

Equine gastric ulcer syndrome

What is it?

Equine gastric ulcer syndrome (EGUS) is a complex disease process which affects over 90% of thoroughbreds in training. The disease involves injury to the gastric mucosa which can vary from mild inflammation to severe erosion of the mucosal lining of the oesophagus, stomach and/or duodenum. EGUS affects both adult horses and foals however clinical signs and disease progression is different between the two. This article will cover EGUS only as it occurs in the adult horse.

Anatomy

The equine stomach is divided into two distinct parts which are lined with a different type of mucosa. The upper part is non-glandular and lined with squamous epithelium similar to that which lines the oesophagus and the lower part which is glandular and responsible for the secretion of gastric acid & histamine. This configuration results in a pH gradient with the more acidic fluid sitting in the bottom of the stomach.

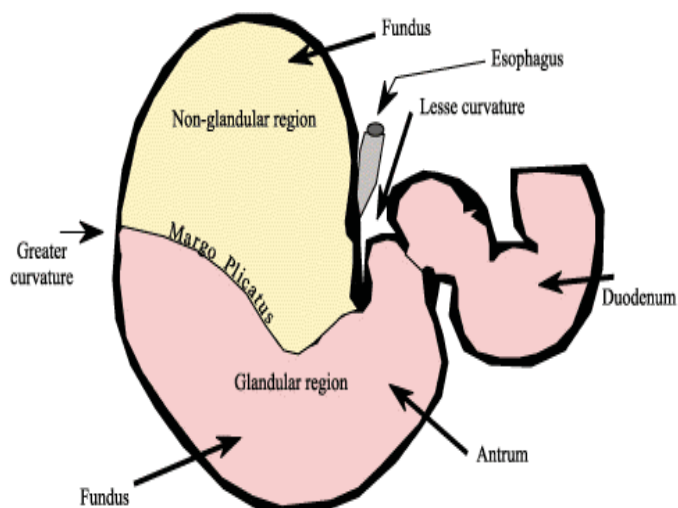


Figure 1. Diagram of the equine stomach, demonstrating the glandular & non-glandular regions.

Cause

Ulceration in the adult horse occurs predominantly in the non-glandular region, particularly along the junction (Margo Plicatus) of the different mucosa.

It is thought to be caused by excessive exposure to gastric acid as the squamous epithelium has no real mechanism for self-protection. Horses stomachs continue to produce gastric acid twenty four hours a day even in the absence of food. For horses managed on pasture the continual addition of food and saliva act as a buffering agent raising the pH in the stomach and preventing ulceration.

Performance horses are at a much greater risk of gastric ulceration, with studies showing that almost 90% of thoroughbreds in race training have some degree of gastric ulceration. Key factors which contribute to the high incidence of EGUS include strenuous exercise, stable confinement and highly concentrated diets. Exercise decreases gastric motility and consequently increase the length of time gastric acid sits in the stomach. In addition, muscular contraction and physical movement during exercise cause this acidic fluid to splash around, further increasing its contact with the upper part of the stomach wall.

Stabling compounds these problems, as stabled horses have limited opportunity to graze and thus convey food and saliva to the stomach. A diet high in concentrates also decreases saliva production and buffering capability in the horse, as these feedstuffs do not require a lot of chewing. Concentrates are also rich in fermentable carbohydrates which are broken down into short chain fatty acids in the stomach. These acids can enter the cells of the mucosa at low pH, causing cell death and ultimately ulcer formation.

Other factors which increase the risk of gastric ulceration include non-steroidal anti-inflammatory drugs which decrease blood flow to the mucosa and transportation which decreases water and feed consumption.

Clinical signs

The clinical signs of EGUS are non-specific and may even be absent in less severe cases. Poor appetite, weight loss, poor body condition, mild/recurrent colic, loose manure, posturing to urinate and sometimes even stereotypic behaviour like wind sucking can all be signs of gastric ulceration. Definitive diagnosis is only possible with gastroscopy performed by a veterinarian. This technique enables direct visualisation of the stomach mucosa and any ulcers, if present can be graded on their severity which helps in the formation of a treatment plan.



Figure 2: The upper white section of this photograph is the non-glandular portion of stomach. The lower pink section is the glandular mucosa. Above the junction of the two mucosae there are multiple small gastric ulcers. This would be considered grade 2 in severity.

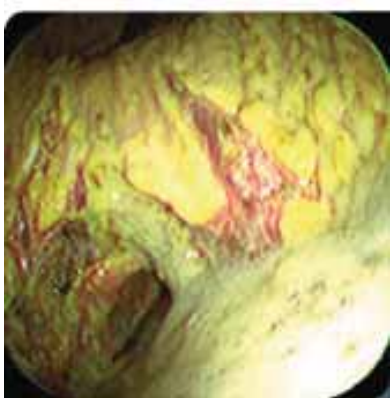


Figure 3: This photograph shows grade 4 ulceration where the erosion of the mucosa is extensive and quite deep.

Dietary management

Diet is also very important in the treatment of gastric ulcers. Lucerne hay which is high in protein and calcium content has been shown to have a protective effect on the non-glandular mucosa. For long term prevention of ulceration the best option is to maintain horses on pasture. When this is not an option freely available, good quality lucerne hay is strongly advised. Daily Twydil stomachcare works as a gastric lining treatment which may also be beneficial.

In summary gastric ulceration is a condition that many horses suffer and investigation should be considered if your horse is showing any of the signs noted above. A gastroscopie is a quick non-invasive technique that most horses tolerate very well with a little bit of sedative or relaxant given.

By Alston Bumak and Dr Darren Arnold

Treatment options and prevention

Treatment of gastric ulcers is aimed at reducing the production of acid in the stomach and allowing the mucosa to heal. Ulcers will actually resolve themselves if the horse is turned out onto pasture for a sufficient amount of time however, with performance horses this may not always be possible. The duration of treatment will vary depending on the severity of ulceration, the level of activity of the horse and its diet. There are two main classes of drugs available to treat gastric ulceration anti-histamines and proton-pump inhibitors (i.e. omeprazole). Both these drugs work in different ways to decrease the amount of acid secreted into the stomach. Omeprazole (known as GastroGard) has been proven to be very effective and is now considered the standard treatment for extensive or deep ulcerations. Its effects are long lasting due to its long mechanism of action, requiring only once daily dosing. Omeprazole can also be used as a preventative medicine at lower doses however, the cost may be prohibitive for some owners. For horses who are going to be transported long distances it may be worthwhile treating with a one off dose.