

# Colic Surgery – Is it the Right Decision for My Horse?

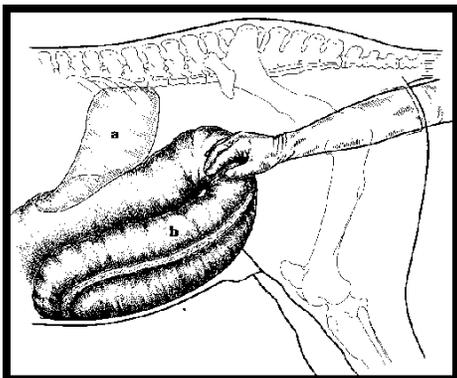
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“Colic” is the basic term for any abdominal pain a horse experiences. Abdominal pain can have numerous causes but in the horse certain causes are more common than others. When a horse is unresponsive to medical treatment for colic or shows specific signs indicating to the veterinarian that surgery is needed, your vet may recommend that the horse “go to surgery”. Colic surgery is not without risks and can be costly, but it can also be life-saving for your horse. The article below will discuss some of the basic reasons a horse may need surgery to correct colic, the risks of surgery, a basic outline of the procedure, and the recovery and prognosis of colic surgery.

## How Veterinarians Decide if the Horse Needs Surgery

When your horse is experiencing colic a veterinarian uses their knowledge and experience to determine the cause of the abdominal pain, gauge the severity of the problem, and begin treatment aimed at correcting the problem and easing the pain. Common diagnostic procedures used by veterinarians seeing a colicky horse are physical examinations, rectal examinations, naso-gastric intubation, abdominocentesis, ultrasound and bloodwork (serum biochemistry/ complete blood count).

The physical exam is the most basic and first step your vet will use to investigate the problem. Certain findings on a physical exam can point to a more severe and possible “surgical” colic. Very high heart rate, extreme pain (horse refusing to get up, throwing themselves down, profuse sweating), abnormal gum color, lack of gastrointestinal sounds, and a bloated appearance all point to a serious case of colic that may be amendable only by surgery. A rectal examination is performed in an attempt to determine the cause of the colic. A veterinarian can sometimes feel an impaction (gut distended and blocked by food or sand) or distended bowel due to fluid or gas accumulation. Bowel loops or other organs may feel displaced if the intestines have moved to an abnormal location in the abdomen or have twisted. When abdominal organs are in the wrong location it is a strong indication that the colic may be only correctable by surgery.



To the left is a drawing depicting rectal palpation performed by a veterinarian. The hand is feeling the large colon with an impaction present. Veterinarians use this skill in an attempt to determine the cause of colic symptoms.

Picture from  
<http://research.vet.upenn.edu>

Nasogastric intubation is when a tube is passed through the nostril, into the nasal cavity, down the back of the throat and the esophagus, and into the stomach. The anatomy of a horse does not allow him to vomit, so if gastrointestinal (GI) contents can't move though they begin building up in the stomach. When a vet passes a nasogastric tube (NG tube) they allow the horse to "throw up" the accumulated GI contents. The vet will pump some water into the tube and see if the water comes back up along with other stomach contents. This tells the vet that things are not moving past the stomach and is an indicator that surgery may be needed to correct the colic.

Abdominocentesis is a sterile sampling of the contents of the abdomen using a needle or teat cannula. The contents are evaluated to determine if the gut is leaking contents into the abdominal cavity. This tells the vet about the health of the GI tissue and can determine if the gut has a tear or is ruptured. Ultrasound may be performed to determine if the gut is still moving and can sometimes help the vet see if the GI tract is located in the wrong place. Bloodwork can tell the vet if the horse is healthy enough to undergo surgery. Liver and kidney function are important to determine if the body can handle anesthesia and blood/platelet counts let the vet know if clotting or infection may be an issue.

One of the most important tools that veterinarians use to determine if a horse needs surgery is by observing the horse's response to pain or anti-inflammatory medication (i.e. Banamine). If the horse has had anti-inflammatory medication, muscle relaxers, and pain medication and is still acting painful, it is likely the horse needs surgical intervention.

Using all of these tools the veterinarian can put together the information needed to decide if your horse needs surgery. Colic surgery is something that needs to be done sooner rather than later if it is to be successful. Becoming knowledgeable about the procedure will help you to be able to decide quickly and confidently whether or not you would be willing to have your horse operated on in case of a colic emergency.

## **Is Your Horse a Good Candidate for Colic Surgery?**

Despite all good intentions of the owner, some horses are not good candidates for colic surgery. Unfortunately sometimes the horse may be too physically compromised by the time they are seen by a veterinarian, and surgery may not be a realistic option for the horse.

Time is of the essence when dealing with a colicky horse, especially if the owner is willing to pursue surgery if needed. Depending on the cause of the colic, as a horse continues to colic certain complications can begin to arise within the body. If the GI tract is twisted or entrapped it may begin to lose blood supply and the tissues subsequently die. As the bowel dies it begins breaking down and can release toxins and bacteria into the abdomen and the blood stream making the horse "toxic" and/or "septic". As these toxins and/or bacteria travel to different organs they begin to affect

their function, which can eventually lead to multiple organ failure. The bowel or stomach may become so distended that they rupture and leak their contents into the abdomen. These complications make the success rate of surgery very low if not impossible.

Successful anesthesia and surgery require that the horse have kidney and liver function in order to metabolize the anesthetic and other drugs used during and after the procedure. The animal should also have adequate clotting ability as well as be in good hydration status. The horse should not have any concurrent infections and its immune system should be functioning correctly. Any other diseases or disorders (example: PPID ("Cushings"), EPM, etc.) can make surgery more complicated. Additionally, surgery can be more risky if your horse is pregnant, especially if the pregnancy is advanced.

One myth that people commonly hear about colic surgery is that older horses will not survive the surgery. This is not true, and horses of a variety of ages can have a good outcome. Because older horses may have less ability to metabolize drugs as well as younger ones and because they are more prone to certain disease (example: "Cushings"), it may be that they tend to not be good candidates for surgery. A healthy older horse, however, is a fine candidate for surgery if that is the option the owner would like to pursue.

## **Colic Surgery – The General Procedure**

Colic surgery is technically termed an "exploratory laparotomy", meaning the surgeon is opening up the abdomen to explore its contents to find out what is causing the clinical signs the horse is experiencing. This procedure is done in a hospital and requires that the horse stay overnight for several days in order to monitor him post-operatively. Below are pictures that will illustrate what happens in a typical colic surgery. This surgery was performed at our hospital (Fedore Large Animal Veterinary Services).

Before surgery begins the horse is given a sedative, broad-spectrum antibiotics, and anti-inflammatory medication. An IV catheter is placed in the jugular vein to deliver fluids and other medications as needed to the horse. The horse is then injected with an induction-agent which causes him to lie down. Once the horse is down a tube is inserted down his trachea to deliver gas anesthesia. The horse is supplied with oxygen and gas anesthesia until he is at the correct depth of anesthesia where he can be moved safely to a table.



The anesthesia gas is delivered through the machine down a tube that is placed in the horse's mouth and down its trachea. The horse in the picture is lying on its back with its muzzle on the left side of the page.

The legs are hobbled and hooked to an overhead pulley system that lifts the horse into the air. The pulley is then moved (which moves the horse) and situated over the surgery table. The horse is gently lowered onto the table and placed on his back for the surgery.



Once the horse is on the table, it can be "prepped" for surgery. Prepping includes placing instruments to monitor the horse's vital signs, hooking up fluids to his IV line, shaving the entire abdomen, and surgically scrubbing the shaved area. During the prepping stage the horse is carefully monitored for depth of anesthesia and adjusted as needed. The surgeons "scrub in" and dress in full surgical garb.



The horse is completely covered with sterile drapes except for a small portion of the abdomen where the incision will be made.



The first incision is made by the surgeon, Dr. Fedore. Once the abdomen is open the surgeon will begin their exploration. Because the abdomen is so voluminous on a horse, the surgeon must wear large sterile waterproof sleeves to reach deep into the abdomen. The surgeon will use their knowledge and experience of horse anatomy to determine whether everything is in the correct location or not.



The bowel is exteriorized and examined for any abnormalities. Things that the surgeon looks for include abnormal color of the bowel wall (purple/black), tears in the tissues, and tumors.



If the intestines are extremely distended with gas, the gas will be suctioned off. For impaction colics, like the case pictured here, the bowel is layed out on a sterile table and opened. The contents are evacuated by lavaging the bowel with copious amounts of water and massaging the contents out into a waste container. The intestinal incision is then closed and thoroughly rinsed. After all the intestines have been checked for abnormalities and the abnormalities have been corrected, the surgeon then places the intestines back into the abdomen. The abdomen is sutured or stapled back together using several layers of closure.



After the surgery is complete the horse is placed in a padded recovery stall, where it will wake up from the anesthesia. After the horse is steady on its feet and standing, it is led back to a stall to begin the healing process. A “belly bandage” is often placed around the abdomen to assist in keeping the incision site clean and giving extra support to the abdominal wall. The horse will be given antibiotics and anti-inflammatory drugs until the veterinarian has determined he is no longer in need of them. Usually the horse stays in the hospital for several days to be monitored for return of colic signs, infection, and other complications that may arise.

## Risks of Colic Surgery

This article cannot possibly cover all of the risks of colic surgery in horses, but aims to give the reader a broad picture of the dangers involved as well as dispel some common myths about them. Most of the hazards associated with colic surgery are case-dependent, meaning that a foal with an intestinal strangulation has different risks than a pregnant mare with an impaction colic. In general, most of the danger comes from the horse being under general anesthesia, recovery from general anesthesia, infection, and return of intestinal functions.

Although great improvements have been made in the safety of general anesthesia over the years, there is always a chance that things will go wrong. Risks associated with general anesthesia are greatly reduced when the horse goes into surgery with functional organs (kidney, liver, etc.) and the veterinary staff is experienced in monitoring anesthesia in an equine patient. Many hospitals have trained staff that constantly monitor the horses vital functions as well as check their depth of anesthesia during and after the surgery (until the horse is standing and stable). This allows changes to be made to the anesthetic level and life-saving drugs to be administered when needed.

Recovering from general anesthesia can be a challenge in horses because of their extremely large muscle mass coupled with a flight-or-fight response. Extra-large horses (draft, warmbloods) risk damaging muscles and nerves from the pressure of their

body weight. Nerves and muscles can be protected during surgery by padding and correct positioning of the horse during surgery. Monitoring blood pressure and administering medication to maintain adequate mean arterial pressure has helped reduce anesthetic myopathy and neuropathy complications. Additionally, some horses may wake up after surgery and try to stand up immediately. The anesthesia causes muscle incoordination and balance issues, which may scare the horse as it tries to stand up. The horse may end up stumbling and falling which can injure the horse. These injuries can be prevented by having a safe area for the horse to recover (padded room) and by monitoring the recovering horse.

When a human or animal undergoes any surgery, there is always a risk of infection. Because the horse cannot be kept in a clean environment at all times, the risk of post-operative infection is greater than that of a human. Additionally, in colic surgery the bowel is sometimes opened up, which can contaminate the abdomen. Furthermore, sutures or staples used to close the abdomen can serve as a wick for infectious agents to enter the body. The risks of infection are decreased greatly by the surgeon's sterile technique and the administration of antibiotics pre and post-operatively.

## **Post-Surgical Care and Life**

After colic surgery your horse will need significant time to recover before beginning any athletic activities. The exact rehabilitation plan will vary between veterinarians, but generally the horse will be on stall rest for a month to several months to prevent him from running around and tearing out the sutures. The horse will probably need to be hand-walked daily in order to decrease swelling at the incisional site. After about 2 weeks your veterinarian will remove the sutures or staples and check the incision site. Eventually your horse will be okay to be turned out in a paddock as they continue to heal. Depending on your individual situation and your veterinarian's preference, your horse may begin to resume light training as early as 4 months post-operatively.

Many think that once a horse has colic surgery they are more prone to colic in the future. That is not necessarily true. The risk of repeat colic episodes is due to adhesions (scar tissue) that may form in the abdomen between various structures. These adhesions can create places where bowel can be trapped and strangulated or can narrow sections of the bowel. As veterinarians research surgical techniques and outcomes, they are developing ways to prevent these adhesions from forming. No technique is perfect, but we have come a long way in improving success rates.

Peer-reviewed academic studies have shown that horses that survive colic surgery are able to live long productive lives. Stallions can continue to breed, mares can continue to foal, and athletes can return to rewarding careers in any chosen endeavor. Additionally, aging horses can return to previous activities in a similar manner as younger horses.

## Cost of Colic Surgery

The base cost of colic surgery will vary greatly depending on the area in which one resides and between individual veterinary hospitals. The final cost of the surgery depends on many factors, including the size of the horse, operative procedures, time under anesthesia, and recovery time. A miniature horse that has a simple displacement of the colon will cost significantly less than a draft horse with a small intestinal strangulation. The low end of colic surgery can start at \$2000, and the high end can go up to \$20,000. The average cost at our facility is between \$3000 and \$6000. The aftercare is an additional factor. For instance, some horses can go home a week after surgery with no complications. Others develop complications, such as infections or laminitis, which adds to the total cost. It is virtually impossible for a veterinarian to give an exact quote on colic surgery costs, so it is important for the horse owner to keep in mind that an estimate is a number that can vary by thousands of dollars.

Because colic surgery is a large investment, some clinics will accept payment plans with a significant deposit (\$2000 or more). We also accept Care Credit and the major credit cards. Every clinic is different, and some expect payment in full before the horse goes home. It is critical that the horse owner understand the expectations of payment terms and is comfortable with them before the horse undergoes surgery.

## Conclusion

A severe case of colic can come up unexpectedly and requires quick decision making by both the horse owner and veterinarian. Your veterinarian will determine if surgery is needed to correct colic symptoms using a specific set of diagnostic tools. Colic surgery is not without risk and requires a significant financial investment by the horse owner. However, contrary to some beliefs, after a successful surgery, a horse can return to their regular activities and have as much chance to be fruitful in their endeavors as any other equine.