

Acute Diarrhoea in Adult Horses

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Acute (sudden onset) severe diarrhoea (acute colitis) in adult horses is a potentially life threatening disorder. There are a variety of known causes. Typically there is substantial inflammation of the large intestine (specifically large colon and caecum) and loss of large volumes of fluid (up to 100 litres) and protein. In severe disease, death may occur even before the onset of diarrhoea.

Irrespective of the cause, many of the clinical signs associated with acute diarrhoea are indistinguishable. Affected horses typically show signs of depression, reduced appetite and sometimes mild to moderate colic (abdominal pain), often before the onset of diarrhoea. These signs may prompt owners and veterinarians to check for fever at this time. Diarrhoea is often sudden in onset and commonly profuse, voluminous, and possibly bloody. A fever, elevated heart rate and respiratory rate and brick red (injected) mucus membrane colour are commonly present. Clinical progression may be rapid. Severe dehydration and profound electrolyte disturbances typically develop, because there are large fluid losses related to diarrhoea. There is systemic inflammation from absorption of endotoxin (this is sometimes referred to as lipopolysaccharide (LPS) by veterinarians) and other bacterial products across impaired or damaged mucosal lining of the large intestine. This may lead to founder (laminitis). Gastrointestinal protein loss commonly occurs, which means that oedema may occur. When this occurs, the horse appears to have “pitting” (you push on it and it stays indented) swelling along the ventrum (this is the bottom of the abdomen and chest) and of the legs. Weight loss may be rapid and severe.

Some of the more common known causes of acute diarrhea in adult horses in Australia include:

Infectious Causes	Non-infectious Causes
Salmonellosis – by a wide variety of <i>Salmonella</i> sp – some are associated with a greater death rate than others	Carbohydrate/Grain Overload
Antibiotic Associated Colitis – which may be associated with <i>Salmonella</i> sp or <i>Clostridium difficile</i> or even <i>Clostridium perfringens</i> – we think that the normal gut bacteria (gut flora) are disturbed by antibiotics and that it allows for overgrowth of some pathogenic (bad, illness inducing) bacteria	Right Dorsal Colitis (Non-steroidal anti-inflammatory toxicity, NSAID toxicity) – NSAIDs such as phenylbutasone, flunixin meglumine® and many others if given for a long time or at a moderate to high dose may cause problems
Clostridial Colitis/colotyphlitis – which may be associated with <i>Clostridium perfringens</i> or <i>Clostridium difficile</i>	Sand irritation
Cyathostomiasis – heavy infestation with small red worms (cyastostomes)	Feed changes eg. green grass – owners need to be able to distinguish soft-fluid manure caused by the high water content of green grass, as this is not an emergency, although founder (laminitis) must also be considered

Other gastrointestinal parasites – so a deworming history is always appreciated by your veterinarian	
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The cause of individual cases of acute colitis frequently remains obscure, despite vigorous diagnostic efforts, including five cultures of the diarrhoea over 2.5-5 days. Even if a diagnosis is made, the cause of the diarrhoea is rarely known at the time of onset of clinical signs.

Intensive therapy is generally required. This is frequently expensive, as a typical adult horse weighs 500 kg (i.e. the weight of 6-10 humans!!), and these patients may need a large amount of intravenous (by drip) fluids for many days, as well as expensive plasma and other special fluids that help maintain the horse's blood pressure when the protein has escaped, called colloids. Treatment strategies are often similar, irrespective of the cause of acute diarrhoea, consisting primarily of:

- 1) Control of inflammation - this is often done with sensible doses of NSAIDs such as flunixin meglumine etc.
- 2) Replacing fluid and electrolyte losses - to improve tissue perfusion (i.e. the blood supply to all the organs). Often large volumes of fluids are required – up to 100 litres a day in the acute stages.
- 3) Replacement and maintenance of blood pressure and therefore tissue perfusion – when protein is lost, a special protein called albumin is lost. Albumin is essential for good blood flow and blood pressure, so although we sometimes give it back to the horse via plasma transfusions, it is too expensive to use 10-15 litres per day, so we use synthetic colloids to help. These are still expensive but can make a big difference to the horse.
- 4) Replacement of protein – this is really hard to do, but small amounts of hyperimmune plasma may help combat endotoxaemia, so we commonly like to use 1-4 litres of this plasma in these very sick horses. This is very expensive.
- 5) Control of endotoxaemia – hyperimmune plasma and sensible doses of NSAIDs may help.
- 6) Control of laminitis. Founder is a serious complication in endotoxaemic horses – we often use deep bedding, frog supports and NSAIDs as well as other more complex treatments
- 7) Restoration of microbial flora in the large intestine (eg. *Acidophilus* sp in yoghurt and various commercial preparations)
- 8) Nutritional management. This is accomplished through administration of intravenous fluids with glucose in them – sick horses need some caloric support! When the horse is valuable (either financial or emotional) and the owner elects to have more intensive therapy, then the horse can receive a further type of parenteral (into the vein) nutrition including amino acids (protein building blocks) and lipids.
- 9) In addition some causes of diarrhoea have specific treatments aimed at eliminating the cause.

Remember if your horse is on antibiotics and develops loose manure OR whenever your horse has a sudden onset diarrhoea, you should take the rectal temperature and report that to your veterinarian when you call them. Your veterinarian may want to come and examine the horse, take blood (as that helps us know how severe the disease is) and may even wish to refer it to a hospital where intensive care can be administered.



Figure 1. Injected mucus membranes (brick red colour) and delayed refill time (i.e. the white mark). The latter indicates that perfusion (blood flow) is poor and this is an accurate indicator of shock.



Figure 1. Bloody diarrhoea in an adult horse. This horse presented in shock and *Clostridium perfringens* was cultured from the manure. The horse was treated and supported intensively and the diarrhoea resolved after approximately 4-5 days.