

OSTEOPATHY AND VERMINOUS ARTERITIS

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(For a detailed introduction to osteopathy please see previous notes)

The detection and treatment of verminous arteritis is one of the top reasons that I have such huge success with osteopathy in the treatment of musculoskeletal and performance problems and other health conditions such as digestive problems and skin issues. I have found verminous arteritis to be an underlying factor in many cases of back pain, generalized stiffness and other musculoskeletal issues in horses. I would go so far as to say that I think it is one of the top health issues in horses and goes vastly undiagnosed. It is an insidious disease that robs horses of vitality, freedom in their bodies, a robust immune system and optimum digestive function. And it can be detected in 30 seconds with skilled motion palpation testing of the spine. Via influences on the autonomic nervous system it causes 13 vertebrae in a row to fixate to the same side, Lumbar 6 to Thoracic 12, (95% on the right side).

For years while doing chiropractic and acupuncture for back pain and musculoskeletal issues I would routinely find in many horses that the right side of the spine was generally “stiffer”, sometimes mildly, other times severely. Since this was a consistent finding all the way down the spine I did not realize at that time that these were actually true neurological fixations/subluxations. I asked acupuncture and chiropractic colleagues about what they thought about this phenomenon and no one seemed to have a really good answer. In less than one minute osteopathy explains it as a unique visceral pattern seen with parasitic arteritis! To date I have treated over 700 horses for verminous arteritis with a specialized deworming protocol and I will definitively say that finding and treating this mostly hidden condition has a massively big payoff in terms of healthier, happier, freer horses.

WHAT IS VERMINOUS ARTERITIS?

Verminous arteritis (VA) is an inflammatory process that occurs in the mesenteric artery due to large strongyle larval migration. Third stage larvae (L3) living on blades of grass in contaminated pastures are ingested by horses. L3 larvae molt into 4th stage larvae (L4) which leave the intestine and migrate to the root of the cranial mesenteric artery near the kidneys. They spend months within the artery wall, their presence inciting the immune system to respond, causing inflammation and eventual thickening of the artery wall. While in the artery wall, L4 finally molt into the last larval stage, L5, which then return back through the arterial system to the intestine, where they become mature strongyle worms. Mature large strongyle worms then lay eggs inside the intestine, which are passed out in manure. Eggs hatch on the ground and develop into the L1 and L2 larval

stages, then the infective L3 stage. This life cycle takes 7 to 9 months to complete. Large strongyle worms, also called blood worms, are 2-5 cm long, and reddish-brown due to ingestion of blood from their host. A single strongyle worm can lay at least 75,000 eggs per day.

The term “worm aneurysm” is also used to describe this condition and would apply to more advanced cases that have dilation of the mesenteric artery caused by chronic inflammation, fibrosis, thickening of the artery wall with eventual thinning and bulging of the outer layer of the artery. Sudden death in horses from a ruptured mesenteric artery or thromboembolic colic was very common decades ago. The dewormer Ivermectin came on the scene and dramatically dropped the incidence of death from this parasite. It is the opinion of some parasitologists and equine clinicians that large strongyles are now rare or have been eradicated and that only small strongyles (with a very different life cycle, they burrow in the submucosa of the colon) are the main parasite issue now, along with tapeworms. I have spoken with other veterinarians who believe that large strongyles are becoming more common again.

OSTEOPATHY - A NOVEL WAY TO DETECT THIS INSIDIOUS DISEASE

One of the fundamental rules in osteopathy is that *if three or more vertebrae are fixated in a row all to the same side then the organ neurologically related to that segment has an issue, either mechanically or functionally*. That “3 in a row” spinal pattern is actually due to a visceral cause via the sympathetic afferents of the autonomic nervous system and will free up and resolve on its own once the specific organ issue is addressed. Chiropractic or osteopathic adjustments of these vertebrae will not be effective as the root cause is internal.

In cases of verminous arteritis 13 vertebrae (L 6 to T 12) are fixated all in a row, all in the same direction, 95% on the right side, due to the anatomic position of the mesenteric artery. Adjustments of these fixations, (chiropractic or osteopathic) will literally hold for a mere 5 to 10 minutes. This is one of the ways I show new clients the impact of this disease on their horse’s mobility and it is a waste of their money to continue to adjust the spine until the underlying cause is addressed. Treating the underlying cause frees up the spine automatically and with that lots of issues can be resolved in horses.

After a specialized deworming protocol is done and the 13 vertebrae related to this visceral issue are fully mobile again then the way is clear to find any “3 in a row” patterns on the right side of the spine that may indicate other common visceral problems such as gelding scars, ovary/uterus restrictions and stomach/duodenum problems. In a way the “13 in a row” pattern from VA hides other issues that are present. In a brand new case where the horse does have VA if I find a “3 in a row” pattern on the left side

indicating other visceral issues (so not hidden by the VA pattern on the right side) then I will go ahead and treat them at that time. Otherwise I wait until after the deworming to do a full osteopathic treatment.

Over 12 years ago, studies (unpublished) were done in both the U.S. and the Netherlands looking at the correlation between the presence of verminous arteritis and hypomobility or fixation down the entire one side of the spine in horses (TH 12 to Lumbar 6). Veterinarians, in collaboration with Dutch equine osteopath Janek Vluggen, performed transrectal palpation and ultrasonography of over 1,000 horses and documented the common incidence of verminous arteritis. Janek Vluggen discovered that the phenomenon of 13 vertebrae being fixated all in one direction on one side (mostly the right side) was consistent with every single case of verminous arteritis diagnosed by the veterinarians via ultrasound. These veterinarians went on to develop a very specialized deworming protocol that was subsequently proven to resolve this condition. After successful deworming the fixations on that side of the spine are gone on their own *without* any manipulation of vertebrae. Resolving the pathology in the organ changes the sympathetic nerve flow to the spine and thus normalizes spinal mobility.

The sympathetic chain (side horn) of the autonomic nervous system coming off of the spine at T 1 to L4 has efferent preganglionic fibres that travel to the celiac, cranial mesenteric and caudal mesenteric ganglia. From these ganglia postganglionic fibers go to end organs including blood vessels and all organs in the abdominal cavity such as the small and large intestine. Afferent fibers (viscerosomatic) return from the organs and tissues to the spinal cord and brain via the ganglia. Also, interestingly, the actual physical location of the cranial mesenteric artery is immediately adjacent to the cranial and caudal mesenteric ganglia. The autonomic innervation to and from the large intestine, cecum and mesenteric arterial system is vast and this is why so much of the spine “reacts” to the neurological changes induced by verminous arteritis.

It is my belief that parasite resistance to Ivermectin dewormers has been going on for far longer and more slowly than currently assumed and is one of the explanations behind the common and insidious incidence of this problem. If I include along with the obvious cases the very mild cases that I find in young horses such as yearlings and 2 year olds and the highly athletic supple horses, then in my practice the incidence is well over 50%. And this is in Western Canada with very long and very cold winters! And most horses have a history of regular deworming.

There is a vast spectrum to this disease, which is why I do not use the term “worm aneurysm” and prefer verminous arteritis. (The best term for me is “parasitic arteritis”.) I think many horses have some degree of inflammation in their arteries due to common exposure to the parasite. And at some threshold level, likely unique to each individual horse, the sympathetic nervous system responds to this inflammation with the end result of changes in the gamma neuron at the spinal cord, hypertonus of spinal muscles and

rotations/fixations of multiple vertebrae. There are probably multiple factors affecting susceptibility but the key ones in my opinion are the status of local gut immunity being affected by stress, improper diet and over-vaccination. Approximately 80% of the immune system is located in the gut wall. If local gut immunity can be improved then perhaps there is a greater ability to not succumb to this kind of parasitism.

Fecal tests do not directly correlate with this condition and can be negative at the time of larval migration....*eggs are only found in feces once larvae have matured to full worms and have laid eggs.*

CLINICAL FINDINGS IN VERMINOUS ARTERITIS

- dry, poor quality hair coat
- not shedding out hair coat fully
- intermittent colic
- unexplained anemia
- pot-bellied appearance / abdominal distension
- weight loss / trouble keeping weight on
- diarrhea
- unexplained hind limb lameness

- inability to hold chiropractic / osteopathic adjustments
- generalized stiffness in the spine, worse down the right side
- resistance to bending to one side (commonly the right side, but not always)
- poor / temporary response to treatment for back pain (with any therapy, including acupuncture, chiropractic, massage, magnets, etc.)
- on motion testing the affected side of the spine feels like a steel rod or cement, rather than normal spinal movement which feels like bamboo!
- rarely a DIRECT cause of back pain in horses, except in extreme cases

-**many have no overt signs at all, just back stiffness and subtle performance problems**

My definitive diagnosis is always based on specific spinal motion testing.

I have treated enough now and palpated the spines before and after treatment to realize that it is very common and that there is a profoundly wide spectrum to this problem. Even really mild cases (mildly stiff backs without more obvious vertebral fixations) are worth treating. Even treating the mildest cases always ends with noticeable changes from the owner's perspective. If I even merely suspect it now I recommend treatment. I check foals and I have even found it in some as young as 6 months of age. At that stage it shows as just a very mild, uniform stiffness down the right side, whereas the left side of their spines 'move like spaghetti'! I think many foals are not dewormed early enough and frequently enough and that is why it already starts at that young an age.

CHANGES SEEN *JUST* WITH THE DEWORMING PROTOCOL

Below are comments taken directly from testimonials and conversations with various clients. *The main thing to note here is that these improvements occurred just with the deworming protocol and before anything else was done (osteopathic treatment etc).*

This is why I love my job!

Physical – improved quality of coat, shinier coat with a richer color, pot-belly is gone, gains weight now, sheds out normally in spring, “scratches” on legs improved/lessened, better digestion, more flexible in back/overall, can bend better to the right, can bend evenly both sides, canter improved, more willing to move forward, disappearance of mild front or hind limb lameness, improved canter leads and lead changes, better collection, greater ability to hold certain frames, back soreness gone, more comfortable with saddle, better with grooming, can jump higher, colic episodes decreased/disappeared, has way more energy, much freer in his body than before, moves with greater ease, his trot is more fluid, he is jumping like a deer now (before would avoid jumping), she is finally able to stay collected.....

Behavioral / mental / emotional

Happier overall, more confidence in herd, less likely to bullied by other horses (stands up for himself now), more willing to perform, more calm, more relaxed and less spooky, less reactive in situations compared with before, more energy and vitality, loves to go on trails again, “more interested in life”, my horse has been transformed...

TREATMENT OF VERMINOUS ARTERITIS

Veterinarians traditionally over many years have recommended a 5 day doubled dose of Panacur (fenbendazole) for larvae that have migrated into the tissues (both large and small strongyle larvae). And now many believe that Quest (moxidectin) is better. What many horse owners do is deworm anywhere from every 2 to 6 months depending on geographic location etc. I still find the “13 in a row pattern” in these horses, even those that are given Quest every 6 weeks! This kind of routine deworming knocks down the overall parasite load but is not enough to fully deal with the parasitism in the artery.

The following protocol has been done safely on thousands of horses. Out of the 700 horses I have personally seen go through this protocol only 2 horses had a mild colic and were fine. One horse had an allergic reaction to Quest (his face swelled up). All horses put through this protocol went on to have positive changes that ranged from mild to wildly transformative. It works because it is strategic and sequential in a short period of

time. I have the proof that it works with the changes in the horses and with the “13 in a row” spinal pattern gone when I return for their first osteopathic treatment.

When I first began using this protocol I was very tentative. I am a holistic veterinarian after all! However *some of the worst cases of VA I have ever seen were horses that had been dewormed with strictly herbal dewormers (Western or Chinese herbs)*. Herbal dewormers are purge dewormers, killing on contact in the lumen of the bowel. They do not have an effect on larvae that have migrated into other tissues. So I have come about 180 degrees to see the full value of this protocol.

REFERENCES

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