Peri-operative corneal ulcer after non-ocular surgery in dogs

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**Objective** This retrospective study was performed to evaluate the incidence and risk factors for the development of peri-operative corneal ulcers after non-ocular surgery under general anesthesia in dogs.

**Study Design** Retrospective case series

**Animals** Seven hundred thirty two dogs were subjected to non-ocular surgery under general anesthesia.

**Methods** Medical records of dogs presented to the Veterinary Medical Teaching Hospital of University from January 2009 to June 2011 were reviewed. Independent sample t-tests, Pearson $\chi^2$ tests and logistic regression modeling were used to assess the risk factors.

**Results** Among the 732 reviewed cases, 14 dogs (1.9%) of 6 breeds developed a corneal ulcer after non-ocular surgery. The duration of anesthesia was significantly longer in dogs with ulcers than dogs without ulcers using the t-test ($p=0.008$). The number of medications received and procedures performed were also significantly higher in dogs with ulcers than dogs without ulcers using the t-test ($p=0.013$). Dogs with a small sized skull (odds ratio [OR], 8.59; 95% confidence interval [CI], 1.04 to 70.90) and dogs that received neurosurgery (OR, 21.12; 95% CI, 5.77 to 77.25) were more susceptible to the development of corneal ulceration. Also, post-operative application of the fentanyl patch was a risk factor to the development of corneal ulcers in the regression analysis (OR, 4.53; 95% CI, 1.05 to 19.60).

**Conclusions and Clinical Relevance** Duration of anesthesia, number of medications received and procedures performed, small sized skull, neurosurgery, and use of a fentanyl patch were the risk factors identified for peri-operative corneal ulcer development in dogs. Peri-operative eye protection strategies and post-operative ophthalmic examination are needed to reduce corneal ulcer and their progression, especially for high risk dogs and procedures.

**Keywords** peri-operative, corneal ulcer, anesthesia, dog

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