.56, and 4.35 ± 2.97 ng/ml approximately 8, 24, 32, and 48 hours, respectively, after TFP placement. Results suggest that use of a TFP for postoperative analgesic in cats undergoing onychectomy with or without surgical sterilization is safe and effective.—J. N. Franks et al (*J Am Vet Med Assoc* 2000;217:1011–1018).

Clinical use of serum parvovirus and distemper virus antibody titers for determining revaccination strategies in healthy dogs

Serum samples were obtained from 1,441 dogs during routine healthcare visits at various veterinary clinics across the United States and Canada. Serum

antibody titers to canine parvovirus (CPV; n = 1,441) and canine distemper virus (CDV; 1,379) were determined by use of indirect fluorescent antibody tests. An adequate antibody titer was determined to be ≥ 1:5. Of 1,441 dogs, 1,370 (95.1%) had an adequate antibody response to CPV, and 1,346 of 1,379 (97.6%) dogs had an adequate antibody response to CDV. By measuring serum antibody titers annually, it is possible to assess the degree of humoral immune response to CPV and CDV in each dog. Analysis of our results suggests that a large percentage of healthy dogs have adequate serum antibody responses to these viruses and annual revaccination against CPV and CDV may not be necessary.—L. Twark and W. J. Dodds (*J Am Vet Med Assoc* 2000;217:1019–1022).

Effects of butorphanol and carprofen on the minimal alveolar concentration of isoflurane in dogs

Six healthy adult dogs were used in a randomized complete-block study to evaluate the effect of carprofen and butorphanol, alone and in combination, on the minimal alveolar concentration (MAC) of isoflurane. Mean ± SD MAC of isoflurane following administration of butorphanol alone (1.03 ± 0.22%) or carprofen and butorphanol (0.90 ± 0.21%) were significantly less than the control MAC (1.28 ± 0.14%), but MAC after administration of carprofen alone (1.20 ± 0.13%) was not significantly different from the control value. The effects of carprofen and butorphanol on the MAC of isoflurane were additive, not synergistic. There were not any significant differences among treatments in regard to cardiorespiratory data.—J. C. H. Ko et al (*J Am Vet Med Assoc* 2000;217:1023–1026).

Monoclonal immunoglobulin G cryoglobulinemia and multiple myeloma in a domestic shorthair cat

A 13-year-old castrated domestic shorthair cat was examined because of fever, anorexia, and dermatologic lesions. Crusting, erythema, and well-demarcated purple discoloration of the foot pads and the tips of the pinnae, nose, and tail were seen. A white flocculent precipitate was detected in cooled serum. This precipitate dissolved upon rewarming, consistent with a cryoglobulin. Hypercalcemia, high alanine and aspartate aminotransferase activities, thrombocytopenia, and a monoclonal IgG gammopathy were found. Numerous hepatic nodules were detected by means of abdominal ultrasonography. Cytologic evaluation of fine-needle aspirates of the liver and spleen revealed numerous plasma cells, and evaluation of a bone marrow aspirate revealed plasmacytosis. A diagnosis of multiple myeloma and monoclonal IgG cryoglobulinemia was made, and the

cat was euthanatized.—F. H. Hickford et al (*J Am Vet Med Assoc* 2000;217:1027–1031).

Hypercalcemia following renal transplantation in a cat

An 11-year-old 3.0-kg (6.6-lb) neutered male Persian was referred for renal transplantation. Serum total calcium concentration was slightly high prior to surgery, but the week after surgery, total and ionized calcium concentrations were extremely high, and a small mass was palpable on the right side of the trachea at the level of the thyroid and parathyroid glands. Exploratory surgery of the ventral aspect of the neck was performed, and a right external parathyroid mass was removed. One hour after surgery, the serum ionized calcium concentration was within reference limits, and the serum calcium concentration remained normal for the next 14 months without any specific treatment. The gross and histologic appearance of the mass, combined with the rapid decrease in serum calcium concentration following its removal, confirmed that the mass was a functional parathyroid adenoma.

Although a common postoperative complication in people, hypercalcemia following renal transplantation appears to be a rare complication in cats. Surgery should be considered if the condition is a result of a parathyroid adenoma.—L. R. Aronson and K. Drobotz (*J Am Vet Med Assoc* 2000;217:1032–1035).

Osteosarcoma in adjacent lumbar vertebrae in a dog

An 8-year-old male Belgian Malinois was referred for evaluation of progressive caudal paresis of 2 to 3 weeks' duration. Radiography revealed a mottled appearance to the body of L4 and misshapen intervertebral foramen at L4-L5. Myelography revealed that the dye column terminated within the body of L4. Computed tomography revealed a soft tissue mass adjacent to or involving the spinal cord and L4, with complete destruction of a portion of the floor of the vertebral foramen. Small circular lesions were also noticed within the body of L3 and L5. A left-sided hemilaminectomy was performed. Histologic examination of a biopsy specimen revealed a high-grade sarcoma. Because of the poor prognosis, the dog was euthanatized. Necropsy examination revealed osteosarcoma, with lesions in L3 to L7, the sacrum, and the lungs.

Metastatic lesions in adjacent bones have been termed skip metastases and the primary tumor is typically in long bones. Prognosis associated with skip metastases is similar to or even graver than that associated with pulmonary metastases. In the dog of the present report, the unusual finding of distinct foci of osteosarcoma within 5 adjacent lumbar vertebrae and the sacrum was consistent with skip metastases, potentially spread via the vertebral venous plexus.—G. E. Moore et al (*J Am Vet Med Assoc* 2000;217:1036–1038)

Lung lobe torsion in dogs: 22 cases (1981–1999)

Medical records of 22 dogs with lung lobe torsion were reviewed. All 22 dogs had radiographic evidence of pleural effusion; dyspnea was the most common reason for examination. Fifteen dogs were large deep-chested breeds; 5 were toy breeds. Afghan Hounds were overrepresented, compared with the hospital population. One dog was euthanatized without treatment; the remaining dogs underwent exploratory thoracotomy and lung lobectomy. Eleven dogs recovered from surgery without complications, but 3 of these later died of thoracic disease. Four dogs survived to discharge but had clinically important complications within 2 months, including chylothorax, mediastinal mesothelioma, gastric dilatation, and a second lung lobe torsion. Six dogs died or were euthanatized within 2 weeks after surgery because of acute respiratory distress syndrome, pneumonia, septic shock, pneumothorax, or chylothorax. Chylothorax was diagnosed in 8 of the 22 dogs, including 4 Afghan Hounds.

Results suggest that lung lobe torsion is rare in dogs and develops more frequently in large deep-chested dogs, particularly Afghan Hounds. Other predisposing causes were not identified, but an association with chylothorax was evident, especially in Afghan Hounds. Prognosis for dogs with lung lobe torsion was fair to guarded.—P. J. Neath et al (*J Am Vet Med Assoc* 2000;217:1039–1042).

EQUINE

Serologic confirmation of *Ehrlichia equi* and *Borrelia burgdorferi* infections in horses from the northeastern United States

We conducted a study to determine whether horses living in tick-infested areas of northeastern United States with clinical signs of borreliosis or granulocytic ehrlichiosis had detectable serum antibodies to *Borrelia burgdorferi* and *Ehrlichia equi*. Serum samples from 51 clinically normal horses, 14 horses with clinical signs of borreliosis, and 17 horses with clinical signs of granulocytic ehrlichiosis were tested. Serum antibody measurements for *B burgdorferi* or *E equi* were determined by use of an ELISA, immunoblot analysis, or indirect fluorescent antibody (IFA) staining. Of the 82 serum samples tested, 37 (45.1%) and 13 (15.9%) had detectable antibodies to *B burgdorferi* or *E equi*, respectively. Test results indicated that 12 horses had been exposed to both agents; 11 of these horses had granulocytic ehrlichiosis. The ELISA regularly detected antibodies to the following recombinant protein antigens of *B burgdorferi*: p29, p37, p39, and p41-G. The use of immunoblot analysis confirmed ELISA results by indicating antibody reactivities to antigens of whole cell *B burgdorferi* having molecular masses of predominantly 31, 34, 37, 39, 41, 58, and 93 kd. The results of our study indicate that horses living in areas where ticks (*Ixodes scapularis*) abound are sometimes exposed to multiple pathogens.—L. A. Magnarelli et al (*J Am Vet Med Assoc* 2000;217:1043–1048).

Hemithyroidectomy in a horse with confirmed hyperthyroidism

A 23-year-old Quarter Horse gelding was admitted to the hospital because of cachexia and hyperactive behavior of 1 year's duration. At admission the horse was severely emaciated, tachycardic with a grade V/VI diastolic murmur, pyrexia, polydipsia, enophthalmia, and alopecia. The right lobe of the thyroid gland was noticeably larger than typical. The horse was also hyperexcitable and had a ravenous appetite.

A presumptive diagnosis of hyperthyroidism was made on the basis of clinical signs and high plasma thy-

roid hormone concentrations. Confirmation of the diagnosis was made on the basis of results of a triiodothyronine-suppression test. Following endocrine testing, the affected portion of the thyroid gland was removed and identified histologically as an adenoma. Return of plasma thyroid hormone concentrations to reference range values and resolution of the clinical signs of disease following hemithyroidectomy provided further confirmation of the diagnosis. On the basis of findings in this horse, it appears that horses with hyperthyroidism may be successfully treated by hemithyroidectomy.—M. K. Alberts et al (*J Am Vet Med Assoc* 2000;217:1049–1052).