Diagnosis and Prognosis of Common Disorders Involving the Proximal Limb

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KEYWORDS

• Lameness • Cattle • Surgery • Fracture • Septic arthritis • Osteochondritis

KEY POINTS

- Lameness originating from the proximal limb is more challenging because it is less visible.
- Palpation of the limb combined with specific manipulations are essential to determine the affected area.
- A precise diagnosis will help the clinician to provide appropriate treatment recommendations.

Video content accompanies this article at http://www.vetfood.theclinics.com.

It has been well known that the feet are at the origin of most lameness in cattle. Nowadays, claw trimmers, producers, and veterinarians are better trained to handle claw diseases. Unless there is an obvious visual cause to explain the lameness and feet have been checked, the affected animal is often treated empirically with antibiotics and nonsteroidal antiinflammatory drugs. A basic knowledge of the most common conditions and their prognosis might preclude the unnecessary administration of drugs avoiding the risk of residue. Moreover, a more precise diagnosis will help the veterinarian and the owner to make the best medical decision. In this article, upper leg lameness is defined as any condition involving the carpus and tarsus or above. Emphasis is on locating the origin of the lameness and using the appropriate diagnostic tools to give an accurate prognosis to the owner.

LAMENESS EXAMINATION

There are 4 steps in the determination of the cause of lameness:

- Locomotion or mobility scoring
- Hands-on examination

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- Establish a differential according to the location of the problem
- Usage of appropriate diagnostic tools

Locomotion or Mobility Scoring

Locomotion scoring is an important objective in assessing lameness. It helps to orient the veterinarian toward the most likely cause and can also be used to evaluate improvement after treatment. It is also a great tool to make animal caretakers aware of cattle needing immediate assistance, closer attention, or simply the need for scheduling of functional claw trimming. Many scoring systems have been described in the literature. Recently, the ProAction initiative in Canada established 2 distinct scales for free stalls and tie stall barns (www.dairyfarmers.ca/proaction).[1] This grading system will be used across Canada giving producers a tool to objectively monitor the herd situation and establish benchmarks. Please (see Lily Nowell Edwards-Callaway and colleagues' article, "Mobility Scoring of Finished Cattle," in this issue) for further information on mobility scoring.

Stall lameness assessments

Gibbons and colleagues[2] validated a tie stall lameness scoring system based on 4 specific behaviors. Cows must have been standing for at least 3 minutes with the animal being quiet (not urinating or defecating) before scoring them. A cow showing at least 2 to 4 behaviors is considered lame. A trained investigator can perform the assessment in less than 30 seconds by assessing the following behaviors:

1. Assessment of foot placement while the animal is standing with the observer at 1 m behind the stall.
   a. Weight shifting: Cows are regularly shifting weight while lifting their feet completely off the ground.
   b. Uneven weight bearing: Cows are protecting the affected leg by shifting weight to the contralateral leg. The entire foot can be off the ground at some point.
   c. Edging: Cows voluntarily place one or both hind feet on the stall's edge. If both hind feet are in the gutter, it is not considered abnormal.
2. Shifting of the animal from side to side is evaluated by either moving alternatively to the right and left side of the animal or simply tapping on the hip bone on each side.
   a. Uneven movement: During the maneuver, the animal is reluctant to move. She may favor one side more than the other by moving more rapidly on that side (Videos 1 and 2).

Observation at a distance

Cattle lameness is generally obvious by observing the cow's stance. Attention should be paid to the posture of the cow, including the back, shoulders, pelvis, and major limb joints. With the animal standing, the general stance is observed first and then more specifically each limb and digit. Compare one region to the opposite side and determine if there are obvious swelling, wounds, shifting of weight, and foot posture, such as toe touching or displacement of weight bearing on the medial or lateral claw are present.

Examination of the claws reveals excess wear of the wall and sole of the healthy digit. In long-standing diseases with severe lameness, the heels are taller and the wall longer on the affected claw compared with that of the healthy claw. A dropped fetlock (ie, hyperextension of the fetlock joint) may be noticed on the sound limb because of excessive load on the flexor tendons and suspensory ligaments (**Fig. 1**). In young animals, angular limb deformities secondary to uneven weight bearing