Preventing and Managing Equine Gastric Ulcer Syndrome

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Abstract

Current industry trends regarding equine management practices largely contribute to the development of equine gastric ulcer syndrome (EGUS). Research on effective medical management exists; however, we lack studies on the efficacy of equine-welfare-minded solutions. This fact sheet reviews current literature, including diagnosing, treating, and preventing EGUS. It also provides a general overview of the natural equine, promoting a greater understanding of the connection between strategies to prevent and manage EGUS.

Highlights

- Horses in natural circumstances typically graze 12 to 16 hours each day.
- Horse's stomachs hold only 2 gallons at a time.
- Among other things, stall confinement and intermittent feeding increases stomach acid and contributes to developing ulcers.
- Veterinarians diagnose equine gastric ulcer syndrome using a gastroscope.
- Treatment options include medicinal, nutritional, and management strategies.

The Natural Horse

Horses were domesticated over 5,000 years ago. Once serving a utilitarian need, horses now primarily serve a recreational role. Despite changes in how society views these powerful creatures, horse ethology remains the same. As herbivores, horses evolved to ingest a high-fiber, low-starch diet. Under natural circumstances, horses graze up to 18 hours a day.[1]

Unsurprisingly, the nature of modern human tendencies and desire for convenience impacts the way we manage our equine companions. Intermittent feedings, stall confinement, and heavy training schedules are not beyond industry norms. Recognizing that these practices are far from natural equine behavior is pivotal. Research indicates that horses typically spend around 12 to 16 hours grazing each day.[2] When we compare this with common modern-day equine management practices, such as intermittent feeding, we begin to understand how EGUS is prevalent in today's equine population.

Equine Gastric Ulcer Syndrome

The American Association of Equine Practitioners defines a gastric ulcer as "the erosion of the lining of the stomach due to a prolonged exposure to the normal acid in the stomach."[3] In addition to the stomach, ulcers can also occur in other areas of the horse's digestive tract. The term “equine gastric ulcer syndrome” (EGUS) is a general term often used to describe the presence of ulcers in the horse's digestive system. Recent changes in terminology suggest a distinction between two primary diagnoses based on where the ulcers are located. These terms include equine squamous gastric disease (ESGD) and equine glandular gastric disease (EGGD).[4]

As horses graze, the act of chewing produces saliva, which can act as a buffer for gastric acid.[1] This process is hindered when horses are confined in stalls, placed in heavy training, and fed intermittent meals, causing them to remain with an empty stomach for prolonged periods. When the horse's stomach is empty, and saliva is not actively being produced, the risk of developing ulcers in the digestive tract due to the increased stomach acid exposure is high. It is estimated that within the performance horse industry, 60% to 90% of horses have EGUS.[5] Additional risk factors include stress, travel, feeding high amounts of concentrates, and using non-steroidal anti-inflammatory drugs (NSAIDs) such as phenylbutazone (Bute) and flunixin meglumine (Banamine).

Symptoms

EGUS can manifest through a wide variety of clinical signs. Subtle indications may include dull haircoat, poor appetite, and decreased performance.[6] More serious symptoms can include weight loss, difficulty maintaining normal body condition scores, behavior changes, abdominal discomfort, and colic.[1] Stereotypical behaviors such as cribbing, weaving, pacing, and windsucking can also be cause for concern when combined with any of the clinical signs mentioned above. These signs are all symptoms of the horse's inability to carry out natural tendencies that are critical to essential functions of the horse's complex, sensitive digestive system. With a maximum capacity of only 2 gallons, a horse's stomach does not provide the support needed to hold and digest large meals. In addition, the horse's stomach rapidly empties to allow ingested forage to move through the remaining portions of the digestive tract. This indicates the need for constant access to forage in small increments, such as grazing or feeding hay free choice through using specialized slow-feed hay nets.

Diagnostics and Grading Systems

Definitively diagnosing EGUS requires a skilled veterinarian and specialized equipment known as a **gastroscope**. A gastroscope is a small, flexible tube, equipped with a camera on one end. This diagnostic tool can be guided down the horse's esophagus into the stomach and small intestine to visualize and identify any ulcers. Standing sedation is often used, much like a routine dental float. As with any equine medical procedure, it is important to work with a veterinarian to understand both the benefits and risks associated with this diagnostic procedure. Upon diagnosis, a grading system is used to determine the lesion severity and track healing progress.

Treatment Options

Medicinal Strategies

Treatment for EGUS consists of both pharmacologic and alternative options. However, research is lacking regarding alternative treatment options. One of the most common pharmacologic treatment options for EGUS is omeprazole. Common brand names include Ulcergard® and Gastrogard®, and both are sold in individually packaged paste-filled tubes for easy administration. Compounded medications in the form of flavored powder are also an option and often cost less than paste. Regardless of the form, this oral medication is typically given once daily for 28 days. "Omeprazole is an effective treatment for EGUS at a dose of 4mg/kg orally once daily. Treatment for 28 days in racing animals in full work resulted in 92% improvement and 78% healing of squamous mucosal ulceration."[1]

Additional pharmacologic options include sucralfate, ranitidine, famotidine, and misoprostol. However, little research exists to validate efficacy compared to studies based on treatment with omeprazole. An alternative treatment includes aloe vera juice, which has been evaluated as an option to manage gastric ulcers in horses.[7] However, additional research is needed to determine the value of aloe vera use. Consultation with a veterinarian should take place before beginning administering any treatments.

Nutritional Prevention and Management Strategies

Once the ulcers have healed, establish long-term management strategies to prevent recurrence. Applying these management changes may be limited based on the owner's time and resources.

Foraging and Feeding

The most recommended management strategy is allowing for ample pasture turnout.[8] Horses that spend more time foraging on pasture compared to stall confinement experience lower stomach acidity for longer periods.[1] Additional nutritional management applications could include feeding alfalfa hay. One study suggests that alfalfa could act as a buffer for stomach acid.[8] Further research concluded that dividing concentrates into smaller portions fed throughout the day could also be helpful in preventing EGUS.[5] While additional evidence is required to validate these findings, it is beneficial to consider overall EGUS preventative management practices. Suggestions include:

- Increasing turnout.
- Providing appropriate pasture grazing.
- Using slow-feed hay bags and feeders to provide constant access to hay.

Providing Supplements

While we have little research on the efficacy of dietary supplements in preventing EGUS, there are some interesting findings regarding sea buckthorn berry extract, calcium carbonate, and probiotics. While sea buckthorn berry was not indicated to support the healing of ulcers, it was noted that “it may prevent non-glandular ulcers from getting worse during times of stress or feed deprivation.”[5] Calcium carbonate is another research topic in preventing EGUS. Overall, “calcium carbonate preparations may have some efficacy in maintaining mucosal integrity, but because of the short duration effect on gastric juice pH, more frequent feedings may be necessary to prevent EGUS."[5] Based on research provided in these areas, owners should consult with a veterinarian when considering dietary supplements as

preventative options for EGUS. Further research is needed regarding the overall efficacy and safety of these dietary supplements before mainstream use.

Conclusion

Current industry trends regarding equine management practices largely contribute to the development of EGUS. Horse owners must consider management practices and their impact on equine health and well-being. Working closely with a veterinarian to diagnose and treat EGUS is critical to success. Overall, carefully managing feeding, housing, and training practices can be effective in preventing EGUS.

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