

# **Lameness in the Horse.**

## **The Diagnostic Journey.**

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### **Introduction.**

The definition of lameness is simple – it is being incapable of normal locomotion or having a deviation from the normal gait. It is a clinical sign – a manifestation of the signs of inflammation including pain or a mechanical defect.

Lameness in the horse is one of the common causes of poor performance in the athletic horse. It is seen in all disciplines – racing, dressage, jumping Western performance, showing and eventing, also in the general leisure horse. It can be very frustrating for owners and there can be a multitude of possible causes. The key to management of such cases is confirmation of a diagnosis. This is easier than it sounds and the investigation of the lame horse can be a complicated and protracted affair. It requires a systematic and thorough approach and a good knowledge of limb anatomy.

The aim of this lecture is to provide an overview of the approach to a lame horse, a look at some of the techniques used and the role of the veterinary nurse in these procedures.

### **Causes of lameness.**

There are many!! Would require a whole series of lectures! But generally one of the following categories:

- Synovitis, capsulitis and joint instability
- Degenerative joint disease / osteoarthritis
- Bone pain, inflammation or fractures
- Tendon or ligament injury
- Developmental Orthopaedic Disease
- Infections
- Foot pain
- Muscle pain
- Neurological conditions
- Back pain

### **Steps to a diagnosis!**

- Identification of the Owners Complaint
- History
- Clinical examination
  - Appraisal of conformation
  - At rest – distant and close examination
  - Palpation and manipulation
  - Examination of the hoof
  - Gait analysis
  - Flexion tests
- Diagnostic anesthesia
- Radiography

- Ultrasound
- Arthroscopy
- Other techniques

### **Identification of the Owners Complaint**

- Key to success with client!
- It is important to establish why the owner is presenting the horse
- Musculoskeletal conditions in the horse can present in many ways
  - Obvious gait abnormality – lameness
  - Behavioural problems
  - Neck and back pain
  - Loss or change in performance
  - Stiffness
  - Difficult for farrier
  - Transition problems
  - Evasion
  - Swellings – bone and soft tissue
  - Joint effusions

### **History Taking.**

As with all presenting issues good history taking is a key in establishing and getting relevant information. The nurse can play a role here by enquiring about some of the key points. A hospital lameness sheet is useful for the more complicated cases to record these details and as a memory jogger!

### **Key Points.**

Signalment (age, breed, sex and use of the horse)

General Health

Management

Exercise / work load and changes

Past performance

Any findings at pre purchase examination

How long lame for

Severity of lameness (mild, moderate or severe)

Any change in degree of lameness

Any medications used and response

Any change in foot shape or musculature

Any swellings or heat

Shod or unshod

### **Clinical Examination**

Initially inspect the horse from a distance walking around and looking from all sides – looking for

- Swellings
- Deformities
- Scars
- Posture
- Shifting weight

- Resting any legs
- muscle symmetry
- conformation

### **Conformation**

This can contribute to the development of certain orthopaedic conditions.

- Angular limb deformities (valgus, varus)
- Flexural deformities (club foot, straight fetlocks)
- Rotational deformities
- Back at knee
- Straight, cow or sickle hocks
- Bench knee
- Dropped fetlocks

### **Foot conformation**

- Check hoof pastern axis
  - Normal
  - Broken forward
  - Broken back
- Club / boxy foot
- Long toe / low heel
- Sheared heels
- Contracted heels
- Concave dorsal wall
- Under run heels
- Check hoof symmetry – are they a pair?

### **Close Examination.**

- Look at legs standing and picked up
- Visual, palpate and manipulate examination

### **Palpation.**

- Heat
- Increased pulses – especially digital pulses
- Swellings – oedema, joint effusions, bony, fluid
- Enlargements
- Pain upon palpation

### **Manipulation**

- Any pain upon manipulation?
- Loss of range of movements of the joints?
- Pain in the movement of the joints?

### **Hoof Examination.**

- Most common site of lameness is the foot and it's associated structures
- See above for conformation
- Check the shoeing

- Hoof testers are used to put pressure on different parts of the hoof and see if there are painful regions

### **Gait Analysis.**

- Used to decide which leg is the problem
- Often performed on the hard and the soft surface
- Usually seen at walk and trot in a straight line and on the lunge in a circle
- Sometimes canter and under saddle is required
- Tight circles and backing up may also be assessed
- Neurological assessment may also be performed
- Often the role of the nurse to handle the horse during this part of the examination!

### **Tips for handling horse for lameness evaluation!**

- Comfortable shoes / boots to run in and to protect your own foot
- Gloves
- Helmet
- Suitable head collar or bridle
- Keep the horse moving forward and active
- Let the horse have enough lead rope, don't restrict the head movement
- Keep to the side of the horse not in front
- Be prepared for lots of running!

### **Examination at the Walk and Trot in a straight line.**

- The trot is easier to see lameness as it is a symmetrical gait
- Grade of lameness (1 -5)
- Arc of foot flight
- Length of stride
- Foot flight (winging, dishing, interfering etc)

### **Lameness evaluation – forelimb**

- Look for "head nod"
- Head and shoulder carried higher on lame limb
- Head goes down on sound limb as the horse lands more heavily
- Head goes up on lame limb – hops off this leg more quickly - "ouch"
- Listen to foot fall – louder on good leg as more weight thrown onto it

### **Lameness evaluation – hind limb**

- Sacrum and hip higher on lame limb
- Land more heavily on sound limb so pelvis / scrum goes down
- The sacrum and hip of the lame leg move further up and down in an attempt to keep weight off that leg
- May have shortened stride and lower foot flight on lame leg – dragging of toe

Multiple limb lameness can be challenging!!

### **Grading of Lameness**

- AAEP grading is standard system used

- Grade 1 intermittent or very mild
- Grade 2 consistent mild lameness
- Grade 3 lameness evident at walk and moderate at trot
- Grade 4 severe lameness at trot
- Grade 5 non weight bearing lameness

### **Flexion Tests**

- Not used to make diagnosis
- Help in localization of site of lameness
- Stress is place over selected structures to see if it increases lameness
- Controversial and subjective
- Can use whole limb flexion, distal limb and proximal limb flexion
- Also can try and place stress across individual joints
- Usually held for 30 – 90 seconds

### **Lunging**

- Trot horse in small circle in both directions
- Preferably on hard ground
- Can exacerbate subtle lameness
- Can help with bilateral limb lameness

The above lameness examination may point the clinician towards an area in the limb to investigate with radiography or scanning. If the area has not been identified which often occurs in more chronic cases then “nerve blocking” is the next stage. It is a better approach than “fishing” or a “radiographic safari”.

### **Diagnostic anesthesia**

- Not suitable for all cases
  - Fractious horses
  - Very lame horses with suspect fractures
  - Very subtle or variable intermittent lameness
- Aim is to use local anesthesia to identify the site of pain for further investigation

### **Two techniques.**

- **Perineural anesthesia**
  - Infiltration of local anaesthetic around a sensory nerve
  - Start low down and work upwards
  - Methodical methods are required and can be time consuming if the pain focus is high up
- **Preparation of site**
  - Brush off debris from entire limb
  - Some sites require clipping – if hairy or close to a synovial structure (depends on vet too!)
  - Scrub the site with cleansing solution (e.g. chlorhexadine)
  - Clean with surgical spirit
  - Ensure adequate restraint of horse – sometimes a twitch is useful and sometimes the leg is held up
  - Keep safe! Keep on same side of horse as the vet.

- **Forelimb blocks**
  - Palmar digital NB
  - Abaxial Sesamoid NB
  - Low 4 Point NB
  - Sub carpal NB
  - Median and ulna NB
  
- **Hind limb blocks**
  - Plantar digital NB
  - Abaxial Sesamoid NB
  - Low 6 Point NB
  - Sub tarsal NB
  - Tibial Peroneal NB

When perineural anaesthesia has located an area by abolishing the lameness the next stage is to scan or radiograph accordingly. The pain focus can however be targeted more specifically by anaesthesia of synovial structures (joints, bursae and tendon sheaths)

- **Intra-thecal / Intra-articular Anaesthesia**
  - Involves the placement of local anesthetic directly into a joint bursa or tendon sheath
  - Must be performed in an ASEPTIC manner – infection of a synovial structure is a career threatening injury and can be catastrophic. Meticulous preparation of the site is crucial
  
- **Preparation of Site**
  - Clipped / shaved with generous margin around site of injection
  - Sterile scrub – at least 10 scrubs preferably wearing gloves
  - Rinse with surgical spirit
  - Clinician will use sterile gloves, syringes, needles and local anesthetic.
  - Ensure adequate restraint of horse
  - Site may be bandaged afterwards
  - Some vets may use systemic or intra- articular antibiotics
  - Synovial structures may also be medicated in some orthopaedic conditions and the same strict regime should be followed. E.g. with Hyaluronic acid, corticosteroids and IRAP.

The site of pain can then be investigated with imaging techniques.

### **Radiography.**

Commonly used in equine practice – most equine practices use digital X ray nowadays.  
Mainly used to assess bone

- Degenerative changes
- Changes in density
- Fractures
- Chips and fragments
- Also looks at attachments of ligaments and joint capsules to bone

### **Different to SA radiography**

- The horse is standing and conscious and a horizontal beam is used.
- Often taken in the field.
- Require multiple views of each joint – including oblique views.

### • **Technique**

- Horse restrained – sometimes crush / stocks
- Chemical sedation
  - Safety
  - Less movement
  - Less repeats
  - Aids positioning

### • **Radiation Safety**

- All personnel should wear
  - Lead gown
  - Thyroid protector
  - Lead gloves or mittens
- Use cassette holders
- Keep out of primary beam
- Collimation
- Use radiation monitors
- Only necessary people in vicinity
- Not pregnant women

### **Ultrasonography.**

Commonly used in the investigation of musculoskeletal disease

- Assessment of soft tissue injury – tendons, ligaments, muscles, tendon sheaths, bursae
- Assessment of articular surfaces
- Assessment of fracture lines and fragments

### • **Technique**

- Physical Restraint and Sedation
- Clip skin
- Scrub and surgical spirit – allows good transmission of ultrasound waves
- Coupling gel
- Superficial structures require the use of a stand-off
- Dark environment

### **Arthroscopy**

Involves the placement of a rigid endoscope inside a joint – the image is projected onto a monitor to give a magnified view of all the structures inside the joint capsule. Usually performed under general anaesthesia.

Is used for investigation and treatment within joints.

### **Common indications for arthroscopy**

- Removal of chip fractures
- Debridement of damaged cartilage
- Inspection of intra-articular ligaments and menisci

### **Laboratory Techniques**

- Synovial Fluid evaluation
- Bacteriology
- Muscle Enzymes (CK and AST)
- Muscle Biopsy

### **Other Techniques.**

These tend to be restricted to specialist centres.

- Gamma Scintigraphy
- Computer Assisted Tomography
- Magnetic resonance Imaging
- Treadmill analysis
- Gait analysis programmes