

## **Equine Gastric Ulcer Syndrome**

Erin McFadden, DVM

Gastric ulcers are a common problem recognized in horses and foals of all breeds and disciplines. Depending on the subpopulation of horses, the prevalence of disease has been estimated to be as high as 60-90%. Gastric ulcers occur when the inner layers of the stomach lining erode due to prolonged contact with acidic stomach contents and/or loss of secreted protective factors. This creates painful sores within the stomach lining that can cause decreased performance, loss of condition, and chronic colic signs in the affected horse.

The equine stomach is comprised of two sections, the upper (squamous) portion and the lower (mucosal) portion. The esophagus empties into the upper portion. The squamous lining of this section is very similar to the lining of the esophagus, and it does not produce any acids or digestive enzymes. The lower section is lined with secretory mucosa, which does release acids and enzymes (along with mucous and other protective factors) into the stomach. The stomach contents sit mostly within this lower portion. The line demarcating the division between these two sections of the stomach is called the *Margo Plicatus*, and most equine gastric ulcers occur in the squamous portion of the stomach, right along this division. Ulcers caused by bute or banamine toxicity, however, tend to be located within the secretory mucosa.

Ulcers usually occur when the acid and digestive enzymes produced in the mucosal portion of the stomach come into prolonged contact with the squamous lining of the upper portion of the stomach. This can occur due to fasting or prolonged gastric emptying time. In addition, hard work (especially in race and performance horses) increases the pressure in the abdomen and forces the acidic contents up into the upper portion of the stomach. Finally, diet plays a large role in the formation of ulcers. Horses secrete digestive acids and enzymes at a constant rate, regardless of feeding. So, when horses are only fed twice daily, they spend a large amount of time without feed and saliva to buffer the acid that is produced, leading to ulcer formation. The type of feed can contribute to ulcer formation as well. When grain is digested, volatile fatty acids are produced, increasing the acidity of the stomach contents. Conversely, alfalfa hay helps to decrease the acidity and acts as a buffer.

When ulcers occur, they can cause clinical signs ranging from changes in behavior and decreased performance to poor hair coat and chronic colic signs. We commonly see horses with ulcers show mild colic signs such as yawning and grinding of the teeth right after eating. Clinical signs and response to therapy help us to diagnose gastric ulcers, but they can only be definitively diagnosed by endoscopy of the stomach. This procedure is easily performed under standing sedation, and provides a clear view of the stomach lining and any ulcers therein.

Treatment of ulcers combines medical therapy with changes in diet and daily routine. Omeprazole (Gastrogard™) is the medication most commonly prescribed by veterinarians for Equine Gastric Ulcer Syndrome. It has been proven to be highly

effective as a treatment, and can also be used at a lower dose as an ulcer preventative. Omeprazole works by inhibiting the production of gastric acid. There are several other medications that have some efficacy against ulcers in the horse, but they require very frequent dosing and are often cost-prohibitive. In horses with ulcers we also recommend pasture turn-out if at all possible. Constant grazing is very helpful in buffering the stomach acid that is constantly produced. If this is not possible, we recommend frequent feedings, decreasing the amount of grain in the diet, and increasing the amount of alfalfa hay. If additional energy is required, the diet can be supplemented with fat sources such as rice bran and corn oil. Clinical signs of Equine Gastric Ulcer Syndrome usually resolve with 28 days of medical treatment and these described feed changes.