A friend lost a 12 year old gelding due to "death from toxic shock." Can you help me better understand the cause, symptoms and treatment available?

The horse is very sensitive to bacterial derived toxins. Although they can absorb toxins from a variety of bacterial infections, more often they originate from internal sources. One of the most common emergencies equine veterinarians deal with is "Colic." Colic as a general term simply indicates abdominal pain, of which there are many different causes (i.e. large colon impactions, colitis, "twists" of the small or large intestine, etc.)

The horse is designed to be a continuous grazing animal. To digest all this plant material, the large intestine (cecum and colon) has lots of bacteria that live in this "fermentation vat." The bacteria and toxins that reside in the large intestine can be deadly to a horse if significant amounts are absorbed into the blood stream across a damaged intestinal wall.

In a normal horse, the lining (mucosa) of the intestinal tract is healthy and acts as a barrier to toxin absorption. If a horse has normal liver function, the small amount of "bacterial toxins" that are absorbed each day are then easily removed by special cells in the liver.

With certain types of colic such as colitis (inflammation of the colon) where the mucosal lining of the intestine is damaged, large quantities of "bacterial toxins" are absorbed from the colon into the bloodstream. These toxins cause widespread stimulation of the horse's immune system. The resulting massive release of inflammatory products from the immune system can be overwhelming and effect many body systems, often culminating in "death from toxic shock."

There are often massive fluid shifts within the horse's body and tremendous fluid loss in the form of diarrhea. Thus, horses often show marked signs of dehydration (high heart rate, sunken eyes, dry, red oral mucous membranes, cold legs and ears). The fluid loss and widespread inflammation can cause altered blood pressure and compromised blood flow to the kidneys and feet. Because of this, kidney failure and laminitis can be life threatening complications in horses treated for this condition.

Emergency veterinary attention is imperative. Critical care often includes intravenous (IV) fluid support, nutritional support, intensive monitoring, and many other medications to combat shock. These may include anti-inflammatories, or specific medications to bind "bacterial toxins," maintain blood pressure, and improve blood flow to the kidneys and feet.

Unfortunately, the horse is one of the most sensitive species to "bacterial toxins," and despite aggressive medical treatment, sometimes succumbs to the effects of shock. At OSU, we have two boarded equine internal medicine specialists, three boarded equine surgeons, four residents in training, and one intern in training, as well as numerous students and technicians to manage equine emergencies typical of the above scenario. Fund raising is currently underway to build a new Equine Critical Care Unit at the OSU Veterinary Teaching Hospital. When finished, it will allow us to manage these critical care cases in a central location with state of the art monitoring.

This column is provided by the faculty of the OSU Boren Veterinary Medical Teaching Hospital.

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