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## **Emergencies of medical origin, what can be done in the field, when to refer, what can be done in the clinic?**

### **Colic**

Despite huge progress colic is still the first cause of mortality and morbidity in the horse. Several prospective studies have shown a prevalence of 1 colic episode per year per 100 horses. Risk factors increasing the risk for colic are colic and colic surgery, showing that some individuals are at increased risk. Other risk factors were a change of hay or concentrate as well as a change of the stable. This shows that prevention and better observation of horses that have change in food may prevent or diagnose quicker that there is a colic episode.

From all these colic cases, about 10 % will need a surgery or intensive care. Therefore it is very important that the field veterinarian depicts those cases that need surgery or intensive care, or simpler, transfer to the clinic. Nowadays, survival rates in surgical colic patients are about 70 % of survival even on long term. Late referral can lead to mortality or to severe complications after surgery and to high costs.

Depicting signs that indicate for surgery:

Severe or unrelenting pain not responsive to slight medication like dypirone. The use of heavy anti-inflammatory drugs that act a long time like flunixin meglumine is very risky.

Severe reduction of gut sounds

Abdominal distension

Gastric reflux of more than 3-4 liters

Rectal palpation: abnormal position of taeniae or distended loops of small intestine. Transabdominal ultrasound can help to detect small intestinal distension and is especially worthful in small ponies or foals. Motility of the intestine can be seen and the thickening of the intestinal wall can be visualised.

Abdominocentesis: abnormal fluid, orange or pink, red or very turbid is a sign of intestinal compromise

Additionally these parameters should indicate that referral is indicated:

In case of the diagnosis of a problem treatable in the field, e.g. impaction of pelvic flexure, but without improvement within 12 or 24 hours depending on the severity of colic signs

Presence of signs of endotoxemia (increased heart rate, congestive mucous membranes, prolonged capillary refill time, weak pulse, ...) → indications to transfer the horse to a clinic for surgery or intensive medical therapy.

In case of large intestinal impaction (pelvic flexure) or other colic without clear signs indicating for surgery, a medical treatment should be initiated at home. Medical treatment is not only “analgesia”. It is very important to remove gastric distension, to give laxative therapy via the naso-gastric tube in sufficient amount but not too much at one time (5 litres of mineral oil or 7 litres of electrolytes). Electrolyte administration can be given again every 2-4 hours in order to hyperhydrate the colon content. The horse should be walked regularly and kept in observation at least every 2 hours. This can show if there is recurrence of pain. Analgesia is important too, but pay attention with the use of flunixin meglumine, it should only be used in case of a precise diagnosis or of referral to a clinic (with a clear mention of the type and dosis of the medication given to the horse). Most cases of medical colic should resolve within 12 to 24 hours.

### **Diarrhoea**

A thorough clinical evaluation with special focus on cardio-vascular status should be done. Even if colic signs are not severe, a nasogastric tube should be passed, in order to check for gastric repletion. Rectal palpation is also realized to differentiate beginning diarrhoea with some liquid feces passing around a solid impaction. Rapid and adequate treatment is important, because horses with profuse diarrhoea for several days have very severe prognosis. In case of severe endotoxemia the risk of complications is very high, like thrombophlebitis and laminitis. I have seen horses beginning acute diarrhoea after impaction colic who show severe signs of endotoxaemic shock within a few hours after the onset of clinical signs. Rapid intensive care with polyionic perfusion in high volumes (20 ml/kg/h or 10 litres per horse per hour), anti-inflammatory drugs, especially the new Cox2 specific AINS firocoxib and laminitis prevention with enoxaparine, a low molecular weight heparin should be initiated. Active charcoal should be given via the naso-gastric tube.

Verminosis, abnormal fermentation and change in intestinal flora with development of *Clostridium difficile* or *Salmonella* sp. are possible causes of diarrhoea. Strict biosecurity and hygiene are necessary to avoid zoonoses. Fecal cultures should be taken (several samples with mucosal scraping or a mucosal biopsy), but the laboratory should be used to the culture of *Salmonella* otherwise the will be no result.

### **Dysphagia**

Dysphagia is a complex disorder that can have functional (neurological or muskulonerveous) or morphological causes (choke, mass in the oesophagus). Dysphagia includes problems in prehension of food, mastication, swallowing and the appearance of regurgitation. Watching the horse eating is interesting to precise the lesion. Cough and nasal discharge of food are a sign of aspiration of food and aspiration pneumonia or pleuropneumonia may develop. Therefore the treatment of choke should always be the most rapid as possible. Passing a stomach tube will show the site of the obstruction that is mainly in the cervical part of the oesophagus or at the entrance of the thorax or over the base of the heart. Sedation of the horse with alpha2 agonists can relax the striated muscle of the oesophagus. The horse will have the head downwards so that saliva can flow out. Very gentle lavaging can be performed with clear water, in order to dissolve the food impaction of the

oesophagus. This procedure can be very long. In case of resistant alimentary obstruction, the horse can be anaesthetized with tracheal intubation and a flush of the oesophagus with gentle water pressure can remove the obstruction. Care should be taken to stop immediately the influx of water when reaching the stomach otherwise gastric distension or rupture can occur.

Broad spectrum AB should be given and respiratory infection monitored. Food should only be given after several hours to avoid re-obstruction.

### **Respiratory distress with superior respiratory obstruction**

Superior respiratory distress is mainly in inspiratory dyspnoea whereas deep respiratory distress causes also expiratory dyspnoea. The horse should be kept quiet and sedation should be avoided. In case of unilateral nasal obstruction, you can pass a small tracheal tube in one nasal passage in order to help the horse temporarily. Temporary tracheotomy may give relief for superior respiratory obstruction. Mostly the tracheotomy has to be done with local anesthesia only. A strict midline incision is done of about 10 cm between the superior and middle third of the neck. The sternohyothyroid muscles bellies are separated and the trachea is palpated. In order to avoid granuloma formation, a horizontal incision in the ligament between 2 tracheal rings is done, do not exceed with the incision more than one third to one half of the circumference of the trachea. Otherwise a constriction can occur when the tracheotomy heals.

### **Post-exercise myopathy or exertional rhabdomyolysis and atypical myopathy or seasonal pasture myopathy**

Horses with myopathy mostly show reluctance to move and stiffness, they may become recumbent. Muscles may be swollen and hard and the horse can show sweating. This should be differentiated from laminitis of all 4 limbs and from colic. Exertional rhabdomyolysis can be due to normal exercise in a horse with a chronic, recurrent rhabdomyolysis or to an important exercise in an untrained horse. Different genetic problems have been shown like glycogen storage diseases (PSSM in Quarter horses and EPSM in draft horses) recurrent exertional rhabdomyolysis in thoroughbreds (RER). Diagnosis of myopathy is based on clinical signs, blood analysis (especially creatinine kinase, CK measurement) and urine analysis (chocolate urine due to myoglobinuria). Horses that are recumbent frequently due to another problem than rhabdomyolysis can have slightly increased serum CK values (2000 to 3000 IU), do not only diagnose with blood analysis.

Do not move the horse, keep the horse warm and treat with NSAID's to diminish pain. Severe cases have to be treated with polyionic IV fluids to help renal function and avoid acute renal failure due to myoglobinuria. Depending on the initiating cause of rhabdomyolysis, the treatment should be adapted to avoid recurrence.

A special form of myopathy is the atypical myopathy of pasture horses. The causing agent has now been shown, hypoglycin A present on the seeds of maple trees (*Acer negundo* and *Acer pseudoplatanus* especially). For the moment, a severe outbreak (154 cases in Europe) of this special form of myopathy is occurring in Belgium and other European countries. This atypical form of

myopathy inhibits the normal function of mitochondria and affects postural muscles and also respiratory muscles and the heart, even the cervical part of the oesophagus. Clinical signs are stiffness, frequent recumbency, muscle tremor, respiratory distress, tachycardia and arrhythmia as well as oesophageal obstruction. In autumn when the temperature decreases, the seeds fall down and horses may ingest the toxin. The first treatment is to remove all horses from the pasture. Most horses need infusions and supportive care. Passing a stomach tube in order to remove seeds from the stomach and to pass mineral oil can also help. Nevertheless, mortality is very high, near to 80 %. If you are interested to be informed about the disease, you can go to the website of AMAG (<http://www.myopathieatypique.com/>) in order to be informed about seasonal outbreaks and new findings of the pathology. You can also signal cases on this website (as veterinarian or as owner).