Colic is generally an acute condition warranting immediate examination and appropriate treatment. The majority of cases of colic in Australia are acute spasmodic colic or low grade impaction associated with feed changes. Early intervention and medical treatment will successfully resolve approximately 90% of all colic cases. A thorough assessment of the animal will assist the clinician in formulating a treatment plan. A series of steps and specific diagnostic procedures that can be carried out in the field should be routinely followed for each clinical examination. The prognosis for horses afflicted with colic that requires surgical correction is greatly improved if a thorough clinical examination is initially undertaken and an early decision is made to refer the horse for surgery.

Introduction

Most horse owners are aware of the potential for their animals to develop acute abdominal disorders, however, it is surprising how many owners fail to recognize early symptoms or, having considered its possible onset, wait some time before calling for assistance in the hope that the horse’s discomfort is only transient. In Australia the majority of horses are predominantly grass reared on a year round basis with supplementary feeding in periods of pasture depletion or when put into active work. Unlike the climate extremes that influence nutrition and management in the northern hemisphere, the major factors influencing pasture availability in Australia are rainfall, stocking rates and seasonal growth patterns. The fact that our domestic horses generally have a body of roughage to graze most of the time and usually have ready access to water means that the overall incidence of colic is lower by comparison with horses in the northern hemisphere.

By far the most common type of colic experienced in the Australian horse population is acute spasmodic colic. In these instances the colic can usually be successfully managed with medical treatment and response is generally rapid. Determining the cause of the colic and the prognosis require a series of diagnostic steps and some ancillary tests. In some cases the cause of the colic may not be identifiable, however, the need for surgical intervention needs to be determined and critical decisions made in consultation with the owner.

History

The owner’s observations of initial symptoms, duration of colic, production or absence of manure, frequency and intensity of pain, water intake, feeding and exercise program, feed changes, medication given and recent movement are all valuable pieces of information. In many cases the history will give a strong lead to the cause and enable the clinician to accurately narrow the differential diagnosis. Much of this information can be obtained from the owner whilst making a preliminary assessment of the horse’s demeanour and the severity of pain. It is important to know if any medication has been given prior to the attending veterinarian’s clinical examination as this can influence the presenting symptoms of the horse.

Presenting Symptoms
There are no hard and fast rules for determining whether a horse will need surgical treatment. To determine the need for referral, for acute medical support including fluid replacement, or for surgery, it is best to attempt a diagnosis but field situations or refractory pain may make this impossible and the decision will be based on the clinical signs alone. There are a number of clinical signs which, by themselves or in concert may indicate to the attending veterinarian whether to treat the horse medically or whether to hospitalize.

**Pain**

An initial attempt to assess the cardiovascular status should be made. This includes heart rate, pulse and peripheral perfusion (gum colour and capillary refill time). Where the horse is in severe pain sedation +/- analgesia is indicated to enable safer clinical examination. Xylazine is a useful sedative with some analgesic properties and has a short clinical effect to calm the horse during initial assessment. It will lower the heart rate and may cause second degree heart block which should be recognized if administered prior to cardiovascular assessment. Severe or protracted pain or lack of response to analgesic medication is an indication for surgery. If the horse responds to analgesia but pain returns and requires further medication it is significantly more likely to require surgery. Analgesics such as flunixin meglumine, detomidine and butorphanol are potent equine pain killers and whilst their use will in most cases provide significant pain relief, they can mask an underlying surgical condition and cause a delay in the decision process. Any horse that experiences a recurrence of pain is indicating a failure to resolve the cause of the colic. The likelihood of resolving the colic with basic medical treatment is significantly reduced and referral or hospitalization for acute care is necessary. There are some cases where recurrent pain can continue to be medically managed. These include sand impactions and large colon impactions but there is potentially a need for surgical intervention if the bowel motility deteriorates.

**Cardinal Signs**

- Temperature is generally not a good indicator of the need or otherwise for surgery. Horse showing an elevated temperature generally have a bacterial or viral aetiology and surgery is contraindicated. Conditions include acute colitis, proximal enteritis, peritonitis, abdominal abscesses. NOTE – colic has been a symptom described in the early stages of some cases of Hendra virus infection. These horses will have an acute fever.
- Heart rate is an important gauge of pain intensity and in general terms, the higher the heart rate, the more severe the disease and lower the survival rate. High heart rates may not necessarily indicate the need for surgical intervention, and should be considered in conjunction with other cardiovascular signs.
- Peripheral perfusion is measured by examination of the oral mucosa. Mucous membrane colour and capillary refill time are valuable aids to determining whether to commence fluid support therapy and assist in formulating a prognosis.

**Gastric Reflux**
Many, but not all, horses that have gastric reflux will require surgery. Gastric reflux indicates the cause of the colic to be preventing the passage of ingesta and small intestinal secretory fluids further along the tract. Common causes are ileocaecal intussusceptions, strangulation of small intestine, proximal enteritis, ileus. Use the largest bore stomach tube appropriate to the size of the horse and pass with positive pressure if there is resistance to entry of the tube through the oesophageal hiatus into the stomach. Position the stomach tube in several locations within the stomach and use some positive pressure (water in the tube) to clear ingesta and establish a liquid flow if there is pressure in the stomach.

**Intestinal Motility (Borborygmi)**

The presence of intestinal motility is highly significant. Decreased or absent gut sounds increases the likelihood that the horse will require surgery. Accelerated gut sounds are most likely to be associated with acute spasmodic colic and will generally resolve with medical management. Accelerated gut sounds are a feature of colitis and may precede the onset of diarrhoea. The failure of gut sounds to resume following analgesic medication increase the odds of the horse needing surgery.

**Palpable Intestinal Abnormalities**

Rectal examination is one of the most useful tools for assessment and diagnosis of colic. Sedation and analgesia may be required to allow for a safe and complete rectal examination. With adequate sedation it is possible to examine the horse in the field and make an assessment of the palpable viscera. If a crush is accessible then, for safety reasons for the veterinarian, it may be desirable to restrain the horse, however, consideration should be given to the risk of the horse becoming recumbent and trapped in a crush if pain is persisting. The following conditions can generally be identified on rectal examination and usually require surgical correction:

- Multiple distended loops of small intestine
- Very tight distended large bowel
- Uterine torsion
- Inguinal hernias
- Ruptured rectum
- Caecal distension with fluid filling

Other conditions which can be identified and may be amenable to medical treatment include colon impaction at the pelvic flexure, displacement of large colon, nephrosplenic entrapment of the left colon, low grade tympany of the large bowel. Abnormal rectal findings are important clues as to the cause of the colic but should be taken into consideration in conjunction with other clinical signs.

**Abdominocentesis**

Assessment of peritoneal fluid is a very useful ancillary diagnostic tool and can facilitate the decision making process in the field. Normal peritoneal fluid is a light honey colour with low viscosity. Increases in protein, white blood cells and red blood cells will result in gross changes to the appearance of the
peritoneal fluid. Any abnormal fluid is an indication of an acute intestinal problem often requiring surgery. If fibre is found in the peritoneal fluid it is indicative of visceral rupture or inadvertent puncture of large bowel when making the tap. Serial fluid samples carefully tapped at different sites will confirm whether there is free fibre in the abdominal space. Increased white cell counts with a neutrophil/monocyte ratio greater than 90% usually indicate severe intestinal necrosis or deterioration with bacterial leakage. Bacteria may be present in the peritoneal fluid and this is a very poor prognostic finding.

**Abdominal Ultrasound**

Ultrasound is very useful for examining foals as a significant amount of the abdomen can be imaged. Whilst somewhat less useful in the adult horse, it can nevertheless elucidate disorders in some areas of the abdomen inaccessible to rectal palpation.

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**Initial Treatment**

Pain relief with or without sedation is the most urgent requirement for the colicky horse. The owner sees this as a priority and it is helpful, and in some cases necessary, to medicate the patient for pain before undertaking a discussion with the owner as to the possible cause of the colic, prognosis, and options for treatment. Many owners will be distressed and distracted if the horse has been in severe pain for some time prior to examination. Controlling pain will enable the attending veterinarian to make a thorough examination of the horse and allow for a calm and rational discussion with the owner.
Following the examination, the owner should be informed of the veterinarian’s diagnosis and prognosis. Where referral is an option, always offer it, regardless of perceived value of the horse. Many owners will be guided initially by the attending veterinarian and then by referral clinicians. A joint discussion may be necessary to provide the owner with an accurate prognosis, an understanding of the costs attached to treatment options and an ability to make an objective decision about the management of their animal.

In the event that the horse is referred to an equine hospital, supportive therapy within the capability of the circumstances, should be instituted prior to loading. This should include analgesia, possibly by way of supplementary doses, to suppress pain for the duration of travel, replacement fluid therapy, broad spectrum antibiotics, indwelling nasogastric tube if reflux is pronounced, relief of tympanic bowel by fine bore trocar (11G needle) if severe. Any preliminary clinical pathology e.g. haematology, biochemistry, peritoneal fluid analysis (or sample if taken for gross assessment) should accompany the patient. Colicky horses are frequently stressed and exhausted by the time referral is undertaken. It is best to allow the horse enough space to lie down in the float during transport and to provide sufficient bedding for this outcome.

- Preliminary sedation/analgesia – xylazine (150 – 250mg I/V) Duration of effect ~40 minutes. Butorphanol can be administered in conjunction with xylazine to give a more prolonged and pronounced analgesia
- Analgesia – flunixin meglumine (0.25-1.10mg/kg I/V) Flunixin also is indicated where the risk of endotoxaemia is high.
  - detomidine (5-10mg, I/V)
  - butorphanol (5mg, I/V )
- Spasmolytic – hyoscine N-butylbromide (0.3mg/kg, I/V )
- Faecal softeners – dioctylsodiumsulfosuccinate (0.5 – 1 ml/kg, P/O )
  - paraffin oil (2-4 litres, P/O )
- Fluid replacement – I/V balanced electrolyte solutions e.g Hartmanns, 10 – 20 litres initial replacement volume