



Understanding Colic in Horses

David W. Freeman, Ph.D.
OSU Extension Equine Specialist

Carolynn MacAllister, DVM
OSU Extension Veterinarian

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://www.osuextra.com>

Most horse owners have dealt with colic. Rather than a disease, colic is a condition of pain. Specifically, colic refers to abdominal pain most often originating from the digestive tract. Because it is a condition of pain rather than a specific disease, causes are numerous and sometimes difficult to diagnose accurately. The following are some of the agents and conditions frequently implicated with colic:

- Parasites that alter the blood flow to the digestive tract, do physical damage to tissue, or otherwise interrupt normal digestion
- Over-consumption of high energy feeds which changes the normal environment of the digestive tract
- Abrupt changes in the physical or chemical form of the diet
- Side effects of certain medicines
- Ingesting poisons, toxins, molds or other materials which do physical damage to tissue or otherwise changes the normal environment of the digestive tract
- Stress caused by changes in housing, transportation, or daily routine
- Sand impaction - ingestion of sand (where sand is common soil type) — may occur when being fed off the ground or pica (a craving of an unnatural substance).
- Enterolith formation of a mass in large intestines that result in obstruction. May be due to consumption of foreign material like wire, nails, or fencing material which serves as a nidus (a place something originates) for concretion or stone formation.
- Inadequate water consumption.
- Poor quality feeds.

A number of digestive tract disorders result in colic. All areas of the digestive tract can be affected. By location, the following is a list of commonly observed disorders that cause colic.

- Ulcers, impactions, tumors, and distension of the stomach
- Impactions, enteritis, displacements, torsion, ileus, infarctions, obstructions and intussusception of the small intestine
- Impaction, perforation, torsion, intussusception, and infarction of the cecum

- Gaseous distension, impaction, enteroliths, torsions, displacements, strangulation, obstruction and ulcerative colitis of the large colon
- Obstruction and impaction of the small colon
- Peritonitis — inflammation of the abdominal cavity

Terminology to Assist with Communicating with your Veterinarian

Many of the terms used with the diagnosis and treatment of colic may be unfamiliar to horse owners. The following list provides some of the more frequently used terms that veterinarians may refer to in communications about colic.

Colic — a condition in which the horse is showing signs of abdominal pain.

Colitis — inflammation of the colon; may result in diarrhea.

Displacement — movement of a segment of intestine to an abnormal location.

Distension — abnormal enlargement of the digestive tract that results from the pressure exerted from accumulation of gas, ingesta, fluid, or other materials in the lumen.

Endotoxemia — increased amounts of endotoxin in the blood. Endotoxin is a natural part of the cell membrane of certain bacteria found in the horse's digestive tract. Endotoxin is not usually absorbed from the intestines; however, it may be if the intestinal lining is damaged. Endotoxemia may result because of increased growth of bacteria or damage to bacterial cell walls. Several negative conditions may result. These include colic, damage to body organs, circulation problems, and death.

Enteritis — inflammation of the small intestine. Anterior enteritis refers to inflammation of the initial portion of the small intestine.

Enteroliths — stone-like concretions that form around a foreign body in the digestive tract.

Flatulent — gas, as in flatulent colic in which abdominal pain is accompanied with the passage of large amounts of gas.

Flexure — a bend in a segment of intestine such as the pelvic flexure of the large colon.

Functional obstructions — decreased rate of passage of material through the digestive tract with no evidence of damage to the normal intestinal anatomy.

Gastric rupture — gastric refers to the stomach. Rupture refers to the breaking of tissue. Gastric rupture may occur because of pressure exerted from abnormal accumulations of materials in the stomach.

Gastritis — inflammation of the stomach.

Impaction — a physical blockage of a portion of the lumen (inner portion) of the digestive tract caused by the presence of abnormal amounts of material. This includes impaction caused by heavily parasitized horses and accumulation of feed ingesta. Impactions result in accumulations of gas and ingesta.

Ileus — a condition in which the bowel is not functioning to move lumen contents at normal rates of flow because of lack of normal neuromuscular control.

Infarction — blockage of blood vessel, usually an artery that feeds an area of the intestine. Often results in an area(s) of devitalized bowel. This is most commonly caused by intestinal parasites.

Intussusception — telescoping of the intestine in which one segment of the intestine passes inside an adjacent segment of intestine, which causes occlusion of the lumen and often the blood supply.

Lipoma — benign fatty tumors that develop on the mesentery around the digestive tract. Some are attached to the mesentery by a very long, narrow stalk. These pedunculated lipomas may entwine around intestine causing a strangulation obstruction.

Mechanical obstruction — a blockage of the intestines caused by an enterolith, accumulation of ingesta (impaction) or by intestinal displacement.

Peritonitis — inflammation of the lining of the abdominal cavity.

Simple obstruction — blockage in the lumen of the digestive tract by food mass or foreign material without disruption of normal blood flow.

Strangulation obstruction — blockage in the lumen of the digestive tract and compromise of blood flow to the bowel.

Torsion — abnormal twisting of intestine.

Volvulus — involves the twisting of the intestine on its mesentery.

Recognizing the Signs of Colic

The onset of colic causes behavioral changes in the horse. Some of the more typical behavioral signs follow.

- Off feed or changes in eating habits
- Circling, laying down, rolling, laying down and rising frequently, suddenly dropping to the ground, pawing
- Violently rolling
- Reduced manure output
- Turning the head and looking back at flank or abdomen, kicking at the abdomen, or stretching out and standing for long periods
- Anxious, trembling, and possible sweating

The severity of colic can be categorized as mild, moderate, or severe. The ability of the horse owner to judge the severity requires experience and veterinarian advice. Immediate consultation with your veterinarian is recommended if in

doubt at any point or conditions suggest the colic episode is moderate to severe. Similarly, consultation with your veterinarian is important if mild colic symptoms do not resolve within a short period of time.

Several procedures can be conducted to aid in determining the severity of the colic. These procedures should be conducted as soon as colic is suspected. The observed responses will assist in the decision of contacting a veterinarian. Additionally, information regarding the status of the horse can be given to the veterinarian when contacted.

- Collect horse's vital signs of heart rate and respiration. Resting heart rates greater than 50 beats per minute may indicate moderate to severe pain.
- Evaluate mucous membranes. Gums are normally pink and moist. Purple, dry gums indicate circulation problems that suggest severe colic. Assess capillary refill time by pressing on the gums and monitoring the time for the color to return. Normally, color returns within a couple of seconds or less. Longer times suggest increased severity of colic.
- Listen for gut sounds over the flank area. Lack of gut sounds usually suggests problems.
- Removal of grain and hay is recommended, and short periods of light hand walking often help to relieve low-grade pain.

The behavioral signs and body signs should be monitored frequently to evaluate improvement. Not all the behavioral signs or body responses occur with every bout of colic, and the degree they are displayed is expected to vary. Absence of one or more of the behavioral or body signs does not necessarily mean the horse is out of danger. For example, some colic cases may not have the expected increase in heart rates, but other signs may suggest veterinarian attention. Early detection and immediate treatment can reduce the severity of a colic episode, and may make the difference for recovery.

Treatment

Veterinary treatment of colic can be categorized as medical or surgical. Routine medical procedures include the passage of nasogastric tube, rectal examination, accessing vital signs, and administering medications for sedation, pain relief and laxatives. Complex medical procedures include hospitalization for laboratory tests including blood samples and abdominal fluid samples, and supportive therapy and medications. Hospitalization also allows for more continuous monitoring and evaluation by veterinarians. Surgical procedures can involve the positioning of a displaced section of intestine, manipulating an obstruction, decompressing a gaseous formation, removing a diseased or compromised section of intestine, or removing the contents of the stomach, cecum, or intestine.

Prevention

Completely removing the incidence of colic throughout the life of a horse is doubtful. However, several management recommendations assist to reduce the frequency of occurrence.

- Because most colics can be attributed to feeds, feeding, or ingesting toxic substances, feeding management practices which promote horse health are essential. Feeding programs are designed to meet requirements of horses in ways that most safely supply nutrients. Providing a safe supply of nutrients involves furnishing clean, fresh feedstuffs and water free from toxin, mold, or other noxious substances. Also, because consumption of large amounts of energy at single feedings increase the frequency of colic, regulating the timing and amounts of high-energy feedstuff is important. Using long-stem forage as a major portion of the total diet reduces the intake of high-energy feedstuffs. A complete discussion of digestive physiology, feeding management and the

relationship of feeds and feeding with colic is found in OSU Facts 3973- Feeding Management of the Equine.

- Regular exercise programs assist the overall health of the horse, including the function of the digestive tract. As such, regularly scheduled exercise programs should be implemented for all horses managed in stalls or small pens.
- Deworming programs will decrease damage caused by parasites.
- Practice management that promotes general health, clean housing areas, and limited access to weeds or foreign materials.
- Maintain routines with horses and make adjustments in diet, housing, and conditioning as gradual as possible.

The Oklahoma Cooperative Extension Service ***Bringing the University to You!***

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, sex, age, religion, disability, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Samuel E. Curl, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Dean of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0702