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Practical Aspects of Diagnosing Lameness in Horses: A Suggested Procedure for Performing the Physical and Motion Examination

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Introduction

Lameness problems are perhaps the most common reason that an equine practitioner is summoned by horse owners and trainers. Lameness for the equine athlete is an expectation and the ultimate effect/outcome is a function of location, severity, frequency and complications. Attempts at successful treatment and/or management as well as the development of a reasonably accurate prognosis are dependent upon arriving at an accurate diagnosis or diagnoses. A portion of such problems have a reasonably obvious diagnosis or diagnoses; while others do not and can require substantial investigative work.

It is my personal experience that most active/performing lame horses have more than one problem. The horse owning public as well as those attending to their needs are very aware of the enormous progression of various ever increasing quality imaging modalities. Financial concerns/reality often determine that not all situations, owners or practicing veterinarians are able to take advantage of such advances. In other instances the technology is utilized in the absence of a good history, thorough physical and motion examination and location of the source or sources of pain. Dependence upon imaging modalities without precise localization of the source of the problems has, at times, has been miss-leading as well as a waste of money. Common sense, experience and one’s hands and eyes are still the “key” to success and thus the importance of a thorough examination cannot be minimized.

The intent of this presentation is not to provide “new” information but rather to provide a suggested format that the author has adopted and feels has been consistently productive. The format is a culmination of multiple sources to include texts1-4, personal communication/observation and experience.

Elements of a Lameness Examination

The following elements may or may not be necessary for all cases; those cases that are subtle, the result of multiple sources of disorders, involve multiple limbs and effecting performance often require substantial investigation. They include:

- Accurate history: sometimes this can be difficult (horse was only recently acquired, trainer does not want the owner to know about various aspects of his/her management, or the sport is not familiar to the examiner and thus the ‘language’ can be confusing). In many instances the history points to the problem or problems and
with experience the development of the art of asking and acquiring becomes easier and more useful.

- Physical examination: hands, eyes and a more than casual understanding of anatomy are the tools. This aspect of the process is also an expectation from the owner/trainer.
- Examination in motion: some cases are obvious (horse is unwilling to bear weight on the affected limb) and others require experience, knowledge and appreciation of the various athletic endeavors (5-gaited, dressage, harness race horses, Paso Finos, etc.) or are not sufficiently lame to appreciate at the time. Ultimately being able to recognize ‘normal’ motion facilitates this aspect of the process.
- Localization of the pain: this can involve efforts to increase signs of lameness (manipulative methods such as flexion, extension, focal digital or hoof tester pressure: specific exercises; or reduction of the pain/lameness utilizing diagnostic anesthesia). It is very important to be very sure about the source of pain. It is not unusual, for example, following the use of diagnostic anesthesia to pick up on the fact that the patient is also showing problems in an additional limb or what one thought to be obvious was not the source of the problem.
- Additional diagnostic measures could consist of diagnostic imaging, use of a high-speed treadmill, video/photography, clinical pathology.
- Utilization of specific therapeutic measures to detect a therapeutic change – an example would be the use of an intra-articular injection of a local acting steroid in the distal joints of the hock or hocks and a follow-up examination.

Acquiring a Useable History

There are times and situations when attempting to acquire an accurate and useful history is challenging as opposed to simply acquiring the ‘signalment.’ This could include: the individual being asked simply does not know, the horse was only recently acquired, the individual does not want the actual owner to know certain aspects of the case or the individual asking is not familiar with the vernacular of the given sport (horse is ‘lugging out’, is ‘on a line’, ‘is scratchy on the turns,’ ‘throws away the lameness going the wrong way on the track,’ shows up when doing a ‘side pass’ to the left, and other such meaningful yet colloquial statements). The following are suggestions as aids:

- It is important/imperative to attain and retain an understanding of the given equine sport for a variety of reasons: the competitive activities invariably have a subset of predictable/common injuries; being able to ultimately provide a useful prognosis is enhanced by understanding the sport and level of competition; speaking the ‘language’ is reassuring to the owner/trainer as a confidence builder.
- In addition to understanding and being fluent in the sport also attempt to acquire understanding of related aspects affecting the horses: shoeing practices, knowing the environment that they exist in, and an understanding of equipment (tack and harness) and training regimen.
- Pertinent questions: which leg or legs seem to be involved; what does the individual think is the problem; duration of the problem; better or worse with activity and if so what activity or activities; when was the horse last trimmed/shod; how has the
situation/problem been managed/treated to date. Asking questions in a non-threatening fashion devoid of a condescending or sarcastic manner is essential.

Physical Examination

The physical examination (looking and palpating) is, in my opinion, the most consistently revealing element of the process. In my experience this aspect appears to be heading in the direction of a “lost art” or skill. The description below is intended to be complete and the quality of the information gained is a function of thoroughness and consistency. With practice and assuming a reasonably controlled horse and environment exist the time involved is approximately 15 minutes for this aspect of the process and the ability to discover subtle differences is greatly enhanced. It is evident in my experience that clients/trainers are across the board impressed with such an approach.

The examination begins by looking at the horse at rest paying attention to his/her demeanor/behavior, body stance, limb and foot placement and conformation; that is, one is looking at the whole horse. I do this at a distance of about 20 feet and looking from all sides. Assuming the horse is under control (usually a halter and lead shank) I ‘introduce’ myself to the horse from the left side of his or her head/neck and attempt to develop some trust. How one accomplishes this varies with the examiner as well as the individual holding the horse. Invariably I place my left hand over their muzzle and generally place my left thumb gently into the interdental space as an aide in gaining confidence. Palpation begins at the poll, continues down the length of the cervical region and ends with firm palpation of the withers. The palpation is followed by manipulation the head and thus the neck from side to side.

Limb palpation begins with the withers at the proximal edge of the scapula and complimentary cartilage and continues down the length of the spine of the scapula and associated musculature to the ‘point of the shoulder’ (lateral tuberosity of the humerus). The entire length of the limb is palpated to include the bearing surface of the foot or shoe and is accomplished with both hands so as to palpate all available tissues and structures and it is not at the exclusion of structures which one believes are seldom involved. Over a period of time one’s finger tips become ultra-sensitive to abnormalities. The degree of digital pressure will vary but the initial palpation is to appreciate differences (absence, atrophy, swelling, or a change in consistency) whereas increased digital pressure is to detect the presence or absence of pain. Record the findings at this time as opposed to depending upon one’s memory.

The left front limb is then picked up and basically the same process is repeated to include flexion, torsion and manipulation. In the non-weight bearing stance various tissues become more accessible to palpation. The bearing surface of the shoe and/or non-shod foot is cleaned with a steel brush and an assessment is made with regard to shape, position and condition of the shoe if shod, wall thickness/quality, degree of solar concavity, position and condition of the frog and bars. Hoof testers are then used as both a percussion instrument and focal force appliance. I begin the testing at the medial heel (to encompass the wall and sole) and continue at 1-2” intervals to the lateral heel. Testers are then applied with one arm of the testers placed mid medial frog to lateral mid quarter wall. The process is reversed (lateral frog – medial hoof). Record the findings.
The procedure is repeated for the right front limb. Palpation/manipulation is continued to evaluate the length of the back beginning at the withers and ending with the tail head. The initial assessment is gentle followed by more aggressive digital pressure noting the reactions to appreciate the differences between normal and abnormal reactions. The pelvis and pelvic girdle musculature is palpated. Grasping the tuber coxae (left and right) the hind end is rocked to evaluate ability to shift weight, assess balance/coordination problems, absence or absence of crepitus, and/or presence of discomfort or unwillingness to be manipulated.

The hip and thigh region is palpated (to include the groin) and manipulated. Palpation of the stifle as well as an appreciation of the mechanism is enhanced by either pulling the tail or pushing on the rump with the palm of one’s hand on the patella. Distal limb palpation mirrors the technique utilized with the forelimbs. In my experience an equally thorough examination of the hind feet is often absent and, at times, foot problems remain undetected. Record the findings.

Interpretation of findings, such as an excessive reaction by the horse to flexion or manipulation is enhanced with experience and/or repetition of the action and comparison with the opposing limb. It is not unusual, at times expected, that young inexperienced horses are apprehensive (skittish) and likely to react to any number of actions thus this should be taken into account. Reactions to the application of hoof testers, particularly Thoroughbred race horses, with thin soles should be expected and may or may not be meaningful.

**Examination in Motion**

Watching horses move to determine which limb or limbs are involved, can be a challenge requiring experience and a appreciation of normal. Again, familiarity with the various breeds and gaits is essential. It is helpful, but not always available, to perform this aspect of the examination on a reasonably large, safe and firm surface.

Begin by watching the horse walk away from and toward one’s line of vision; note the synchrony and pathway of limb swing and how each foot contacts the surface. Compare the forelimbs and hind limbs as a unit. Watching the horse from the side provides an assessment of swing, foot contact and the synchrony of hind limb with the forelimb. One may wish to end the examination at this point if sufficient lameness is present or the likelihood for further injury is possible.

The horse is then trotted or paced initially in a straight line (away from and toward) the examiner) followed by trotting or pacing in a circle in both directions. As an aside, I prefer to perform the motion examination with a rider up whenever possible for a variety of reasons: the horse is usually easier to control, the rider adds additional weight, clients are often not fit enough to do this repetitively and I can get information from the rider with regard to what they are feeling. It is further noting that some horses thought to be lame or “off” are the victims of poor riding technique. I prefer to watch carriage or racing harness horses while they are being driven.

Various manipulations (flexion, extension, torsion, intermittent hoof tester application and digital pressure) can be very helpful in exaggerating or creating an observable change in motion. I
perform, when possible, these tools with a rider “up.” Positive reactions, regardless of the technique, should be repeated and compared with opposing limbs. Take in account the young, inexperienced horses or “skittish” horses may require patience on the part of the examiner.

Additional speed beyond the simple jog or specific athletic acts may be necessary to appreciate the problem or problems. This may include cantering, galloping, going at less than racing speed for a trotter or pacer, sliding stops, side passes or jumping depending on the athletic endeavor of the athlete. In the event that these specific means are useful be sure to obtain (and record) that permission was granted to do so and be sure the working surface is safe.

Additional aids and helpful hints, depending upon the situation, include changing surface grades and surface conditions (up or down a grade or soft and harder surfaces). A useful tool is to palpate and appreciate the digital pulse pressure in the resting horse that does not have an obviously “bounding pulse” followed by a brisk trot and immediate re-examination. It has been my experience that some horses with foot problems will show evidence of a prominent palpable pulse pressure that was not present prior to exercise; whereas those without foot problems will not. The use of intermittent pressure particularly in the heel region with hoof testers is very useful but in my experience in observing other examiners not often utilized. Hind leg lameness accompanied with differences in limb swing are often more obvious for me when the horse is being trotted/paced toward me by focusing my line of vision on the motion of the hind limbs through the fore limbs. In my experience hind limb lameness appear to be more obvious when the horse is moving down a surface grade.

Localizing Pain and Developing an Accurate Diagnosis or Diagnoses and Reasonably Accurate Prognosis

The importance of localizing the source or sources of pain cannot be over emphasized. Experienced, hard working equine athletes are very likely to have more than one problem and recurring problems (thus the importance of an accurate history) which can change with circumstances. The last few decades have provided the diagnostic world with incredible advances include but are not limited to diagnostic imaging and laboratory rests. An accurate history, thorough physical, motion examination and localization of the sources or sources of pain remain the “bed rock” and are essential elements of being able to help horses and their owners.

Summary

The basic essentials of “good practice” continue to include developing a consistent and efficient physical examination regardless of the problem that is presented. It “appears” that the dependence upon laboratory and diagnostic imaging modalities has both grown and at times precluded the importance of these very basic elements. The majority of the animal owning public either does not have easy access to such diagnostics or cannot afford such and thus these elements are the tools which we must depend upon. A consistent approach in combination with a dose of “common sense” can be very helpful to animals and the owners that we work for.

References

