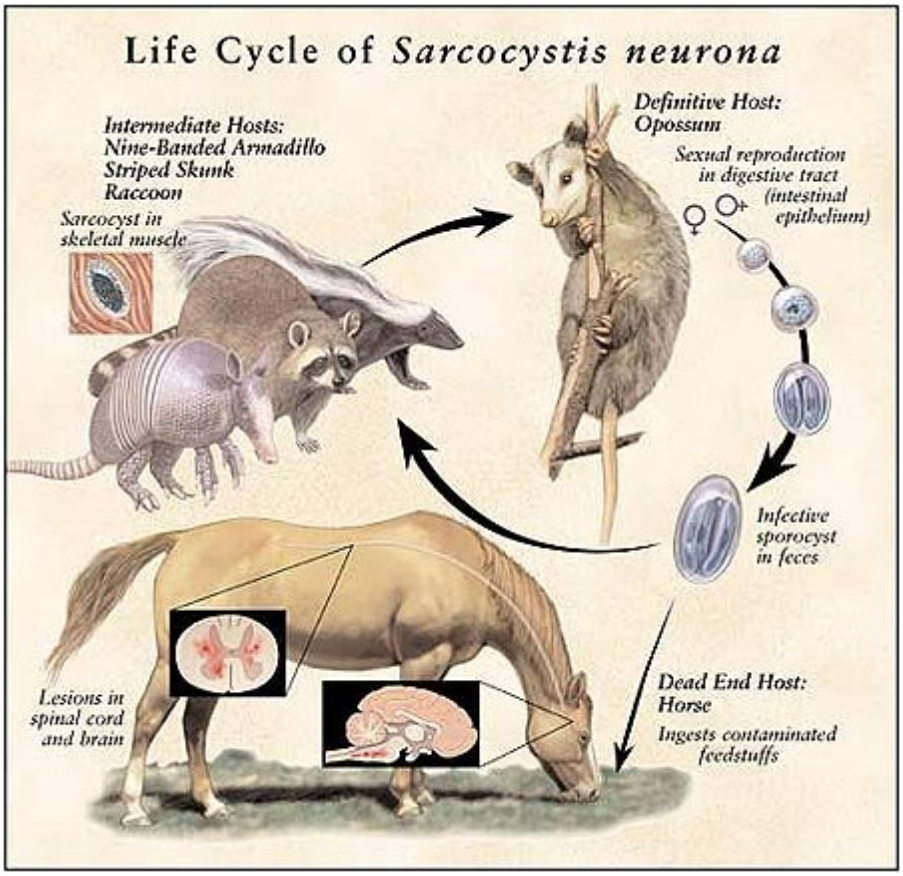
Under standing EPM



EPM stands for Equine Protozoal Myeloencephalitis. Myeloencephalitis means inflammation (it is) of the brain (encephala) and nerves(myelo), so EPM is inflammation of the brain and nerves in the horse caused by a protozoan parasite. The most common of these protozoa is Sarcocyctis neurona, although several other less well-known parasites also cause disease, particularly one called Neospora.

The parasite responsible for EPM has a specific life cycle that requires several hosts. The primary host is generally the American opossum. In the primary host, the parasite undergoes reproduction in the intestinal tract and sporocysts(eggs) are excreted in the animal's feces. In the normal life cycle, this feces is then inadvertently ingested by an intermediate host (usually a raccoon, cat, skunk, or similar). In the intermediate host, the eggs develop into juvenile parasites, who then migrate from the intestinal tract to the animal's muscles and form cysts, walled off areas where the parasites hibernate. When the intermediate host dies, and an opossum feeds on the carrion, the cysts are ingested. They hatch in the opossum's intestinal tract, and the cycle begins anew. In normal intermediate

hosts the parasites do not cause disease, but simply stay encysted in the muscle until the animal dies from some other cause and they are ingested by a opossum.

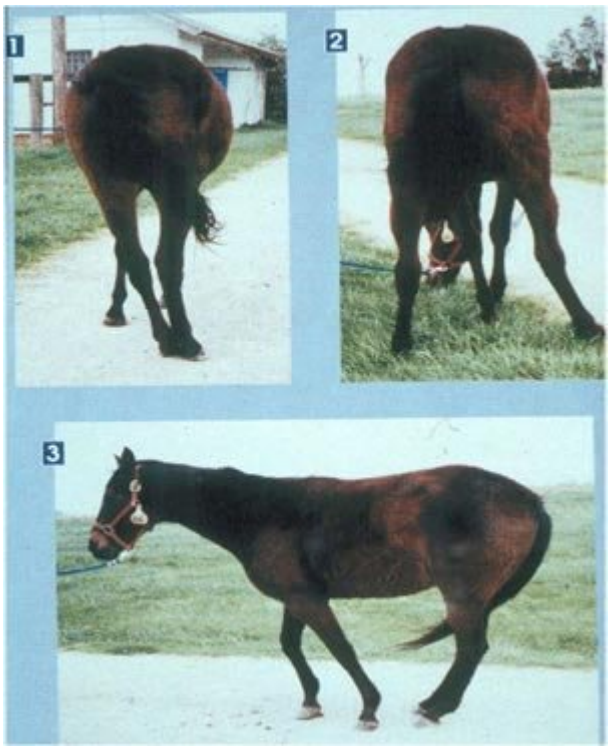
The horse is NOT a normal intermediate host for the EPM parasite which is where the trouble begins. When a parasite enters its normal host, it follows chemical signals to find the "correct" place to be, in this case the muscles, where it causes little problem for the hosts. However, since the horse is NOT a normal host, when the EPM parasite enters the horse, it becomes unable to detect where it should go. For reasons we do not yet understand, instead of going to the muscles, it generally migrates into the spinal cord tissue.

In the spinal cord tissue, the parasite develops walled off cysts, just as it would in the muscle of a normal host. However, this results in the destruction of nerve tissue, as well as inflammation due to the presence of a foreign invader in the horses's body.

The signs resulting from this disease are variable. In 80-90% of infected horses, progressively worsening neurologic disease occurs. This may initially be so mild that it may be mistaken for lameness or a performance problem. Over time, however, the symptoms become more severe and may include incoordination, crossing of limbs, inability to walk, turn, or back up normally, gait abnormalities, and muscle atrophy. Hind end abnormalities are most common, and most horses with EPM remain bright and alert even when neurologic signs are quite severe.. A smaller number of horses will also develop front-end and head signs, possibly including laryngeal paralysis (roaring), difficulty chewing or swallowing, depression, or a head tilt.

Making a specific diagnosis of EPM can be a challenge. There are several blood tests, but they only indicate whether the horse has been exposed to the EPM

organism, not whether the organism is the cause of the horse's current illness. UC Davis has a new blood test called the IFAT test that is more accurate in determining whether EPM is involved. However, the gold standard for diagnosis is a CSF tap(spinal fluid tap, where a long needle is inserted into the horse's back and some fluid removed) and the finding of antibodies against the EPM organism in the horse's spinal fluid. Test results combined with the horse's physical exam and history will help in making an accurate diagnosis.



Several treatment options exist. EPM requires long-term treatment of one month or more with medication. The most commonly prescribed drug is Marquis, an oral paste made by Bayer.

There are things you can do to prevent EPM infection in your horses. First, make sure all your feed is stored in closed containers where scavenging animals will not be able to reach it. Also, make sure that your water tanks are cleaned regularly and if possible position them to discourage wild animals from utilizing them. Hay can be a source of EPM transmission as animals climbing into barn areas may sleep or defecate on it. When possible, keep hay covered or stored where wild animals can not access it. Discard any hay that appears to have animal or bird

feces on it. Clean up any spilled or dropped feed quickly to discourage other animals from coming to “clean up” after your horses. When possible, feed heat-treated or extruded grain as treating seems to destroy the EPM sporocyst. You can also attempt to live trap and remove oppossums, raccoons, and other hosts from your property. If you chose to do so, use caution and remember these animals also carry the rabies virus, and that they will often return to an area following being trapped and relocated if that area (your farm for example) continues to provide ready access to food, water and shelter. Free choice food should also not be left out for barn cats as this is a big attractant for the wild animals that carry EPM. Finally, although there is no vaccine for EPM, keeping your horses healthy by vaccinating and deworming according to your veterinarians recommendations, and feeding a balanced and nutritious diet, will help your horse fight off the parasite more easily if it is ingested.

EPM is a serious disease, but understanding how it is transmitted can help you protect your horses.