The (Gastro) Scope on Equine Stomach Ulcers

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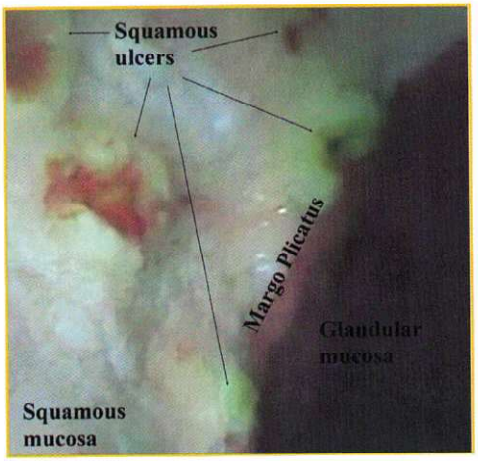
About 60% of performance horses and 90% of race horses have gastric (stomach) ulcers which makes them a very relevant issue in the horse world. But what do you really need to know?

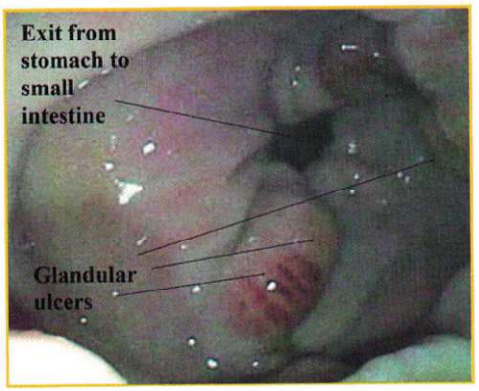
Why do horses get ulcers?

Knowing the makeup of the equine stomach is the beginning of understanding why horses are predisposed to ulcers.

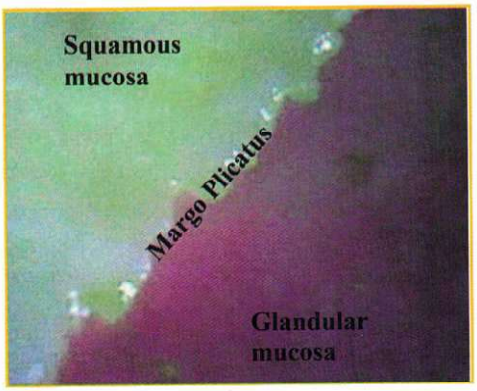
The stomach of the horse is made up of two different types of tissue. The upper portion of the stomach is composed of squamous mucosa (the same tissue that makes up the esophagus) and the lower portion is made of glandular mucosa. These two tissue types meet in the middle of the stomach at a junction called the Margo Plicatus. These may seem like minute details, but this anatomy is a large part of the reason horses get stomach ulcers. The glandular mucosa produces stomach acid to help with digestion and therefor has "built in" protection mechanisms against acid. The squamous portion of the stomach, on the other hand, doesn't produce stomach acid and isn't protected from it. Ulcers are commonly found in the squamous portion of the stomach just above the tissue junction (Margo Plicatus) because acid produced by the glandular tissue has the highest likelihood of coming into contact with the unprotected squamous mucosa therefore causing it to become irritated and erode (similar to esophageal reflux in humans; think of the squamous tissue as a continuation of the esophagus). Ulcers, less commonly, can happen in the glandular portion of the stomach due to a breakdown of the tissue's protection mechanism. These glandular ulcers typically occur in the terminal (end) portion of the stomach (the pylorus) near the exit to the small intestine. Ulcers in the squamous portion of the stomach are referred to as squamous ulcers and ulcers in the glandular part are called glandular ulcers.



Gastroscopic image of the squamous ulcers (they can be stained yellow or green from the stomach contents).



Gastroscopic image of the pylorus with glandular ulcers.



Gastroscopic image of the normal equine stomach (the Margo Plicatus can be irregular).

Although all the mechanisms are not understood we know that the following factors predispose horses to having stomach ulcers.

The equine stomach secretes acid continuously whether or not the horse is eating or grazing. So, if the horse's stomach is empty there is a higher likelihood of acid coming into contact with the lining of the stomach since there is no food to soak up the acid. Also, different feeds (alfalfa for example) buffer (neutralize) stomach acid as does saliva (which is produced in much higher quantities when eating forage). Therefore, horses that are fed meals vs. free choice or continued grazing are predisposed to having ulcers. Long term use of NSAID's such as Bute and Banamine decrease secretion of mucus in the stomach making it less protected from acid and more at risk for ulcers. Horses that are anxious, stressed, or expected to perform at a high level are also typically more at risk for ulcers although the mechanism is unknown.

Symptoms of Ulcers

The symptoms of equine gastric ulcers can vary greatly from horse to horse. Some horses have the "typical" symptoms of girthiness, teeth grinding, a bad attitude, weight loss and poor hair coat. While others may have mild intermittent colic signs or occasional diarrhea. Still, others have even more nondescript

signs such as performance issues. These performance issues may include horses being short strided, not moving off the leg, kicking out or bucking or being reluctant to canter or gallop. This is because as the horse takes larger strides, the abdominal contents swing causing the stomach acid to slosh up onto the unprotected squamous tissue.

Diagnosis of Gastric Ulcers

The only way to definitively diagnose gastric ulcers is by doing a gastroscopic exam of the stomach. This procedure can be done by veterinarians both in hospital and in a field setting. In order to do this procedure, the horse must be fasted to empty the stomach. Under light sedation, a 3 meter (approximately 10 feet) long camera is passed through the nose, down the esophagus, and into the stomach allowing direct visualization. The veterinarian will likely start by putting a small amount of air in the stomach to expand it for a better look. He or she will then likely "curl" the scope along the wall of the stomach to visualize the terminal part of the stomach (the pylorus) where glandular ulcers can be located. This "curling" motion is necessary because the entrance into the stomach from the esophagus is directly above the exit into the small intestine. After the pylorus is visualized the scope will be pulled back to the area near the Margo Plicatus and any food particles will be rinsed off for a better look for squamous ulcers. Other more subjective ways to assess for ulcers include sensitivity to certain acupuncture points and response to treatment.

Treatment of Stomach Ulcers

It can be challenging to determine what medication is best for treatment of stomach ulcers since there are so many products on the market. However, the only FDA approved products are GastroGard and UlcerGard. These are the exact same medication (omeprazole) the only difference is in the label. GastroGard is labeled for treatment and is dosed by weight (usually 1 full tube daily for an average sized horse) and UlcerGard is labeled for prevention at a ¼ tube dose daily. But since they are the same product they can be used interchangeably. Both are omeprazole, a medication which causes a decrease in stomach acid production. Horses with glandular ulcers may also need treatment with a medication called Sucralfate which acts as a coating or band-aid to the stomach as it heals. The timing of ulcer treatment is very important, GastroGard/UlcerGard needs to be given on an empty stomach (at least 30 minutes before feeding) to allow absorption and, if Sucralfate is also being given it needs to be given after GastroGard and at least 30 minutes before feeding to make sure it coats and protects the stomach but does not inhibit absorption of GastroGard. Ulcer treatment can range from a couple weeks to a few months depending on the severity of disease.

Dr. Billek and her technician Heather showing that the 3 meter gastroscope is passed through the nosae, down the esophague, and into the stomach.

Prevention

Ultimately the best treatment for ulcers is prevention. Diet can play a big part in prevention. Ideally horses should be allowed to eat forage (hay or grass) continuously to keep their stomachs full and keep saliva production up (remember saliva neutralizes stomach acid). This may not be possible for a multitude of reasons including metabolic disease, horses being "easy keepers", or for management reasons. In these cases, hay nets or slow feeders can be used to help replicate the effects of continued grazing. Horses can also be fed about ½ flake of alfalfa hay about 30 minutes prior to being ridden. This practice decreases stomach acid by causing saliva production and alfalfa itself also decreases the acidity of the stomach. The alfalfa can also act as a "mat" to keep stomach acid from raising above the Margo Plicatus and irritating the unprotected squamous mucosa. Small amounts of corn oil (less than 3 oz) fed daily can help the stomach heal itself. There are also commercial supplements available that can help decrease stomach acid and stimulate stomach healing. It is also recommended that a ¼ tube of either GastroGard or UlcerGard is given a few days before through a couple days after any stressful events (shows, trailering, change in herd mates, stall rest etc.).

If you think your horse may have ulcers please consult with your veterinarian to determine the appropriate diagnostic and treatment steps. As always please consult with your veterinarian before giving your horse medication or changing their diet.