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Contrast Enhancement for Ultrasonographic Evaluation of the Equine Small Intestine

Tracy E. Norman, VMD, Diplomate ACVIM; M. Keith Chaffin, DVM, MS, Diplomate ACVIM; and David G. Schmitz, DVM, Diplomate ACVIM

Fasting horses significantly enhances the ultrasonographic appearance of the equine small intestine. Administration of water and mineral oil as intraluminal contrast may further enhance the ability of ultrasonography to detect small intestinal pathology. Authors' address: Department of Large Animal Clinical Sciences, TAMU 4475, College Station, Texas 77802-4475; e-mail: tnorman@cvm.tamu.edu © 2010 AAEP.

1. Introduction
The equine small intestine is challenging to evaluate ultrasonographically, and lesions of the small intestine may be missed. We hypothesized that fasting horses and adding intraluminal contrast would enhance the sonographer's ability to diagnose disorders of the small intestine by separating loops and reducing intraluminal gas.

2. Materials and Methods
Ten healthy horses were ultrasounded under three treatment conditions: eating their normal ration, after a 24-h fast, and fasted plus nasogastric administration of 3 l water and 1 l mineral oil. Thirty-second video clips were obtained from four predetermined abdominal windows and were read to determine diagnostic quality by a blinded reviewer. All procedures were approved by the University's Animal Care and Use Committee.

3. Results
The small intestine was not always visible in all windows. Fasting significantly improved the ability to obtain high-quality images using transabdominal ultrasound. The addition of contrast tended toward improved exams but did not produce a significant improvement.

4. Discussion
Hydrosonography has been used to improve small intestine ultrasonography in people. Although statistical significance was not met, there were several indications that contrast did improve small intestinal ultrasonographic examination. Further examination into refining this technique through improved contrast agents is warranted.