



Practical Clinical Examination in Acute Abdomen of Horse, Determination of Golden Time

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Abdominal colic

Colic is a relatively common disorder of the equine digestive system. But “colic” simply means “abdominal pain,” which can have a variety of causes and treatments. Colic also varies greatly in severity. For example, a horse may have a mild bout of abdominal pain that is resolved with a single dose of medication. Other times, colic may necessitate surgery, or unfortunately, euthanasia. All instances of colic in horses should be treated as a potential emergency. If you suspect that your horse is displaying colic symptoms, needs immediate veterinary assistance although there are various forms of equine colic, most horses display some combination of the following symptoms:

1. Anxiety or depression
2. Pawing at the ground
3. Looking at their flank
4. Rolling or wanting to lie down
5. Lack of or infrequent defecation
6. Poor appetite and water intake
7. Excessive sweating
8. Abnormally high pulse rate (over 50 beats per minute)
9. Lack of normal gut noises
10. Stretching out as if to urinate

Causes of Colic in Horses

There are many causes of colic in horses, so veterinarians will focus on trying to categorize the type of colic a horse has rather than identifying a specific cause. If the horse fails to respond to initial treatment, then a more specific diagnosis will probably be necessary. Colic can be caused by:

- I. Gas - Excessive accumulation of gas stretches the intestines, causing pain.
- II. Obstruction or impaction - Fecal material

becomes hard and difficult to pass due to dehydration, the presence of large numbers of worms, ingestion of sand, etc.

- III. Strangulation - The intestines rotate or become entrapped, which prevents the flow of food and feces and blocks blood flow.
- IV. Infarction - Poor blood supply to the intestine, which leads to tissue death.
- V. Inflammatory - Infectious diseases or other conditions can cause gastroenteritis or colitis (inflammation of the gastrointestinal tract) or peritonitis (inflammation of the abdominal cavity).
- VI. Ulcers - Erosions of the lining of the gastrointestinal tract can lead to pain and poor gastrointestinal function.

Etiology

Classification anatomically based” Gastric dilation impaction of large intestine Gastric impaction intestinal tympany Gastric ulcer in foals spasmodic colic Intestinal obst. Including Intes. accident, verminous mesenteric arteritis Luminal obst. And luminal compressions sand colic in order to better understanding, you should become familiar with the symptoms of colic so you can quickly identify the condition. Know how to take your horse’s vital signs (temperature, heart rate, respiratory rate and mucous membrane color). You can also listen for gut sounds. Routinely examine your horse when he is healthy, so you can more easily identify when something is wrong. Once you arrive, perform a variety of diagnostic procedures to confirm colic and further characterize its cause and severity. Assessing the Cause and Severity of a Horse’s Colic check the horse's pulse, temperature, respiratory rate, mucous membrane

color and gut sounds as part of a complete physical examination. Detailed questions on the horse's most recent behavior, diet, activity level, etc. You may give the horse medications to relieve pain and provide sedation. This will make the horse more comfortable and make it safer to perform additional diagnostics like ultrasonography. Rectal exam, which allows the vet to palpate parts of the horse's gastrointestinal tract to determine if they are in an unusual location or dilated due to a buildup of gas. The amount and quality of feces present in the rectum can also be evaluated. You may also insert a nasogastric (NG) tube, to determine whether fluid or gas is building up in the stomach, remove them if they are, and administer treatments such as water and electrolytes or mineral oil or other lubricants/laxatives. Occasionally, a vet may perform an abdominocentesis (belly tap) to collect and analyze fluid that has accumulated in the abdominal cavity of the horse.

Epidemiology and Risk factors

Incidence as high in pastured horses (worms) as it does in stable horses with all possibilities of dietary errors should be considered. Rate of occurrence based on two principal etiological groups: those colic with hypermotility (spasmodic Colic, intestinal accident) common in pastured horse, when strongyle larvae active / and impactions commoner in drier times

There are important risk factors that should be considered for diagnosing of colic in different situation:

- I. Age: new born foals(up to 3d) , suckling up to 6m, adults, yearling /older than 6 months
- II. Diet: indigestible roughage lead to impaction of L.I / stable horses
- III. Helminth control: infarction of gut
- IV. Physical activity: may cause intestinal displacement / Inguinal strangulation in mating activity
- V. Breed: large breeds may more subjected to Large intestine displacement
- VI. Previous attacks of colic: for example in rolling in spasmodic colic may eventually cause bowel strangulation.

Pathogenesis

Pathophysiology of abdominal colic is based on important events like Distension of the gut : static / Transient (abdominal pain), **Ischemia and Infarction of intestinal wall and** Diffusion of

bacterial endotoxins, **Dehydration and surgical shock and Pain that may** has little part in pathogenesis except for self-injury.

Anatomical location of the lesion in colic:

Almost half of the Colic cases due to intestinal accidents in small intestine that Hypermotile movement of terminal part of ileum may goes to volvulus.

Large intestine colic tends to impaction / infarction (verminous) that you have more gas and or more distension in comparison to S.I with more secretion that tends to dehydration.

Duration of the disease:

Severe acute colic may last 48-72h (depending on size of lesion, endotoxin, dehydration, halted Ingesta) or in Chronic intestinal obstructions may have long periods that cause loss of body weight, growth rate distension and/or moderate pain.

Clinical findings

Generally applicable to severe acute colic and these are diagnostic objectives/ prognostic objectives.

Visual examination consists of

1. behavior(pain)
2. Posture(saw-horse, dog-sitting)
3. Abdomen size(only distension of cecum /colon)
4. Vomiting projectile(unusual , serious sign)
5. Defecation / feces (can be misleading)
6. Course of the disease (dying 24h >>intermittent Attack, Intestinal rupture in terminal stage

Physical examination

Hyperthermia may suggest infection cause and respiratory rate goes to 40 or 80 in minute. Pulse rate less than 60 bpm corresponds favorable prognosis but more than 100 bpm may goes to death.

Heart rate of 40 bpm, usually represented of other disease, 40-60 bpm may show luminal obst. , 60-80 bpm, shows lesion including vascular Compromise, 80-100 bpm positive indicator such lesion and heart rate more than 100bpm corresponds irreversible Damage.

Oral mucosa- pale, dry subjected to shock, Dark red to purple with Long CRT of 8 says severe dehydration, shock and Palpation of extremities is good only when the changes are great.

Auscultation of the abdomen

Continuous borborygmi suggest hypermotility (s.colic, early acute, obst.)

Absence of sounds indicates paralytic ileus / impaction

Sound can change/ continuous observation needed

Most critical area: high up in right flank/ inexperienced observers

Combined percussion/auscultation

Present of gas, ping sound characteristic of L.I displacement

Palpation of the abdomen: forceful Upward ballotement / often neglected and escape DC of peritonitis

Rectal examination:

It is probably most important part of clinical examination in colic. Knowing of location of colon, cecum, caudal edge of spleen, absence of palpable S.I are important.

Three abnormalities:

- i. Firm enlargements of intestine in form of long columns
- ii. Distension of loops of intestine
- iii. Very tight stretching of mesentery (normal mesentery of cecum right upper to anterior left lower abdomen) should be considered.

Predilection sites for impaction are pelvic flexure, right dorsal and small colon in colic. If examiner is skilled correct palpation of caudal edge of mesentery/ Ant. mesentric artery is possible. Nasogastric intubation is good method like in distension of stomach and should leave the tube for 15 minute or rotate, or siphon the content. Subacute colic: Usually the medical ones, moderate pawing, looking at, sometimes biting Flank, mild kicking, stretching, occasionally going down /rolling, duration hours or days. Vital signs not affected, gut sounds usually exist, feces usually small, dry and hard and also rectal examination usually rewarding.

Clinical pathology

Value is more in status of compromising of cardiovascular system and WBC count for differentiation of peritonitis. Metabolic status, PCV, electrolytes, lactate, acid-base balance are important.

As aid to prognosis: PCV<=45%, T. P<=7.5 g/dl, lactate<10mg/dl (S.I involve with pain only)

Criteria for high level of endotoxemia: thrombocytopenia, prolonged thrombin time and fibrinogen degradation products (poor prognosis), blood recalcification time)

Other clinical chemical findings:

1. Low cl(acute gastric dilatation)

2. Metabolic alkalosis (acute gas. dilatation/impaction of large bowel)
3. Metabolic acidosis (acute S.I obstruction)
4. Anion gap less than 20 mEq/l has good prognosis
5. ALP in plasma/peritoneal fluid
6. Examination of stomach fluid (pH, bile stained)
7. Paracentesis abdomins: nucleated cells 3000/ul (60% neut., 10-20 lymph.)
8. Central venous pressure , arterial B.P systolic:100 mmHg < 80 critical (can be 50) with Very severe pain but not shock = 250 mmHg
9. Radiography has limited useful like entrolith or sand in foals.Ultrasonography may more useful in these conditions.

Protocol for evaluating a colic patient

Behavior: severity of pain, frequency and duration of attack, food, feces, urine

Clinical / clinicopathological observations:

Pulse rate (rise) and fall in pulse amplitude (very good for shock)

Mucous membrane color / CRT – congestion / cyanosis

Changes in Temperature and respiratory rate have minor important.

Intestinal sounds:

Rectal findings-gas/fluid S.I, LI commonly surgically decision

Anterior S.I lesions/ distended loop visually do not come in touch in rectum until 6hours and reach back the pelvic cavity by 18hours later.

Amount and nature of feces: failure to defecate within 12h after treatment is not good.

Reflux through nasogastric tube

Palpation of the abdomen (pain, early peritonitis)

Abdominal Paracentesis-(Repeated exam)

Visible distension of abdomen

PCV / Prot- rise of 5% PCV In an hour is a serious decline

Skin tenting – only changes is helping

Arterial blood pressure is one of most reliable criteria

Response to analgesics

Reaction to exercise – walk the horse and see the reaction to pain after that

References (selected)

1. Leblond A, Villard I, Leblond L, Sabatier P, Sasco AJ: A retrospective evaluation of the causes of death of 448 insured French horses in. *Veterinary Research Communications*. 2000, 24 (2): 85-102.
2. Traub-Dargatz JL, Koprak CA, Hillberg Seitzinger A, Garber LP, Forde K, White NA: Estimate of the national incidence of and operation-level risk factors for colic among horses in the United States, spring 1998 to spring 1999. *Journal of the American Veterinary Medical Association*. 2001, 219: 67-71.
3. Mellor DJ, Love S, Walker R, Gettinby G, Reid SWJ: Sentinel practice-based survey of the management and health of horses in Northern Britain. *The Veterinary Record*. 2001, 149: 417-423
4. Buckley P, Dunn T, More SJ: Owners' perceptions of the health and performance of Pony Club horses in Australia. *Preventive Veterinary Medicine*. 2004, 63: 121-133.
5. Birke L, Hockenhull J, Creighton E: *The Horse's Tale: Narratives of caring for / about horses*. Society and Animals. 2010, 18: 331-347.
6. Scantlebury CE, Archer DC, Proudman CJ, Pinchbeck GL: Recurrent colic in the horse: Incidence and risk factors for recurrence in the general practice population. *Equine Veterinary Journal*. 2011, 39: 81-88.
7. Lane TJ, Whigham H: Owners' perceptions of the success of equine colic treatment. 40th Annual Convention Proceedings (AAEP). 1994, 139.
8. Smith BP, *large animal internal medicine 6th edition* 2020, Elsevier