Gastric Ulcers

Diet and management changes as well as some drugs might help prevent gastric ulcer development in horses.

Overview

An ulcer is an area of damaged and eroded tissue that leaves behind a painful divot (think of a canker sore or a bed sore). In horses, ulcers in the stomach, and even the first part of the small intestine (the duodenum), are exceedingly common. Veterinarians have adopted the term “equine gastric ulcer syndrome” (EGUS) to describe not only horses with overt ulcers but also horses with erosions in the superficial (surface) layers of the stomach or inflammation in the lining of the stomach or duodenum.

The prevalence of EGUS varies depending on a horse's breed and use. Current estimates of EGUS in various horses are:
- 90% in racing horses;
- 37–66% in sport and leisure horses;
- 66% in 50-80 km ride endurance horses;
- 48% and 93% in 90-160 km ride endurance horses in the interseason and competitive season, respectively, and;
- 70.9% in pastured broodmares; and
- 50% in foals.

Therefore, EGUS is an important health problem that most horse owners face at some point or another. As described below, addressing certain factors such as diet might help prevent and treat EGUS.

Why do Horses get Ulcers?

A horse's stomach, like most of the horse's gastrointestinal tract, is unique and specially designed for grazing animals. It is essentially divided into two “halves.” The top half has a skinlike lining (squamous cells), whereas the bottom half has glandular cells that produce hydrochloric acid and mucus (to help protect the stomach lining the acidic pH). A horse's stomach is quite small, and hydrochloric acid is produced continually rather than just when food reaches the stomach (like in humans). This design is perfect for the perpetual grazer, which is how horses evolved, but not for horses that are fed only a few times a day.

Clinical Signs

Most, if not all, of a horse's outward signs reflect the pain stemming from the eroding patch(es) of the stomach. Classic signs include bruxism (clenching and grinding teeth), colic, salivation, decreased appetite or anorexia, decreased performance, changes in behavior (depression, unwillingness to train), weight loss, and poor hair coat. Foals might have diarrhea. In some cases, adult horses might not show any signs.

Diagnosis

Veterinarians best diagnose ulcers by passing an endoscope into the stomach and directly visualizing the inflammation/erosion of the stomach/duodenum wall. To do this properly, the stomach needs to be empty. In equids fed solid food, this means fasting for approximately 12 hours before scoping. For foals on a milk diet, only a one- to two-hour fast is necessary. In addition to the actual presence of ulcers, veterinarians should also note the size, number, and appearance.

Pharmacologic Treatment

The two main goals when treating horses with ulcers are to maintain a pH level greater than 4 (to make the stomach less acidic and less damaging to the lining); and to coat the ulcer with an acid-resisting agent.

Controlling pH

Several different compounds are available to control the stomach's pH, and but not one is “perfect” in terms of cost, efficacy, and ease of administration. Antacids (e.g., Maalox) effectively increase pH for at least two hours and are not expensive; however, these compounds must be administered on an empty stomach (which we try to avoid in horses with ulcers) at least four times a day. Some horses will eat the product mixed with grain, but most need to be syringe-fed and resent the taste.

Another option is to administer drugs (e.g., ranitidine and cimetidine) that decrease acid production by blocking histamine-2 receptors. The currently recommended dose for cimetidine is 6-7 mg/kg orally or 2 mg/kg systemically (by injection) at least three times/day, which can be costly. In contrast to antacids, the benefits of these drugs are enhanced when the horse's stomach is full.

Finally, omeprazole (4 mg/kg once daily) is a proton pump inhibitor that stops the stomach's hydrochloric acid secretion.
Studies indicate that when administered before morning feed, omeprazole paste will have a maximum effect one to eight hours post-administration. Unfortunately, the cost of this drug might be prohibitive for some owners.

Coating Ulcers Oral sucralfate sticks to the ulcer, forming an acid-resistant barrier that allows the ulcerated tissue to heal. Again, this drug needs to be administered on an empty stomach, which is contraindicated for preventing additional ulcers.

Other Options Dietary supplements containing herbs and other nonmedicinal ingredients are commercially available, yet their efficacy remains to be demonstrated. For example, in one recent study veterinarians in South Africa tested a pectin-lecithin dietary supplement that was shown to help defend the stomach lining in dogs. In horses, however, no effect on ulcer formation was noted in supplemented horses compared to nonsupplemented horses in an experimental model of EGUS.7

For horses with ulcers in the glandular region or those with a gastric emptying disorder, agents (such as metoclopramide and betenachol) that enhance gastric emptying into the duodenum might be considered, but their side effects often limit their use in horses.

Finally, drugs called prostaglandins that help protect the stomach lining are used in human medicine. However, they have not been studied in horses with EGUS, and side effects include abdominal cramping, diarrhea, and abortions in mares.3,7

Prognosis Even severe ulcers in otherwise healthy adult horses are unlikely to perforate. In many cases, the horses will show clinical signs suggestive of gastric ulceration, allowing plenty of time to start treatment and institute management changes to prevent future ulcers from forming. In foals, EGUS is more serious and must be addressed aggressively in any neonatal foal that becomes ill to potentially avoid catastrophic rupture of the ulcerated stomach.

Prevention and Control Management has a huge impact on EGUS development. Continuous pasture access is the best diet for all horses. When this is not an option, then at least 75% of the diet should be roughage, divided into four to six meals/day. Studies also show that forage type makes a difference for horses at risk for or diagnosed with EGUS. For example, horses fed alfalfa hay have lower ulcer scores than horses fed grass hay. Finally, make an effort to minimize the amount of stress in your horse’s lifestyle.

KEY REFERENCES
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7. Oke, S. Gastric ulcer supplements for horses evaluated. www.TheHorse.com/19270

Further reading and free e-newsletters: www.TheHorse.com/Gastric-Ulcers

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