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EDITORIAL

Small animals

Computed tomography diagnosis of brain infarction in dogs

Computed tomography (CT) imaging is useful in the diagnosis of cerebrovascular accidents in dogs, which can present as a range of images, according to the results of a retrospective medical record review of eight dogs presenting with acute onset of neurological signs with brain infarction.¹

Seizures were the most common signs in five of the dogs. Ischaemic, non-haemorrhagic infarction in the territory of the rostral cerebellar artery was identified in three dogs and telencephalic infarcts in five dogs, in the territories of the middle or rostral cerebral arteries. One of these was ischaemic, the others appeared haemorrhagic.

All dogs were at least 8 years old, and six had concurrent medical conditions. One dog was euthanased after diagnosis because of the severity of its neurological signs and one dog was euthanased as a result of associated renal disease 2 months after diagnosis. Six dogs were alive at least 1 year after diagnosis.

The authors conclude that many of these dogs can recover with supportive care, but that an underlying disease may lead to a poorer prognosis.

Tibial tuberosity advancement in canine stifles

This retrospective study of short term clinical outcome and owner evaluations of dogs suggests that favourable results can be expected when cranial cruciate ligament (CCL)-deficient stifles are treated with tibial tuberosity advancement (TTA) and that they have faster postoperative improvement compared with other stifle procedures.²

TTA is a recent procedure for treatment of CCL rupture in canine stifles, based on model analysis of the human knee. This retrospective study describes the first 92 procedures of TTA repair in stifles of 72 dogs with partial or complete CCL rupture.

Labrador Retrievers and Rottweilers were the most common breeds, and the period of lameness ranged from 3 days to 24 months. The median pre-operative lameness score was 3/4 and meniscal injury was present in 51 stifles. Minor complications occurred in 29% of cases with major complications in 6.5% of cases; these consisted of meniscal injury and two tibial tuberosity fractures.

In the owner evaluation, 96% reported moderate to great improvement postoperatively, with no lameness at rest and mild to no lameness after vigorous exercise.

Holter monitoring in dogs with mitral valve disease

Results of a study of dogs with myxomatous mitral valve disease (MMVD) with or without clinical signs, shows that arrhythmias are a common finding.³ Holter monitoring is reliable and better than standard electrocardiogram (ECG) for both heart rate monitoring and diagnosis.

MMVD is the most common acquired valvular disease in dogs, and the presence of arrhythmias has been thought to be a complication of the condition.

Thirty six small dogs with MMVD were divided into a preclinical group with no clinical signs and a clinical group that were showing clinical signs. Each dog underwent standard echocardiogram, ECG and 24-h Holter recording.

Minimum and mean Holter heart rates were higher and there were more ventricular arrhythmias in the clinical group than in the pre-clinical group. An enlarged left atrium was associated with the presence of more supraventricular arrhythmias.

The authors conclude that more studies are needed to establish if the presence of arrhythmias alters progression of disease or survival.

Equine

Staggers in horses grazing paspalum infected with *Claviceps paspali*

This case report describes two occurrences of paspalum staggers in foals and mature horses.⁴

Claviceps spp. are an ergot fungus that invade the flowering heads of paspalum (*Paspalum dilatatum*) grass and produce sclerotia (or ergots) that contain toxins. Ingestion of these can induce a range of clinical symptoms including staggers, and cattle are the most commonly affected species. Although it has been mentioned since the early part of the 20th century, there are no published descriptions of paspalum staggers in horses. The foals presented with ataxia in all limbs after consuming infected paspalum. One foal died from misadventure and the other two recovered within 1 week of removal from the infected paddock. In the second case, two of eight mares and geldings grazing in an irrigation channel

developed hindquarter paresis. After removal of all horses from the area, one of the affected horses continued to deteriorate and had to be euthanased.

The authors report that diagnosis is based on clinical signs, history and the presence of the sclerota in the paraspalum seed heads. They suggest that animals should be moved quietly to an uncontaminated pasture to recover, as other treatments do not appear to be warranted.

Distal luxation of the patella in a horse

The authors report a rare manifestation of patellar luxation in a horse that has only been reported once previously in the equine literature.⁵

A 19-year-old Thoroughbred gelding presented with sudden onset, non-weight bearing lameness in the right hindlimb. Radiography confirmed distal luxation of the patella, which was replaced into its normal anatomical location under general anaesthesia. There were no pathological sequelae noted on follow-up examination 9 months after the initial injury.

Production animals

Escherichia coli and Salmonella serotypes in sheep at slaughter

Results of a study to determine the presence and concentration of *Escherichia coli* O157 and *Salmonella* spp. on fleece, faeces and carcasses of sheep during slaughter, show a low risk of human infection from meat products from these animals.⁶

Food borne pathogens present on the intestinal contents and fleece of sheep presented for slaughter are reported to be significant sources of carcass contamination.

Faeces, fleece and pre-chill carcass samples were collected from 164 sheep slaughtered at two Australian abattoirs, and the presence of *E. coli* O157 and *Salmonella* spp. were determined.

Results showed that the prevalence and concentration of pathogens were low in the sheep tested; *E. coli* O157 was isolated from 5% of faeces, 3% of fleeces and 0.6% of pre-chill carcasses. *Salmonella* spp. were isolated from 20% of faeces, 13% of fleeces and 1.3% of pre-chill carcasses.

Alzheimer type II astrocytes in the brains of pigs with salt poisoning

This paper reports the novel finding of Alzheimer type II astrocytes, in addition to the pathognomonic combination of laminar cerebrocortical necrosis and eosinophil infiltration, in the brains of pigs with salt poisoning.⁷

This neurological disturbance is frequently fatal in pigs, and follows restoration of water after a period of water deprivation. Pigs seem to be vulnerable because of their relatively high salt intake, and although the mechanism is unclear, appears to result from indirect salt poisoning that causes acute cerebral oedema.

Avian

Classification of infectious bronchitis viruses in poultry field specimens

A type 3 coronavirus causes infectious bronchitis (IB) is a significant cause of production losses in poultry. A real-time polymerase chain reaction (PCR)/high-resolution melt (HRM) curve analysis protocol was developed to differentiate IB virus reference strains, and the method was used to detect and classify IB viruses in field submissions.⁸

The study investigated samples from 40 cases of suspected IB virus of which 17 were positive for IB virus by PCR. HRM curve analysis classified each strain as subgroup 1, 2 or 3 in 12 submissions or a strain that was unable to be classified in the other 5 submissions.

Of the 12 IB field viruses that were classified as subgroup 1, 2, or 3 using HRM curve analysis, the gene nucleotide sequences studied were virtually identical to the respective subgroup reference strain. However, analysis of the gene nucleotide sequences for the five IB virus strains that could not be classified suggested that four belonged to one of the subgroups, but that one was a potential recombinant strain (between strains from subgroups 2 and 3).

The authors conclude that HRM curve analysis can rapidly assign the majority of IB viruses present in field submissions to known subgroups. HRM curve analysis also identified variant genotypes that require further investigation, to determine its virulence for chickens and to establish if the current vaccines are protective.

Aquatic

Mortality events in sea-caged yellowtail kingfish

Two cases of unexplained deaths in yellowtail kingfish, *Seriola lalandi*, that occurred during the first attempt to grow them in sea cages in Western Australia, highlights the difficulties that can occur in investigating disease outbreaks in relatively new species in new areas.⁹

A commercial sea-cage operator reported more than 70% mortality of the sea-caged fish. Several parasites and potentially pathogenic bacteria were isolated from the fish, but despite a detailed laboratory investigation the cause of the mortality event could not be determined. A second smaller episode of deaths occurred later, with fish dying in a sea-cage that had been stocked several weeks earlier. Similar pathogens, including parasitic infections, were again isolated but again a single causative agent could not be identified as the cause. The authors suggest that multiple stress factors resulting in immunosuppression may have precipitated the mortality events.

References

1. Paul AEH, Lenard Z, Mansfield CS. Computed tomography diagnosis of 8 dogs with brain infarction (2005-2008). *Aust Vet J* 2010;88:374-380.
2. Dymond NL, Goldsmid SE, Simpson DJ. Tibial tuberosity advancement in 92 canine stifles: initial results, clinical outcome and owner evaluation. *Aust Vet J* 2010;88:381-385.
3. Crosara S, Borgarelli M, Peregó M, et al. Holter monitoring in 36 dogs with myxomatous mitral valve disease. *Aust Vet J* 2010;88:386-392.

4. Cawdell-Smith AJ, Scrivener CJ, Bryden WL. Staggers in horses grazing paspalum infected with *Claviceps paspali*. *Aust Vet J* 2010;88:393–395.
5. Hall MS, Jalim SL, Russell TM. Distal luxation of the patella in a horse. *Aust Vet J* 2010;88:396–398.
6. Duffy LL, Small A, Fegan N. Concentration and prevalence of *Escherichia coli* O157 and *Salmonella* serotypes in sheep during slaughter at two Australian abattoirs. *Aust Vet J* 2010;88:399–404.
7. Finnie JW, Blumbergs PC, Williamson MM. Alzheimer type II astrocytes in the brains of pigs with salt poisoning (water deprivation/intoxication). *Aust Vet J* 2010;88:405–407.
8. Hewson KA, Browning GF, Devlin JM, Ignjatovic J, Noormohammadi AH. Application of high-resolution melt curve analysis for classification of infectious bronchitis viruses in field specimens. *Aust Vet J* 2010;88:408–413.
9. Stephens FJ, Savage A. Two mortality events in sea-caged yellowtail kingfish *Seriola lalandi* Valenciennes, 1833 (Nannoperidae) from Western Australia. *Aust Vet J* 2010;88:414–416.

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LETTER TO THE EDITOR

Equine colic surgery

The article in the August issue of the journal of the surgical management of a case of colic in a filly makes for interesting reading.¹ It would appear that it took three surgeries over a period of 2 days to manage this condition. Three surgeries to manage a case of equine colic?

This is not an isolated instance. Today, when reading journal articles of equine laparotomies it is common to encounter re-laparotomies. The authors of the above article noted that “repeat laparotomy” is a risk factor for the development of ventral abdominal wound dehiscence.

I began performing laparotomies for surgical colic cases in the 1970s. In those days colic surgery was performed as a last resort and conducted without aggressive IV fluid therapy. My success rate – the number of cases discharged from the hospital after surgery – ranged from 20% to 25%. This was the result achieved from one laparotomy; if the condition could not be resolved after one surgery there was no question of performing a second operation. This meant that surgery was seldom recommended because of the poor prognosis and high cost.

In 1980 I travelled to the USA and spoke with a number of equine surgeons there and the 20–25% success for this type of surgery was consistently described. A number of surgeons were of the opinion that the poor success rate mitigated against the procedure and recommended humane euthanasia as the better option. Some older surgeons had stopped performing such surgery.

Today, with improved techniques, including going to surgery much earlier and the use of fluid therapy, new equipment and suture material, the success rate has improved – but not by that

much! Even with repeat laparotomies a success rate of 50% still leaves a lot to be desired and makes the ethics of such surgery questionable.

If this is the case why is such surgery so readily undertaken? Is it performed because of client demand or because of the willingness of the surgeon to go to surgery, once, twice or more times or is it for the welfare of the patient?

Is it because horse owners are now prepared to pay for the high cost of such surgeries? Comprehensive insurance policies may allow this type of surgery to be undertaken more frequently.

Is it because the surgery can be done and is available? It would be a brave surgeon – or a foolish one – who did not advise the client that the prognosis for such surgery is guarded.

But what about the welfare of the horse? Is this surgery in the best interest of the patient? If the veterinary profession is to take ethics seriously, shouldn't this be the first consideration?

In the same issue of the journal there was an opinion piece entitled “Ethical dilemma – Sheba.” Perhaps a debate, as opposed to an opinion piece, regarding the ethics of the performance of laparotomies and re-laparotomies in the horse for the management of colic should be considered.

Reference

1. Trope GD, Steel CM. T-shaped malformation of the ventral colon in a Thoroughbred filly with colic. *Aust Vet J* 2010;89: 322–325.

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