

## Capsule endoscopy (ALICAM) in horses: Assessing gastrointestinal tract transit time, image quality and lesions

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ALICAM is a veterinary-specific capsule endoscopy system that could be a breakthrough technology for diagnosing gastrointestinal (GI) pathologies in equine medicine.

The purposes of this study were to 1) Test the feasibility of ALICAM in horses, 2) Optimize protocols for shortest transit time and best visualization of the mucosa, 3) Measure transit time in healthy horses, and 4) Describe intestinal mucosa lesions in healthy and GI pathology cases.

Five healthy horses were used in a randomized crossover design to test 3 protocols. Three clinical cases with confirmed protein-losing enteropathies were also used.

Capsule recovery was tested using manure screening and radiography. Protocols were tested for three variables: fasting time, fluid volume administered, amount of exercise. Measured outcomes were: 1) Transit time, 2) Image quality score (image fields showing mucosa assessed by 2 observers), 3) Presence of GI mucosal lesions.

No side effects were noted. 3/20 capsules were not recovered. Radiography of manure was effective to recover the capsules. Battery life was  $13.9 \pm 3.5$  hours. There was no significant difference in transit time between the 3 protocols. Transit time was  $5.8 \pm 2.9$  days in healthy horses. The inter-observer agreement on image quality scores was excellent. Detailed images of the pylorus, duodenal papilla, villi, and ileocecal junction, but not the colon mucosa, were obtained. Lesions seen in healthy horses included fissures, ulcers, and submucosal hemorrhage. In addition, dilated lacteals were observed in clinical cases.

ALICAM allows measurement of transit time and detailed visualization of the pylorus and small intestinal mucosa in horses.

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