Small animal *Review*

Summary: This month's Small Animal Review summarises studies on the effect of surgical preparation solutions on body temperature in cats, the persistence of leptospires in canine urine following treatment outcomes of oesophageal stricture.

https://doi.org/10.12968.coan.2021.0077

Dr Kit Sturgess MA VetMB PhD CertVR DSAM CertVR FRCVS, RCVS, Advanced Practitioner in Veterinary Cardiology, Vet Freedom Ltd, Brockenhurst, Hampshire, SO42 7QT. kit@vetfreedom.com

Surgical preparation: chlorhexidine or alcohol rinses?

Hypothermia during anaesthesia has a number of negative consequences, including increased risk of surgical site infection, bradycardia, hypotension, arrhythmia, reduced respiratory rate and poor response to drugs used to correct hypotension and bradycardia.

Cats have a relatively large body surface area to weight ratio and many cats presenting for neutering have relatively little body fat and are therefore at increased risk of hypothermia. Evaporation of isopropyl alcohol will cause significant cooling – but is this clinically relevant?

Kreisler et al (2021) comparted body temperatures in 157 cats undergoing spaying at a trap-neuter-return clinic. Cats were randomly assigned to receive chlorhexidine or isopropyl alcohol rinse for surgical site preparation. Anaesthesia was induced with intramuscular triple combination. Median body weight was 2.7kg and median estimated age was 12 months. Median temperatures on completion were 37.2°C for the chlorhexidine cats (a fall of 1.5 °C) and 37.4 °C for isopropyl alcohol cats (1.3 °C fall), which was not statistically significantly different. Small body size and poor body condition were associated with greater falls in temperature. There was no difference between a flank vs. midline approach. For the first 30 minutes, the average fall is temperature was 0.03 °C/min; after 30 minutes the fall was 0.01 °C/min.

These findings indicate that the surgical preparation used had minimal impact on temperature fall but that body weight, body condition and surgical time did. For experienced general practitioners, time will be shorter than in this study, as the procedures were performed by students, but where prepubertal neutering is undertaken, body weight and condition are potentially critical factors.

Persistence of leptospires in canine urine post-treatment

As leptospirosis is a zoonotic disease, knowing how long a patient may continue to excrete leptospires following treatment is important when considering the health and safety of the veterinary team, the owner, other dogs and the public in general.

Hetrick et al (2021) evaluated the persistence of leptospires in the urine samples of 32 dogs following treatment. A second sample was tested as soon as possible, which was negative in 15 of the dogs. Dogs that were persistently positive had a urine sample submitted 7 days after a change in treatment or 7 days after their last positive test if no treatment change was made. Of the persistently positive dogs 8/17 had received doxycycline alone, and three dogs received no treatment. Of the remaining 17 dogs, six were negative on the second test, five on the third, five on the fourth and one on the eighth test (80 days). All dogs showed evidence of acute kidney injury and two developed chronic kidney disease.

Antibacterial agents, including doxycycline, enrofloxacin, clarithromycin, aminopenicillin and ceftazidime and combinations, were prescribed and 20/32 dogs had negative PCR tests within 2 weeks. Doxycycline (5mg/kg per os every 12 hours) and clarithromycin (10-12mg/kg per os every 12 hours) were the most effective treatments in this study, but some patients required prolonged treatment. Fluoroquinolones were ineffective, but the addition of an aminopenicillin seemed to improve efficacy. This study indicates that leptospires can potentially be shed in urine for long periods, despite treatment, making routine follow-up of these cases an important part of management until a negative PCR is documented.

Oesophageal stricture outcomes

Benign oesophageal strictures are unpredictably rare occurrences. As an example, a small number of patients will develop an oesophageal stricture following regurgitation during anaesthesia.

Balloon dilatation is the most common first line therapy. For refractory cases, stenting is an option but is associated with a number of complications. Da Riz et al (2021) reported the outcomes of 27 benign (mostly post-anaesthetic) oesophageal stricture cases in cats and dogs; ten of which had more than one stricture site. All cases were initially treated with endoscopic-guided balloon dilation at 3.5 bar for 60 seconds, 2–4 times. Some cases also received submucosal triamcinolone to try and limit fibrosis causing restricturing. The median number of balloon procedures was two (range from 1– 4). In cases where dilation was inadequate, or significant oesophageal damage was seen, a stent was placed (in eight cases).

Balloon dilation was successful in 16/27 cases (59%, with previous studies seeing 74% and 88%). Survival time varied considerably from 1–3105 days (median 730 days). Apart from two patients that died following oesophageal perforation, there were no long-term deaths associated with the strictures or balloon dilation. Where stenting was required, median survival time was shorter (559 days). All cases that received triamcinolone (five) had a good outcome, although it cannot be determined whether this was specifically because of the glucocorticoid use.

Overall, therapy for oesophageal stricture seems to have a reasonable to good long term outcome, with a mortality rate of <10% associated with balloon dilatation. The use of local injection of triamcinolone at the stricture site should be considered.

References

Da Riz F, Béguin J, Manassero M, Faucher M, Freiche V. Outcome of dogs and cats with benign oesophageal strictures after balloon dilatation or stenting: 27 cases (2002-2019). J Small Anim Pract. 2021;62(10):886–894. https://doi.org/10.1111/jsap.13392

Kreisler RE, Douglas ML, Harder NK. Comparison of the effect of isopropyl alcohol and chlorhexidine solution rinses on body temperature of female cats undergoing sterilization surgery. J Feline Med Surg. 2021;23(10):875–882. https://doi.org/10.1177/1098612x20979565

Hetrick K, Harkin KR, Peddireddi L, Henningson J. Evaluation by polymerase chain reaction assay of persistent shedding of pathogenic leptospires in the urine of dogs with leptospirosis. J Vet Intern Med. 2021 (Published online ahead of print). https://doi.org/10.1111/jvim.16309