How to Help Your Horse Survive Colic

Advances in diagnosis and treatment increase your horse’s chances for a swift and complete recovery.
A Note From The Editor

Here at MyHorse Daily we are committed to bringing you the latest information designed to keep you and your horse healthy, happy and productive.

Enjoy the read!

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MyHorse Daily
Sprite’s owner knew something was wrong the minute she walked into the barn. Normally, she’d be greeted by a nicker and the sound of a front hoof scraping the Dutch door as Sprite agitated for his breakfast. Today, however, there was silence.

She found Sprite standing quietly in the corner of his stall, decidedly uninterested in his breakfast or his surroundings. He was slightly sweaty and covered in shavings as if he’d been rolling. When she led him out, he walked willingly but then stood in the aisle listlessly, with an almost “worried” expression. Sprite had colicked the previous summer, and from all the clues, it looked as if it was happening again.

In the early stages of colic, your actions can have a huge impact on a horse’s ultimate prognosis. A mistake, oversight or misinterpretation at this point can exacerbate the severity of the condition.

The first thing to do is assess the situation. When trying to determine what you’re dealing with, consider these clues:

- **Demeanor.** Like people, horses react to pain in different ways and some are more stoic than others. A colicky horse may be agitated and panicky, or he may be quiet, introverted and sullen. Your biggest clue will be a change from his normal behavior.

- **Absence of manure.** A colicking horse may pass manure, so its presence doesn’t mean you’re out of the woods. On the other hand, a lack of manure may signal an impaction or another type of digestive disruption.

- **Vital signs.** A heart rate exceeding 60 beats per minute (compared with the normal average of 30 to 40) is associated with significant pain and severe colic. It’s also wise to take a horse’s temperature (normal is 99.5 to 101 degrees Fahrenheit) and monitor his respiratory rate (the normal range is six to 20 breaths per minute depending on the horse’s size and the ambient temperature). Finally, check the color of his gums and do a capillary refill test. Anything other than the normal pink and more than a two-second return of color can be a sign of systemic shock.

As you gather this information, do what you can to keep the situation from worsening. First, remove all food and water. If the horse has an impaction or twisted gut, ingesting anything will increase the pain, pressure and severity of the colic. If you believe your horse is colicking or is otherwise ill, call your veterinarian. Based on the information you provide and your answers to her questions, she may give you instructions over the phone and ask you to update her later. In that initial call, however, you are just as likely to relay a seemingly minor detail that alerts the veterinarian to a potentially serious and complicated colic, sending her to the farm immediately.

When help is on the way

Sprite hadn’t touched his feed from the night before and hadn’t passed any manure. Those signs, plus his obvious discomfort, led his owner to call the veterinarian right away. After hearing the details of the situation, the veterinarian said she would head out as soon as she finished her current farm call.

It’s difficult to know what to do while you wait for the veterinarian to arrive. Research suggests that it’s best to let your horse be your guide. If he is lying quietly in a safe place, let him be. Contrary to popular belief, walking a colicky horse is not necessary or even advisable in some cases. You cannot “walk a horse out of colic,” nor is there any evidence that keeping a horse on his feet prevents the gut from twisting.

On the other hand, if the horse is anxious and you think walking will help calm him, then go ahead. Walking may help keep a horse from hurting himself if he is thrashing in pain, but this is extremely dangerous for a handler. If he’s flailing around so violently that you’re hesitant to approach him, stay at a safe distance until the veterinarian arrives.

While you’re waiting, hook up your
trailer. If you don’t have one, start making calls to find a friend—or a friend of a friend—who has one you can borrow. Also pull together your Coggins papers, insurance information, cell phone charger and checkbook. If your veterinarian decides to refer your horse to a hospital, you’ll want to get on the road right away.

What you absolutely do not want to do without consulting your veterinarian is administer any type of medication. Even though you may have some Banamine on hand and your veterinarian may have given it to the very same horse for a seemingly similar colic before, administering it without veterinary guidance can be disastrous.

I’ve seen this heartbreaking situation unfold more than once: The owner administers Banamine or bute to a colicky horse without consulting a veterinarian. The horse seems fine or even “cured” for several hours and continues to eat. When the drug wears off, however, the colic signs return and the situation is worse than before. The owner then administers additional doses of the anti-inflammatory, not realizing that a piece of small intestine inside the horse’s gut has twisted and is slowly dying. The horse becomes increasingly dehydrated, and the medication begins to cause kidney damage. The twisted intestine starts to leak fluid, protein and red blood cells and then white blood cells and entire bacteria. Finally, the piece of twisted intestine is dead and is no longer painful. The horse no longer wants to lie down or roll, and often the owner thinks he is doing better. But septic shock is setting in and may soon be so severe that the horse’s life is lost. I wish this were an exaggeration of events, but it happens regularly.

No time to spare

Sprite’s veterinarian arrived within a half-hour and began a full physical exam, updating the vital statistics that were relayed over the telephone. Sprite’s heart rate was holding steady and his gums had a pinkish hue, both good signs. His attitude, however, was still “off” and he had become slightly agitated, looking at his sides from time to time and standing in a stretched posture.

To gather more information, the veterinarian performed a rectal exam and ran a nasogastric tube while asking Sprite’s owner a series of questions about his overall lifestyle and management.

When your veterinarian arrives on the scene, the foremost question in her mind will be

**If your horse appears to be severely colicking and your veterinarian cannot be found or her arrival will be delayed, call the nearest referral hospital and discuss with them the possibility of driving the horse directly to the facility. Most emergency equine hospitals will accept emergency colic cases 24/7 even without a referral.**
Veterinarians divide the diagnosis of colic into “medical” and “surgical” cases and use the term “lesion” to refer to any abnormality of the gastrointestinal tract.

Surgical colics have zero chance of survival unless a procedure is performed in a timely manner. These include:
- twists of the small intestine, small colon or large colon
- entrapments of intestine in normal or abnormal anatomic locations, such as intestines that have slipped through inguinal or umbilical hernias and tears in the mesentery, body wall or diaphragm
- evisceration through surgical incisions after castration or abdominal surgery
- strangulating lipomas, which occur when fatty masses suspended from a stalk of tissue wrap around a piece of bowel and block off passage of ingesta and impair the blood supply to the bowel.

All of these are classified as “strangulating” (ischemic) lesions because the blood supply has also been severely limited. A piece of bowel that is dying will need to be surgically removed and then the healthy ends of the intestines reattached to each other.

Types of “nonstrangulating” (non-ischemic) lesions include:
- displacements of the large colon
- obstructions by foreign objects (plastic bags, baling twine)
- natural obstructions such as enteroliths, large stones made in the horse’s own intestinal tract of mineral concretions
- fecaliths, large, hardened blockages of manure, and severe impactions of feed or meconium

Medical colics are those that can be resolved without surgery, but they aren’t necessarily easy to treat. These include:
- “gas” colic, which is caused by an accumulation of gas that fails to pass through the intestine for a period of time
- impactions of concentrated masses of feed.

The most common location for impactions is in the narrowest part of the large colon, called the pelvic flexure, but blockages can occur in the cecum, small colon, small intestine and even the stomach.
- anterior enteritis, an inflammation of the small intestine usually caused by an infection or excessive feed intake. The inflamed intestine stops functioning and the digestive juices and fluid accumulate in the small intestine and back up into the stomach. These horses may also have a fever and a low white blood cell count and are at risk of developing laminitis.
- peritonitis is an infection of the lining of the abdomen and outer surface of the intestines. Peritonitis can cause acute discomfort or vague signs such as poor appetite, depression and weight loss. Peritonitis is diagnosed by obtaining a sample of the fluid that exists around the intestines. If it is cloudy, creamy or bloody, there may be peritonitis.
“Does this horse need to go to the hospital?” Numerous studies have shown that the biggest variable affecting survival in serious colic cases is the time lapse between when the horse’s problem is discovered and his arrival at a surgical facility—scientific evidence that the “wait and see” approach is a bad one.

As part of the diagnostic workup, your veterinarian is likely to perform a rectal exam to feel for impactions, distention or displacements. Palpation can be used to check a surprisingly large portion of the digestive tract, including the cecum, small intestines and pelvic flexure, where the colon bends 180 degrees and which is a common site of impactions.

She’s also likely to run a nasogastric tube up your horse’s nostril, down the esophagus and into the stomach. Often used to deliver medication, the nasogastric tube can also be used to check for reflux, the backup of food and fluid in that stomach that occurs when the intestine is blocked. Reflux is a sign of serious colic and can itself be quite dangerous; because a horse cannot vomit, the rapidly expanding stomach can rupture from the escalating pressure. The veterinarian will collect and measure the volume of fluid to calculate the “net reflux.” Two or three liters (about a half gallon) is normal, but sometimes 10 or 20 liters (two to five gallons) are siphoned off from an ill and miserable horse.

Your veterinarian may decide the colic, at least for now, can be treated on the farm. In fact, most cases can be remedied on-site by the horse’s regular veterinarian with a combination of medications and rehydration with oral or intravenous fluid.

Ninety percent of colic cases on the farm appear close to normal one hour after medication administration. Anti-inflammatory drugs are powerful painkillers, and in the time it takes them to wear off, the colic episode may have completely resolved. In these cases, a watchful eye for the next 24 hours may be all that is necessary for a full recovery.

In some cases, however, a horse may require services only an equine hospital can provide. If an initial examination turns up any of the following clues, your veterinarian will make a referral:

- pain unresponsive to painkillers and sedation
- persistent sweating, agitation, muscle trembling
- heart rate faster than 60 beats per minute
- fever
- abnormal-colored or dry mucous membranes
- more than three liters of reflux from the stomach after passing a nasogastric tube
- abnormal rectal palpation
- no feces in the rectum, or lack of fecal production
- lack of return of normal gastrointestinal sounds following treatment
- moderate to severe dehydration.

**To the hospital**

Over the next hour, Sprite’s condition did not improve despite the administration of medication and intravenous fluids. In fact, he became even more withdrawn and his heart rate crept above 55 beats per minute. His veterinarian explained that although she wasn’t yet sure Sprite’s colic was a surgical case, she was referring him to the local university clinic. Not only would the clinic have the latest in high-tech diagnostic tools and a large 24-hour staff to care for the gelding, but if he took a turn for the worse, he could be in surgery in a matter of minutes. As Sprite was loaded into the trailer for the hour-long ride, the veterinarian called ahead to alert the university staff.

Even if your veterinarian has called ahead with details of the case, contact the clinic yourself when you are 20 or 30 minutes away. This gives the team the chance to be prepared to handle your horse the moment you arrive. Also call if you get lost or even think you are. The clinic staff is prepared to direct drivers.

As soon as you arrive at the hospital, you’ll probably be asked to fill out admission paperwork. Do not be surprised if a deposit is also requested. In the past many teaching hospitals were able to subsidize the care of horses to help teach veterinary students. This is no longer the case. As all of this is going on, your horse will be unloaded and taken away by the hospital staff. Don’t fret; he’s in good hands.

An initial assessment—evaluating the degree of stress, level of pain, the presence or absence of abdominal distension—is often made as the horse is walked to the examination room. He’ll also probably be weighed. If the horse is down in the trailer or agitated from pain, the clinician may skip the longer examination and instead administer sedatives or painkillers at the trailer, insert a catheter and have the horse moved directly to the anesthesia induction stall for surgical preparation.

If the gum color, refill time and heart rate are normal, however, and the horse appears fairly comfortable, then the examination can proceed at a regular pace with time allowed to obtain a thorough history and perform a full examination. All of the following may be performed either sequentially or simultaneously under the direction of the attending clinician:

- a full physical examination, including gastrointestinal sounds, respiratory rate and heart rates and rhythms. This may seem redundant with what your veterinarian had done, but a horse’s stats can change quickly, for better or worse.
The Bottom Line

Colic surgery is expensive. Costs from admission to discharge at Auburn, where I work, can vary from $2,000 to (rarely) more than $12,000. In a general way, the costs correspond to the underlying diagnosis: $3,000 to $5,000 for a “nonstrangulating lesion” and $5,000 to $7,000 for a “strangulating lesion” without major complications. The horses with bills more than $7,000 usually had part of their intestine removed and have had some serious complications such as severe post-surgical ileus, laminitis, diarrhea or a hernia. Some of these horses have undergone more than one surgery.

Of course, the surgery itself is only part of the expense: Horses receive approximately three to 13 days of intensive care after surgery, with around-the-clock supervision, intravenous fluids, refluxing, antibiotics, analgesics, often multiple infusions with motility enhancing drugs, plasma transfusions, endotoxin binders, anti-ulcer medications and sometimes intravenous nutrition. The drugs and intravenous fluids that are used in equine hospitals are exactly the same as used in human hospitals, and horses generally outweigh a person by seven to 10 times.

As a veterinary specialist working in a rural area, I find that the best care for my patients doesn’t always entail administering all the new drugs or performing all the available diagnostics. Rather, more often it is deciding which corners we can try to cut to fit within an owner’s budget. Everything requires a careful cost-benefit analysis: Does the horse really need plasma? Can we get by with two liters rather than five? Will the horse tolerate procaine penicillin rather than intravenous penicillin? If the results of diagnostic tests are not going to change my plan then I will not perform them. It may cost only $35 for a blood count, but that may pay for half a day’s antibiotics. We always offer the ideal treatment plan as well as a plan B and sometimes even plans C and D.

Treatment decisions

Sprite’s attending clinician conferred with the surgeon on duty. It had been six hours since Sprite was discovered colicking, and although there were no obvious signs he needed surgery, he wasn’t improving even after receiving medication and fluids. Exploratory surgery could reveal the cause of the troubles as well as provide a solution, or it could reveal nothing at all. The surgeon and clinician gathered their notes and called in Sprite’s owner for a difficult conversation.

A clinician will weigh several factors when making a provisional diagnosis and deciding on an initial treatment plan: the horse’s history, findings from the physical examination, the horse’s level of pain and response to painkillers, presence of reflux, abdominal ultrasound examination, assessment of blood work and peritoneal fluid. Each of these elements must be considered individually, as well as part of the bigger diagnostic picture.
Applied Science

A veterinarian who takes a colicky horse’s heart rate and immediately makes a referral to a surgical facility isn’t being overly cautious or going on gut instinct—she’s basing her recommendation on the findings of numerous scientific studies conducted over the past decade that compared clinical findings with outcomes of colic cases.

These studies are typically retrospective, meaning researchers mine the records of equine hospital patients for data such as the horse’s vital signs, results of blood work and imaging, treatment protocols and medications given. Correlations between various factors and the outcome of the case are then identified and statistically verified.

Such research helps practitioners in the field focus on the clues most likely to indicate the severity of a horse’s colic and give less weight to those signs that might seem important but ultimately aren’t. These studies also help veterinarians at referral clinics know which diagnostic techniques will reveal the most useful information, which horses to rush to surgery, and what complications are most likely to crop up.

Here’s a rundown on just a few of the studies in recent years that have yielded valuable insights about the best treatments for colicking horses.

► Study: “Evaluation of a protocol for fast, localized abdominal sonography of horses (FLASH) admitted for colic,” The Veterinary Journal, March 2010
Conclusion: A specialized 10-minute abdominal scanning protocol can identify the need for surgery with accuracy similar to that of a full 45-minute procedure.
Practical application: Clinicians at referral clinics, who may not have the time to do a full ultrasound exam in an emergency situation, can be confident that this quicker assessment can reveal the same information.

► Study: “Surgical management of sand colic impactions in horses: A retrospective study of 41 cases,” Australian Veterinary Journal, October 2008
Conclusion: Of 41 horses diagnosed with sand colic during exploratory surgery, 85 percent survived to be discharged, and 100 percent of survivors lived for at least another year. A third of the study horses had sand impactions in multiple locations.
Practical application: When sand accumulation is a suspected cause of colic, clinicians may advise early surgical intervention with a favorable prognosis.

► Study: “Comparison of survival rates for geriatric horses versus nongeriatric horses following celiotomy for colic,” Journal of the American Veterinary Medical Association, November 2009
Conclusion: Horses older than 20 are no more likely to develop post-surgical complications than younger horses; 82 percent of geriatric horses undergoing successful colic surgery survived to be discharged from the hospital, compared to 89 percent of younger colic patients. In the long-term, 70 percent of geriatric horses lived a year or more following surgery, compared to 84 percent of younger horses.
Practical application: Veterinarians, surgeons and owners need not exclude a geriatric horse as a surgical candidate based on age and fear of associated complications.

Conclusion: Parameters associated with fatal gastric rupture include: fever, abnormal coloring of the mucous membranes, brownish-green peritoneal fluid, the discovery of gritty material outside the intestines during a rectal exam and large, distinct pockets of gas in the upper portion of the gastrointestinal tract seen on ultrasound examination.
Practical application: More accurate diagnosis of gastric rupture, even in the field, can spare horses with no chance of recovery the ordeal of transportation to a clinic and surgery.
Sometimes, the horse seems to be a textbook case of a particular type of colic, and the path ahead is fairly easy to choose, whether it’s surgery or continued medical support (see “The Causes of Colic,” page 5). Often, however, there is a large “gray zone” where the clinician has a gut feeling based on the entire assessment that surgery is required, but she is still not exactly sure. In these cases, the surgeon will usually go with her gut and recommend surgery.

The decision to take that recommendation isn’t always straightforward for owners. Your regular veterinarian and the specialist can help provide you with all the likely scenarios, chances of survival and risks of complications. Sometimes we can offer a very good prognosis prior to surgery; at other times we have no idea what we may find.

Performing colic surgery to gather more information isn’t unusual. Colic surgery is technically referred to as an “exploratory laparotomy” for just that reason. In the end, however, only you and your family can make the final decision regarding surgery.

Don’t feel bad if finances are a factor (see “The Bottom Line,” page 7). We like to think we’d spend anything to save our horses, but sometimes the reality is that we can’t. Opting to not have recommended surgery isn’t necessarily a death sentence for horses. Over the years there have been a small number of cases in our hospital that various clinicians thought had little chance of survival without surgery that have actually turned out to have a medical colic and went on to fully recover.

Sometimes, however, a horse is beyond trying to save, and as veterinarians, one of our primary obligations is to prevent animal suffering. I will recommend euthanasia as fervently as surgery if I think the horse will not survive.

A surgical solution

Sprite was taken into surgery around 5 p.m. His owner waited outside the surgical suite for word of his condition. Nearly two hours later, a veterinary student emerged to report that a loop of intestine had passed through a hole in the mesentery; the thin membrane that attaches the intestines to the body wall. The trapped portion of intestine had begun to die from lack of oxygen. Most horses would have shown more obvious signs of pain, but Sprite, for whatever reason, had not. The surgeon removed the damaged portion and sutured the healthy sections back together. Because Sprite was sent to surgery relatively quickly, his prognosis for a full recovery was good, but he was not out of the woods yet.

After surgery, a horse is moved to a heavily padded stall to recover. You most likely will not be able to watch your horse regain consciousness, but the post-surgical staff tending to him are specialists in this area. Along with intravenous fluids and antibiotics, they may also administer lidocaine, both for its painkilling properties and because it increases intestinal motility, the natural digestive activity of the organ. The staff will also monitor the horse’s gut sounds, manure output and other signs that may indicate intestinal shutdown (postoperative ileus), a serious complication.

In the days after colic surgery, the hospital staff will slowly reintroduce grass and hay to your horse’s digestive system. Grain most likely won’t be on the menu until he’s been home for several days. Your horse’s vital signs, particularly heart rate and temperature, will be taken several times a day to monitor for brewing infection and/or the return of pain. The clinicians will also monitor the healing of the incision site for signs of infection.

Horses typically return home two or three days after uncomplicated colic surgery. They usually have finished their antibiotics but may be on low levels of painkillers or anti-inflammatories. The hospital staff will write out these medication details, wound care instructions and a protocol of hand-walking and feeding for you in a discharge document.

You’ll also be taking over the job of monitoring your horse. The risk of postoperative complications is highest in the hours and days immediately after surgery, but they still exist for weeks afterward. These include:

• adhesions, created when abdominal inflammation causes segments of the bowel to stick together or to the belly wall. Adhesions cause colic-like signs and may require further surgery to correct.
• infection at the incision site
• herniation of intestines through the incision site. One study found that herniation can develop as long as 100 days after surgery, so continue to be vigilant.
• recurring colic.

Call your veterinarian immediately if you suspect your horse is developing any complications in the weeks after surgery.

Sprite continued his convalescence at home uneventfully. Two months after surgery, he got clearance from his regular veterinarian for full turnout, his usual ration and a return to the trails. It took his owner a bit longer to “recover” from the stress and worry of the situation, however. It wasn’t until several months later that she didn’t scrutinize every tail swish and hoof stomp, fearing the worst. But that vigilance is what saved Sprite’s life once and would protect him in the future.
Credits

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