

Postanesthetic Complications in Horses

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Likely everyone who owns animals has heard stories of unexpected complications of what should be a routine surgery. Recovery from general anesthesia is particularly problematic in horses, as struggling to rise when the horse is not quite sufficiently recovered can cause major trauma to bones and muscles. Fortunately, veterinary surgeons these days have far better anesthetic agents and far better recovery facilities than in years past, and complications occurring during recovery from anesthesia are far less common now than in the past.

There are still two complications, though, that horse owners, and particularly Friesian owners, should be aware of. That is, postanesthetic myopathy and postanesthetic myelopathy. These two disorders have similar sounding names, but are very different. Myopathy refers to muscle weakness or degeneration (myo = muscle; pathy = something wrong). Myelopathy refers to damage to the spinal cord (myelo = spinal cord). Of the two, myopathy is more common than myelopathy. Myelopathy, however, is always fatal, whereas horses with postanesthetic myopathy can recover. That's because muscle can regenerate after damage, but spinal cord has no capacity for regeneration.

Postanesthetic myopathy has been recognized to occur more often in heavily muscled horses. Years ago it was found that decreased blood pressure during surgery could cause myopathy. It was proposed that, when blood pressure was low, the weight of heavy horses caused reduction in blood flow to the muscles resulting in myopathy. That was before monitoring of blood pressure during surgery, and drugs to maintain normal blood pressure, became available. These days, blood pressure is carefully monitored and maintained in most equine surgery facilities. So, why does postanesthetic myopathy still occur? Even more recently it has been recognized that a major risk factor for postanesthetic myopathy in heavy horses is the fact that so many of them have underlying equine polysaccharide storage myopathy (EPSM, also called PSSM and EPSSM). This

metabolic muscle disorder was discussed in a previous issue ["Do Friesians Need Fat?" - The Friesian, July/August 2005]. The risk of postanesthetic myopathy in EPSM horses is greatly reduced, and perhaps even eliminated, when these horses have been fed a high fat and fiber and low starch and sugar EPSM type diet prior to surgery. It takes about 4 months for horses to fully adapt to using the fat in their diet. So, if there is any question about your horse's muscle health, and if it is possible to delay surgery until diet change has been instituted, this would be a good way to minimize the risk of postanesthetic myopathy. Horses with postanesthetic myopathy have difficulty standing after recovery from anesthesia. They may initially stand but then collapse, or they may not be able to stand at all. Blood levels of muscle enzymes will be higher than normal if the muscle has degenerated, but will be normal if the muscles are intact but are just too weak to allow the horse to stand. Given that about 2/3 of all draft related horses have the type of metabolism that can lead to EPSM, it is a wonder that more of them do not develop problems after surgery! This is one reason why I have been such a strong advocate of an EPSM type diet for all draft related horses, including Friesians.

Postanesthetic myelopathy, on the other hand, is impossible to predict. Something happens during surgery that reduces blood flow to the spinal cord, causing severe spinal cord degeneration. When the horse recovers from anesthesia the hind limbs are completely paralyzed. Usually the horse can prop up on the front legs, but has absolutely no use of the hinds. Sorry to say there is nothing that can be done for such horses. Exactly why this happens is not clear. Affected horses are typically young, usually no more than 3 years of age, and are often, but not always, heavily muscled breeds. The placement of the horse on its back during surgery, known as dorsal recumbency, is the other common factor. So, horses with retained testicles (cryptorchids; crypt = hidden, orch = testis) undergoing surgical

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castration are definitely at risk, as this surgery is performed with the horse in dorsal recumbency. It is thought that this position in young rapidly growing horses may result in compromise to blood flow to the spinal cord. Fortunately, postanesthetic myelopathy is very rare. From the literature and personal experience I would say that I know of about two dozen such cases. This problem may be more common in Shires and Friesians, as these are not particularly common breeds but yet these are breeds that I know of that have developed postanesthetic myelopathy. It doesn't help, of course, to know that this is very rare if it happens to your horse. But the risk of having an unmanageable cryptorchid horse, or even more of having a malignant tumor develop in a retained testicle, is far, far greater than the risk of postanesthetic myelopathy.



Photography courtesy of Drs. Ben Horsman, Germany, www.horsmans.com

Dr. Beth Valentine's previous article for THE FRIESIAN appeared in the July/August 2005 issue and was entitled "Do Friesians Need Fat?" This article discussed Equine Polysaccharide Storage Myopathy (EPSM).

So, what to do if your Friesian needs surgery? You should try to get your horse to a facility that has the best equipment, surgeons, and staff around. If you have any indications that your horse could have EPSM, diet change before surgery can help to protect your horse's muscles from postanesthetic myopathy. Realize that young Friesians may be prone to postanesthetic myelopathy, and weigh the risks of surgery carefully. And most importantly, discuss all this with your veterinarian.

