

A WHOLE HORSE APPROACH TO LAMENESS AND ATHLETIC PERFORMANCE

Laura Taylor, DVM, EDO

Lameness is a common presentation in a generalized equine practice and naturally in a specialized sport horse practice. Based on what is taught in veterinary school the main focus in lameness cases are the joints and soft tissues such as the ligaments and tendons of the lower legs. The focus is also on where the presenting complaint is such as swelling and inflammation. While this kind of “local lesion” is very important to treat if present, more important really is the underlying areas of immobility that lead to wear and tear and eventual tissue changes in that local area. These lower leg issues are often the result of a long cumulative process of biomechanical compensations and adaptations from loss of mobility elsewhere in major structures such as the back/torso, pelvis and shoulder blades. These areas of immobility or “osteopathic lesions” are often remote from the area of the presenting complaint. *In fact they can be at the other end of the body. I have seen numerous front end issues resolve when a gelding scar/adhesion or fascial restrictions of the ovaries, uterus and/or bladder were addressed and freed up the pelvis and low back.*

Performance issues can completely stump the conventional veterinarians because they do not have the skill set to either find or treat their root causes. The horse is not lame and has no back pain but is “not right” either. The horse has a problem but the veterinarian cannot give it a name. Common performance issues are things such as resistance to bending in one direction, trouble fully engaging the hind end/lack of impulsion, trouble with one canter lead and many other forms of resistance, including many that are labeled as behavior and “attitude” problems. These are often the beginning of what eventually turns into pathology in a local area such as suspensory ligament problems or arthritic hocks. Restoring mobility to any restricted tissue in the body (joint, connective tissue, spine and organ) frees up the body

to self-heal whatever inflammatory or degenerative process is going on, especially if the joint and soft tissue changes are not too severe.

Back pain can be incredibly elusive to treat successfully. Too many times the saddle is blamed when it really is just icing on the cake. Using a combination of chiropractic and acupuncture for chronic back pain I got modest results for many years or was just palliating and needing to treat on a monthly basis, or even more frequently. A long term cure was elusive. Visceral osteopathy changed all that. Restoring mobility to vertebrae relieves joint issues and alleviates muscle tightness and spasm. But greater than 50% of fixations/subluxations in the thoracolumbar spine come from visceral and autonomic nervous system influences. *Once visceral issues are addressed the vertebrae then free up all by themselves. This is the 'magic' part of osteopathy.* It is uncommon now for me to do any acupuncture for back pain.....after a few osteopathic sessions the pain is gone (given other influences are addressed via things such as good dentistry and a decent fitting saddle).

KEY OSTEOPATHIC PRINCIPLES IN THE TREATMENT OF LAMENESS

1: No symptom exists in isolation. Look at and treat the whole horse. Always ask “WHY” something may be present. The primary, dominant issue in the body may be in a completely different area than the presenting complaint of the owner or referring veterinarian.

2: 50% (up to 80%) of musculoskeletal restrictions/areas of immobility can come from a visceral problem; this is due to the profound influence of the autonomic nervous system on the spine/sacrum, pelvis and shoulders. (Only 20% of nerve flow returning to the spine comes from the parietal nervous system). This is the main reason why a chiropractic approach can have limited results in addressing lameness or performance issues. Always remember the two-way aspect of nerve flow (afferent and efferent).

3: Restriction patterns in the thoracolumbar spine determine whether a visceral issue is present and is the actual cause of fixations in those particular vertebrae rather than being a local mechanical subluxation. T1 to L4 of the spinal cord supplies the sympathetic nerve flow to/from all organs. ***If three or more vertebrae IN A ROW are fixated to the SAME side, and either all in flexion or all in extension, then an organ/internal tissue is ALWAYS involved.*** *Treating the organ directly (mechanical or functional issue) most of the time automatically resolves the three-in-a-row fixation patterns. Treatment of these vertebral patterns directly (either through chiropractic or osteopathic manipulation) will be futile and the freedom restored in the vertebrae will be short-lived without first addressing the underlying root organ cause.* This detection system is a reliable way to discern whether the root cause of sacropelvic, shoulder, and spinal restrictions are local mechanical issues or visceral-based.

4: Through neural and mechanical links the structure and the function of the entire body is interdependent. A fixation in a *pelvic bone/ilium* (whether is mechanical-based or due to a root visceral cause) leads to a direct fixation (via the dura of the craniosacral system) of the *temporal bone on the same side* which leads to loss of mobility of the *scapula* (via the brachiocephalicus muscle, cleidomastoid division). Improper dentistry including inadequate incisor reduction will also lead to the same loss of motion in the TMJ/ temporal bones and therefore the scapula. So the release of a gelding scar/adhesion or restricted ovary can help to resolve lameness in the front end through the above chain of events. This is excluding the compensatory changes in gait and posture with being biomechanically heavy on the forehead that goes along with not fully using the hind end.

TOP FIVE VISCERAL ISSUES THAT CONTRIBUTE TO LAMENESS

AND/OR PERFORMANCE ISSUES

Pelvic viscera (incidence = 40+ %) (L 1- 3 (also TH 17/18 if ureter is involved), and rotation of sacrum and one/both ilial bones)

Geldings - gelding scar/spermatic cord adhesion, or ureter or bladder issues

Mares – mechanical restrictions in ovaries and/or uterus and/or ureter and/or bladder (fascial restrictions of mesovarium/mesosalpinx/mesometrium and ligaments of bladder)

Stomach/Duodenum (incidence = 60+ %)

Stomach (T 12 - 14, and often left scapular downslip/flexion disorder)

Duodenum (T 13 - 15, and often left scapular downslip/flexion disorder)

Worm aneurysm/verminous arteritis – causes fixations from Lumbar 6 to Thoracic 12, and on the right side of the back 95% of the time, (and an ilium if more advanced case)

Hindgut acidosis (clinical/sub-clinical) (incidence = 40+ %)

L 3 – 5 (or L 4 - 6), sacrum and one or both ilial bones....right pelvic bone more

common due to location of cecum on the right side? I have not seen lameness cases

with this issue but for sure it can affect their comfort in athletic endeavors... with

these cases you will also see a distended abdomen (not related to parasites or

obesity), the diaphragm and 18th rib further caudal than normal, repetitive rings or

grooves on the hooves and increased warmth in the coronet area on all four feet

Kidneys (incidence = 20 %?) (T 17, 18, L1....sacrum and ilium on same side)

-fascial restrictions of peri-renal fascia, kidneys lay on psoas muscle which attaches

to the ilium; a kidney can get ‘congested’ due to complex vascular relationships

regionally

Many horses have more than one visceral issue going on at one time...and these horses are more likely to show up with a lameness or performance issue due to the cumulative effect of all these restrictions on the whole body and the adaptations in other joints and soft tissues that follow. However even just the presence of a gelding scar or restricted ovary (causing sacropelvic restrictions) will cause performance issues (rather than lameness) that many riders and trainers commonly complain about which is problems with fully using and engaging their hind ends.

NECK ISSUES

All visceral issues will also cause restrictions at Occiput, C1 – 2 (afferent of vagus nerve) and C 4 – 5 (afferent of phrenic nerve/ diaphragm influence).

Of course dental issues have a profound influence on the area of C1 to C3.

How many horses have chronic stiffness in their mid-low necks? A lot of that has a visceral connection! The latest fad is to inject the facet joints of the low neck... C 6 - 7 however the reason horses get sore there is because these vertebrae have become HYPERmobile. They have become hypermobile as a compensation for HYPOMobility at C 4 – 5, the upper cervical area and in the upper thoracic area due to loss of mobility of the big shoulder blades.

FRONT LEG LAMENESS / PERFORMANCE ISSUES

An osteopathic approach helps horses with overt pathologies in soft tissues or joints in terms of helping them cope better through optimum biomechanics of the whole body. The biggest strength of osteopathy is

that this system of medicine can detect and solve lameness issues where no obvious pathology was determined.

In a normal weight bearing situation 60% of the body weight is distributed towards the front end. The forelimb relies on a multiple suspension system that will absorb mechanical forces and shock during daily activities of life and sport. The structures that absorb these forces include the scapula and shoulder joint, hoof wall and bones of foot, carpal bones, fetlock and the connective tissues between the knee and fetlock. There is no clavicle in quadrupeds so the shoulder blades are responsible for all kinds of large coupled motions, combinations of dorsal, ventral, extension, flexion, abduction and adduction.

The gliding motion of the scapular bone on the muscles and fascia of the body wall is considered an “osteopathic joint”. When this “joint” loses its full range of motion (coupled motions of extension/flexion, abduction/adduction, dorsal/ventral) there are many repercussions in the rest of the front limb and other structures must take on more shock absorbing duties. Probably the most common area is the area of tendons and ligaments along the cannon bone. Add in the factor that shoes dramatically reduce the shock absorbing capacities in the foot and you have a recipe for heightened stress in the areas of greatest elasticity such as tendons and ligaments. This where much focus of time and money is spent on lame horses but this is often futile.

FOUR COMMON CAUSES OF LOSS OF MOTION OF THE SCAPULA

Sacrum-iliac restriction (organ or mechanical cause)..... (leads to)temporal bone/TMJ same side.... brachiocephalicus muscle (cleidomastoideus).....scapula

Dental imbalance (issue with lower 11 molars, lack of precise incisor reduction)..... TMJ..... brachiocephalicus muscle (cleidomastoideus) scapula

Viscera in cranial abdomen

Stomach/duodenum (often functional issue) – C 4/5 (influence of diaphragm and afferent of phrenic nerve) and (branch of afferent vagus nerve) – *left* scapula

Liver (mechanical and/or functional) – C 4/5 (influence of diaphragm and afferent of phrenic nerve) and (branch of afferent vagus nerve) – *right* scapula

Local biomechanical compensation from the hind end, often on the diagonal

It is rare to find fully mobile shoulder blades on the first osteopathic visit. And the majority of horses have multiple or stacked causes of scapular immobility. Some can be addressed immediately....restoring pelvic bone motion through osteopathic treatment (visceral or local mechanical issue) immediately restores motion in the scapula on the same side. However other causes take more time and other approaches...proper dentistry, treatment of the duodenum/stomach with diet changes, nutraceuticals, herbs etc. Once these organs reach a higher state of function then via normalization in the autonomic afferents the motion often returns automatically to the areas affected by such structures...so that is the restoring of movement of the scapula and T 12-14 (or T 13-15 if duodenum). If the shoulder area is restricted by all 4 causes together then treating only a few will result in only partial freedom in the shoulder area.

Front leg lameness is much more common than hind end lameness and I have yet to see a horse with a chronic, unresolved front leg lameness that did not have restrictions in the scapular bone(s) with at least 3 of the above “stacked” causes. Also, many horses with front end issues will also have some pain in the area of the biceps tendon. This local area of pain often disappears once the motion of the scapula is restored since the mechanical strain is off the area. Some of the very chronic or more severe cases still need to be treated locally with

acupuncture/aquapuncture or laser, etc, as there is likely some ongoing biceps tendonitis/bursitis that requires direct attention.

HIND LEG LAMENESS / PERFORMANCE ISSUES

After common pathologies such as arthritis/DJD, soft tissue inflammation and OCD are ruled out, the most common causes of lameness or performance issues involving the hind end (diagnosed via osteopathic exam) are:

Sacro-iliac joint immobility/pain – the 2 broad categories of root causes are:

-MECHANICAL (incidence = approximately 50%)

local sacral rotation or a depressed sacrum with concurrent spondylolisthesis of L 5/6)

-VISCERAL (incidence = approximately 50%)

castration scars, ovaries/uterus/bladder/ureter, hindgut acidosis and kidneys)

Lower lumbar fixations (spinal nerve root irritation)

Stifle (entrapment of lateral and/or medial meniscus)

Hock (fixation of 4th metatarsal or cuboid bone)

NOTE TO VETERINARY CHIROPRACTORS / SPINAL MANIPULATIVE THERAPISTS

How can you tell if you have visceral issues on board? Some “red flags” to look for include:

-return of identical subluxation patterns over and over again in the pelvis (e.g. same “PI ilium” on every visit), thoracolumbar, mid-cervical (C 4/5) and upper cervical spine

-adjustments do not hold for a very long time...some last minutes to hours if the root cause is a visceral problem...so check the pelvis at the end of the treatment (or the next day), if the adjustment did not hold then there is most likely a visceral cause

-if pelvic treatments do not hold (and you find a L 1-3 pattern) you can attempt a gentle fascial release of possible gelding scar/spermatic cord adhesions via the sheath up by the inguinal ring on each side...in mares do a rectal and determine if there is anatomical asymmetry of the reproductive tract and loss of normal mobility of ligamentous attachments of the ovaries, uterus and bladder, this ligamentous immobility can be released with gentle manipulation trans-rectally. When you are done you will find that the sacrum is more mobile as well as one or both pelvic bones and the L 1-3 restriction pattern is also gone..... and also greater mobility of the TMJ/scapula on the same side as the ilium that freed up (however if there is a dental issue or other visceral influences on the scapulae then the freedom there will not fully stay).

THE CASE OF JUNIOR – “Poster horse for osteopathy”!

At the time Junior was a 7 year thoroughbred gelding imported from Argentina for show jumping. He developed a right front lameness that stumped several very experienced equine veterinarians. They did all kinds of diagnostics including ultrasounds, x-rays and bone scans (nuclear scintigraphy) and through these ruled out any overt pathology. They did various kinds of treatments including shock wave therapy, IRAP therapy and multiple joint injections. Two years and \$9,000+ later, this horse was still mildly lame on the right front and could not jump.

Junior was about to be sent to the horse slaughter plant just 2 hours down the road when another option appeared. He was given away (to

my client) to be used as a trail horse for her father-in-law. Free. Not bad for a \$30,000+ horse. With my “dream team” (dentist and farrier) we proceeded to turn this horse around over several months. He is now jumping four foot fences at major local shows and often winning in his class.

Main osteopathic and visceral findings on first visit:

Reduced mobility in his sacrum and both pelvic bones, reduced mobility in most of the thoracolumbar spine on both sides, reduced mobility in both shoulder blades, reduced mobility in mid and upper cervical spine, reduced mobility in the jaw, reduced mobility in left hock and left stifle and pain on palpation of biceps tendons of both shoulder joints.

Not much moved on this horse!!

Visceral contributions:

-**worm aneurysm/verminous arteritis** (causes 13 vertebrae in a row to fixate on right side of back, also effects to occiput/C 1/C2, diaphragm so also C 4/5)

-**gelding scar/spermatic cord adhesion** (caused sacrum/pelvic rotation and L1 - 3 to fixate)

-**duodenum issue** (T13 - 15 restricted, and left scapula/shoulder, and Occiput/C1/C2, diaphragm therefore C 4/5)

-**liver issue** (mechanical and functional) (T 7 - 9 restricted, right scapula/shoulder, Occiput/C1, C2 and diaphragm, C 4/5)

Osseous or soft tissue findings:

-fixation of lateral meniscus of left stifle

-fixation of cuboid bone of left hock

-fixation of 1st rib on left side

-fixation of 2nd coccygeal bone

-biceps tendon sensitivity in both left and right shoulders, worse on right side

- fixations in sesamoid bones in front fetlocks, bilateral coffin joints of the hindlegs

Due to the presence of verminous arteritis and its highly dominant influence on the entire back a full osteopathic treatment is usually delayed until a specialized deworming protocol is done. Junior was put through this protocol as well as a herbal liver flush/cleanse. *His lameness was 50% improved after just this (no osteopathic treatment yet!)*

On the next visit he received a full osteopathic treatment including release of the gelding scar and adjustments of any mechanical fixations. After this his lameness was even milder and more intermittent (about 80% better).

On the 3rd visit the only remaining visceral pattern was for the duodenum (T 13-15, left scapula, Occiput/C1 and C 4/5), and there were mechanical issues (sacrum/ilium from a recent slip on ice), some local lumbar fixations and one rib fixation.

Junior was 100% sound after this time and has remained so over the following 2 years. I still look at him every 3 to 4 months as the owner is increasing the heights on the jumps and wants to keep him in perfect shape. The duodenum pattern still comes and goes so that is being addressed with nutrition and supplements.

TRAINING IN EQUINE OSTEOPATHY

The only training I am currently aware of that has a strong focus on the visceral aspects of osteopathy is through The Vluggen Institute for Equine Osteopathy and Education (www.vluggeninstitute.com). Courses are offered in both Europe and the U.S.

REFERENCES

- 1: Barral, Jean-Pierre. Visceral Manipulation (revised ed). Seattle: Eastland Press, 2007.
- 2: Stone, Caroline. Visceral and Obstetric Osteopathy. Churchill Livingstone Elsevier, 2007
- 3: class notes from Vluggen Institute of Equine Osteopathy and Education, 2006-2007.