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# The veterinary nurse's role in the diagnosis, treatment, and management of equine gastric ulcers

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## Introduction

In their natural environment, horses graze as members of a herd for around 16 hours a day. However, one effect of domestication is that owners have effectively reduced the time the horse spends eating, which decreases saliva production. In addition, fast-ridden exercise leads to increased production of gastric acid, which then comes into contact with the lining of the stomach, (Roberts 2008). Reduced forage intake and restricted feed intake are also factors that contribute to equine gastric ulceration.

## Types of gastric ulcer

There are two types of gastric ulcer: squamous mucosal ulceration (**Figure 1**) and glandular mucosal ulceration (**Figure 2**). Squamous mucosal ulcers are found in the proximal (cranial) half of the stomach, and around 80% of ulcers occur in this region. This is because the squamous layer has a decreased physical barrier to gastric acid, in comparison with that of the distal half of the stomach, where the mucosa is glandular.

Patients may be admitted to the hospital for the investigation of potential gastric ulcers, due to signs of intermittent colic, weight loss, loss of performance, altered appetite and behaviour. A gastroscopy should be performed as it is the only accurate way to diagnose and monitor treatment of gastric ulcers (Sykes & Joskisalo, 2014).

## The gastroscopy procedure

The patient should be admitted overnight at the hospital prior to gastroscopy, or alternatively the veterinary nurse should instruct the owner on overnight management.

Sykes and Joskisalo (2014) advised that patients should be starved for 16 hours prior to gastroscopy to ensure complete emptying of the stomach. On the other hand, Roberts (2008) stated that patients only needed to be starved for a minimum of six hours. However, there is the risk that some food material may be left in the stomach at this stage making full visualisation of the mucosa more problematic. In this case, the patient would need to be starved for longer and re-sedated once the food material had passed. This could increase the likelihood of ileus due to repeated sedation and starving and would raise welfare and ethical concerns

Mair, Divers & Ducharme (2002) also advise that the patient should have a grazing muzzle applied to prevent ingestion of any bedding material, as horses will eat shavings if hungry enough, and water should be removed two and a half hours prior to gastroscopy. Sykes & Joskisalo (2014), however, are of the opinion that, as fluid empties rapidly from a horse's stomach, withholding water for longer than an hour is unlikely to offer any advantages.

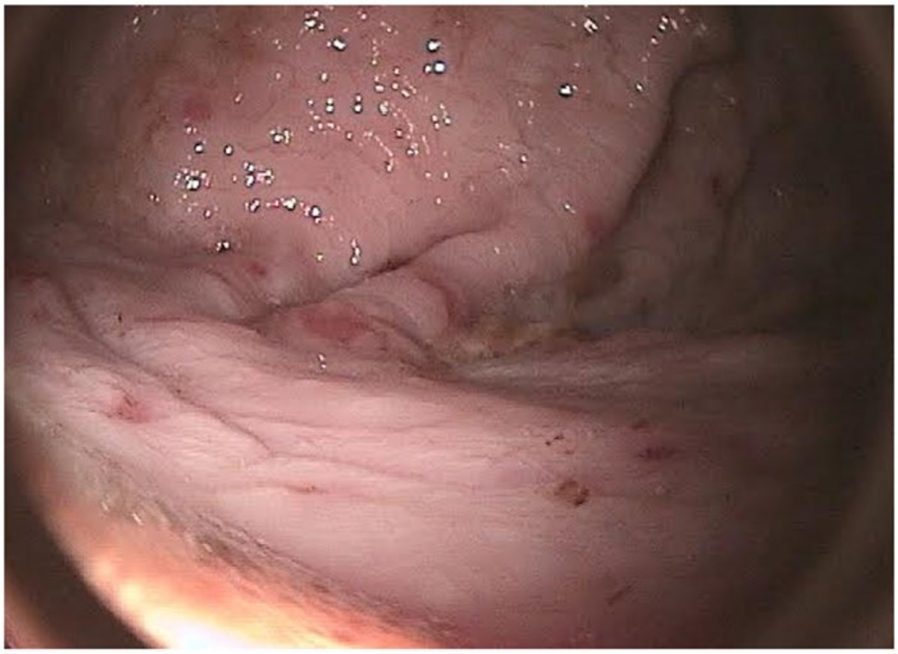

Figure 1. Squamous mucosal ulceration

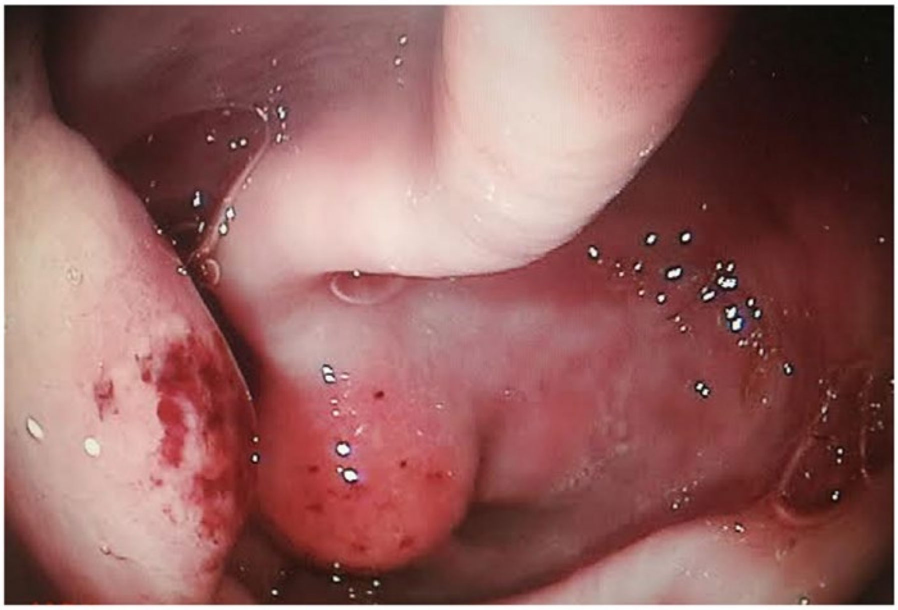

Figure 2. Glandular mucosal ulceration at the gastric pylorus

The stocks room, which houses the stocks in which the patient will be positioned and secured in order to minimise movement during the procedure, should be selected and the following equipment, prepared according to manufacturer's guidelines (Brazil, 2008):

- gastroscope
- TV unit
- light source
- air pump
- 60 ml syringes filled with water
- suction unit
- water bottle

The gastroscopy tower should be placed near to the stocks, to ensure it is close enough to the patient to facilitate ease in passing the scope, yet not so close that it could get damaged during the procedure.

Patients react to a greater or lesser extent as the scope is passed along the ventral meatus of the nasal cavity, and should therefore be sedated to prevent any reaction and consequent injury to the horse or personnel (Slater & Knowles, 2010). The patient should be restrained in stocks for its safety, to allow easy passage of the gastroscope and to prevent any breakages to the equipment (Chinn, 2008).

The gastroscope should be lubricated with a water-based lubricant such as K Y Jelly to facilitate its passage and reduce trauma to the nasal mucosa; one hand steadies the horse's nose and the other passes the endoscope slowly into the nasal cavity along the floor of the ventral meatus. The veterinary surgeon steers the gastroscope using the control wheel (**Figure 3**). The gastroscope should be passed slowly. If resistance is felt at the pharynx there is a risk of retroflexion into the patient's mouth, which could cause damage to the gastroscope (Brazil, 2008). The gastroscope should then be advanced through the nasopharynx into the oesophagus and then into the stomach via the cardiac sphincter.

The stomach is distended with air by the veterinary surgeon to aid in visualisation of the gastric surface (Mair et al., 2002). All parts of the stomach should be examined, as lesions can be found in the squamous, glandular, cardiac and fundic regions (Chinn, 2008). Before removal from the stomach, it should be deflated to avoid abdominal pain (Mair et al., 2002), as distension can cause abdominal discomfort. The gastroscope should be removed slowly to prevent trauma to the upper gastrointestinal tract or nasal passages.

As previously mentioned, sedation and the withholding of food can both have the effect of promoting ileus and slowing intestinal motility, therefore the patient should be fed as soon as possible after recovering from sedation.

Following the gastroscopy, the room should be cleaned following the practice's usual protocol and all the equipment checked for damage prior to cleaning. Cleaning the scope straight after use prevents mucus drying inside the lumen, and it reduces cross contamination between patients.

Figure 3. Gastroscopy in progress

## Treatment of gastric ulcer

### Dietary management

Veterinary nurses should be able to educate owners on the dietary management of patients diagnosed with gastric ulcers. The patient should be fed little and often in order that this can act as a buffer to the continuous supply of acid produced in the stomach. This can be achieved by reducing the proportion of concentrates normally fed and replacing this with good-quality hay, alfalfa or grass.

The patient should be fed a small meal of chopped alfalfa-based feed prior to exercise. This will form a barrier, which will prevent gastric acid coming into contact with the squamous layer of the stomach.

Ensure that the patient has access to a grass turn-out, as this will reduce stress, and grazing will also help buffer the acid levels in the stomach.

### Drug therapy

Omeprazole paste should be administered orally, at a dose of 4mg/kg. It has been shown by Durham (2014) to suppress gastric acid secretion for 24 hours in horses. This drug should be administered for one month in working horses. However, ulcers can heal within a week or two of treatment if causal management factors are corrected, therefore, it is generally advised that horses be re-gastroscoped two weeks after treatment commences, so that medication can be adjusted as necessary (Durham, 2014).

Sucralfate can be administered under the cascade. Given by mouth, it transforms into a sticky gel at low pH and binds to ulcers, offering a physical protective barrier in addition to increasing bicarbonate secretion and prostaglandin production. Sucralfate is used alongside omeprazole to treat glandular ulcers (Durham, 2014).

## Conclusion

The veterinary nurse should ensure that patients are adequately prepared for gastroscopy to ensure that the procedure is diagnostic. The veterinary nurse's role also extends to assisting with the gastroscopy and administering ulcer treatment, in addition to owner education on dietary management.

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