

Difficult to Stomach

Gastric Ulcers – Prevention and Cure

with **Dr Paula Williams**
BSc (Hons) BVSc MRCVS MANZCVS
of WestVETS



Paula qualified in the UK in 1993 and has been an equine veterinarian since then. She completed an internship at Rossdale and Partners in Newmarket, UK and has subsequently worked in equine hospitals both in the UK and Australia. Paula is currently an equine practitioner at WestVETS Animal Hospitals in Queensland.

Her clinical interests include diagnostic imaging, the investigation and management of musculoskeletal issues in the equine athlete, the equine foot, neonatology and internal medicine.

The prevalence of gastric ulcers in racehorses has been well known for a number of years. Various studies across the world have reported that 80-90% of racehorses have ulcers. However, there is a high incidence in other equine athletes. Studies have shown a 40–60% incidence in other equine sports disciplines.

The umbrella term **Equine Gastric Ulcer Syndrome (EGUS)** is used to describe this disease because of its complicated nature and many different causes.

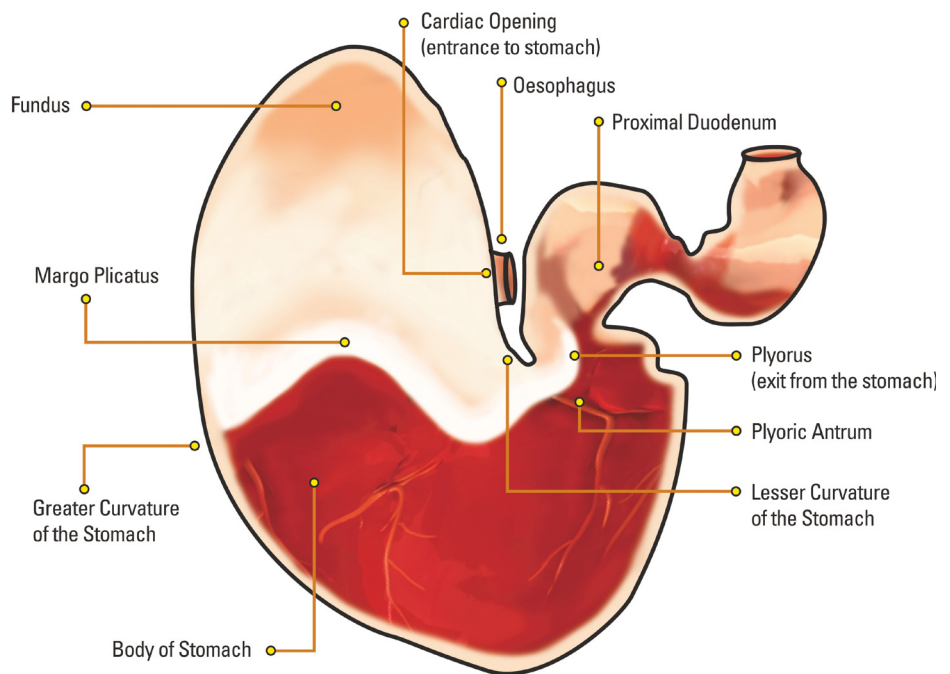


Illustration courtesy of Randlab

WHY DO HORSES GET ULCERS? THE ANATOMY OF THE STOMACH...

The horse is meant to be a continuous feeder — a “free-range trickle feeder” with constant grazing and walking around in order to feed. The horse’s stomach is essentially designed for this type of feeding; it has a relatively small volume and constantly secretes acid which is required as part of the digestive process of fibre.

The stomach is divided into two sections — the top part (where the oesophagus enters) includes a blind-ending pouch (the fundus) and has a non-glandular lining. This acts as a reservoir for ingesta. This lining is highly sensitive to acid.

The bottom part is the body of the stomach and is lined by glandular mucosa, which has protection against gastric acid including buffers. The junction between these layers is called the margo plicatus. The outflow of the stomach is called the pylorus and leads into the duodenum (first part of the small intestine).

WHERE DO THE ULCERS OCCUR?

There are two common locations that ulcers occur in and they seem different in their presentation and type of ulceration. These two conditions may occur independently or concurrently.

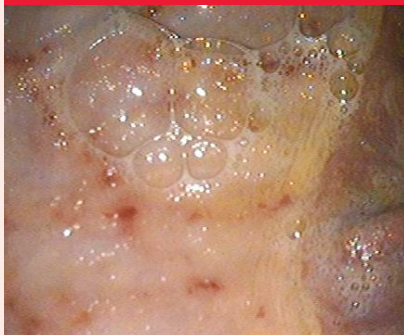
1 Equine Squamous Gastric Disease (ESGD)

The ulcers occur in the top part of the stomach in the non-glandular layer, where there is little protection from the acid secretions. It is thought that in the performance horse that one contributing factor for ulcers in this region is the "splashing effect" with changes in abdominal pressure when being exercised, causing the acid secretions to surge into the non-protected area. The feeding of high levels of carbohydrates may also allow certain by-products to penetrate and damage the stomach cells in this area. Once damaged, healing can be slow, so perpetuation of gastric ulcers is likely to occur.

ESGD is very common (between 11 and 95%, depending on discipline and management). These cases seem to be highly responsive to routine treatment with proton pump inhibitors such as omeprazole.



Different presentations of gastric ulcers in the non glandular stomach. The lesions appear as yellow scarring or dark pink and red ulcers, sometimes bleeding.



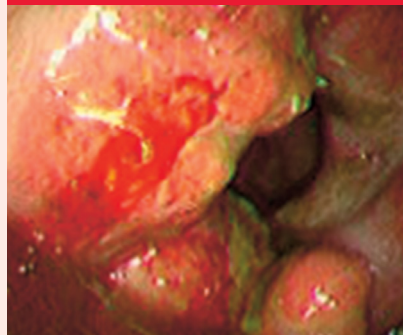
2 Equine Glandular Gastric Disease (EGGD)

The ulcers are found in the glandular portion of the stomach at the level of the pylorus. Ulceration in this area can cause a delay in stomach emptying and lead to colic. Originally it was thought that this type of ulcer in the glandular portion of the stomach was more prevalent in foals, however in recent years with the availability of three-metre endoscopes, it has become apparent that they occur in adult horses too, and are in fact different to the non-glandular ulcers. The occurrence is 16–65% depending upon discipline and management.

The specific causes are multifactorial and there is still much to learn about this type of ulceration. Treatment can require multiple medications including omeprazole. Compared to ESGD, EGGD can be recalcitrant to medication and may require prolonged treatment.



Different presentations of pyloric ulcers. The pyloric lesions appear as inflamed tissue, sometimes "lumpy" and bleeding.



WHAT ARE THE CLINICAL SIGNS OF GASTRIC ULCERS?

These can be variable and non-specific including:

- Poor appetite/picky eater
- Weight loss/poor condition/failure to thrive
- Dullness
- Rough hair coat
- Low-grade colic
- Intermittent diarrhoea
- Lack of performance/training issues
- Resistance under saddle
- Change in temperament — nervousness and aggression
- Stereotypical behaviour — crib-biting, wind sucking
- Sensitive to touch — when girthing, grooming or rugging
- Bruxism — grinding of teeth

There is evidence to suggest that gastric ulcers have a significant impact on performance in many disciplines.

"The evaluation of the diet of horses with ulcers is imperative."

HOW ARE GASTRIC ULCERS DIAGNOSED?

The diagnosis of EGUS is based on the presence of clinical signs, response to treatment and gastroscopy.

Gastroscopy is preferable and it allows direct visualisation of the stomach and therefore evaluation of the severity and location of the ulcers. This enables a case-specific treatment and management regime to be planned.

To evaluate the stomach including the pylorus thoroughly, the horse needs to be starved for at least 12 hours and water removed for a number of hours. A three-metre endoscope is required to enter and evaluate the stomach and the procedure is performed with standing sedation.

WHAT FACTORS CAUSE GASTRIC ULCERS?

There are many factors reported to contribute to ulcers and the factors implicated can vary between the different types of ulcers - ESGD and EGGD. The complete aetiology (detailed cause) behind EGUS is not yet fully understood and there is much to be learned.

Some of the factors implicated include:

- “Stress” — many triggers and forms
- Travel
- Intense training/exercise regimes
- Competition
- Nutrition — high levels of concentrates versus forage
- Temperament
- Water intake
- Lack of pasture access
 - Drought
 - Equine Metabolic Syndrome – horses on restricted diets
 - Horses stabled for most of the day
- Hospitalisation
- Change of environment/herd
- Use of non-steroidal anti-inflammatory drugs
- The presence of concurrent pain or systemic disease
- Radio on in stables 24 hours a day – one study showed that this increased the prevalence of gastric ulcers
- Warmbloods have been reported to have an increased occurrence of EGGD

HOW ARE GASTRIC ULCERS TREATED?

There isn't a one treatment fits all when it comes to the management of ulcers. There are different medications that may be used and the type and duration of treatment depends upon the severity and location of gastric ulcers.

There are many herbal and nutraceutical supplements available on the market and they can be very expensive. There are variable results with these and many are not scientifically validated. If your horse has ulcers diagnosed, then better results will be achieved with medications that are scientifically proven to be beneficial. Non-APVMA medications may also not be as effective as the products that are licensed, non-registered products may not have the correct formulation for absorption or the quality control guarantees. Cheaper is not always better!

It is also not an “instant fix” and the course of treatment may extend into a number of weeks – one week of treatment is unlikely to have much of an effect, particularly on severe gastric ulcer cases.

When treating ulcers, follow up gastroscopy is advisable to see that there is a response to treatment and to adjust the treatment plan accordingly.



MEDICATIONS

Omeprazole

This is a proton pump inhibitor which acts on the gastric cells that produce acid and blocks acid secretion; it is one of the key medications used. Appropriate dosing and absorption are essential for omeprazole to work properly. It should be given on an empty stomach 30-45 minutes before feeding a feed or hay. There are treatment and maintenance doses that are used according to the stage in the disease process. Also, it should be administered at least 60 minutes prior to exercise.

The use of esomeprazole in the horse may have possibilities, but whether it has any advantages over omeprazole has yet to be shown.

Sucralfate (Carafate)

This is a medication that forms a coating over ulcers, protecting them from further injury. It is often used with severe ESGD and with pyloric ulcers. It needs to be administered at a different time to omeprazole.

Misoprostol (Cytotec)

This is a prostaglandin analogue that decreases acid secretion and helps with recovery of ulcers. It may have an anti-inflammatory effect. This may be used in very severe cases of gastric ulceration, or when they appear to not respond to treatment. It is also used in certain hindgut issues.

Oral Antibiotics

Specific bacteria have as yet not been identified in EGUS. In recalcitrant and chronic cases - long-term antibiotic use

may be advocated. It is presumed that chronic ulcers may become secondarily infected and that this may delay healing.

NUTRITION

The evaluation of the diet of horses with ulcers is imperative. This is a whole separate subject, but ensuring adequate roughage and caution with concentrates is essential. It is also advised that horses receive a small amount of roughage prior to exercise – this forms a ball within the stomach and helps absorb some of the gastric fluid and prevents it from splashing up onto the squamous layer.

SUMMARY

Since the availability of three-metre endoscopes, it has become apparent that Equine Gastric Ulcer Syndrome (EGUS) is relatively common in horses from all disciplines. These appear to be two different presentations that may occur independently or together. These are Equine Squamous Gastric Disease (ESGD) and Equine Glandular Gastric Disease (EGGD).

The symptoms can be variable and sometimes vague, it is recommended that diagnosis is confirmed by gastroscopy. This enables a thorough evaluation of the locations and severity of the ulcers. A case targeted treatment and management plan can then be made.

In the future, as we gain more knowledge about this disease, new medications and strategies will hopefully come to the fore. 🐾