Diagnostic and Therapeutic Arthroscopy in the Standing Horse

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KEYWORDS

• Standing arthroscopy • Diagnostic arthroscopy • Fetlock • Carpus • Stifle

KEY POINTS

- Arthroscopy in the standing horse is most appropriate for exploration and treatment of the dorsal aspect of the metacarpophalangeal, metatarsophalangeal, middle carpal, and radiocarpal joints.
- Standing arthroscopy of the stifle joints is diagnostic only.
- Special consideration must be given to preoperative preparation, including local anesthesia, positioning of the horse, surgical equipment, and draping methodology.
- Physical and chemical restraint must be properly used to maximize the safety and efficiency of these procedures.

INTRODUCTION

The switch from arthrotomy to arthroscopic surgical technique significantly increased the success rate and decreased the incidence of complications associated with joint surgery.[1] In human medicine, complication rates have decreased further with the growing use of local or regional instead of general anesthesia.[2] Cost savings and increased hospital efficiency have also been documented.[2,3] These advances have yielded similar benefits in equine medicine.[1]

Arthroscopy in the horse is typically performed while the animal is under general anesthesia. However, some arthroscopic surgical procedures are so rapidly performed that the amount of time spent inducing, positioning, and recovering a horse from general anesthesia seems disproportionate. General anesthesia carries its own risks for the horse during the procedure and recovery from anesthesia, including myositis, neuropathy, postoperative pneumonia, and traumatic injuries during recovery, all of which may occur in young and healthy athletic horses.[4] It is important to emphasize, however, that these risks are still low and certainly do not demand an

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alternative approach to surgery. An alternative such as a standing approach should not be selected unless the procedure can be performed equally well or the alternative approach affords some other specific advantage.

Surgeons must have an honest appraisal of their abilities as an arthroscopist. If one cannot consistently complete a routine chip fracture removal in less than 10 minutes without a tourniquet, standing removal should not be attempted. This technique should not be attempted without a lightweight videoendoscopic system (fetlock, carpus) or purpose-built equipment (stifle).

INDICATIONS

The Metacarpophalangeal Joint

The best indication for standing arthroscopic surgery in the horse is removal of chip fractures from the proximal dorsal aspect of the proximal phalanx, which is the single most common chip fracture in thoroughbred racehorses.[5] The arthroscopic portals are straightforward, intra-articular dissection is minimal, and the procedure can be performed easily without manipulation of the joint. In fact, the standing weight-bearing posture of the horse maximizes fetlock joint extension, making the dorsal joint pouch more readily accessible. Retrieval of dorsal proximal osteochondral fragmentation of the sagittal ridge of the third metacarpal bone and partial exploration of the proximal aspect of the palmar joint pouch are also possible in the standing horse.

The Radiocarpal Joint

Simple chip fractures of the distal dorsolateral radius and proximal intermediate carpal bone can be removed with the horse standing. The antebrachiocarpal joint has adequate space in which to maneuver the scope and the instruments along the dorsal rim with the horse bearing weight.

The Femoropatellar and Femorotibial Joints

A technique for standing arthroscopic evaluation of the equine stifle has been described.[6] The technique is intended as a diagnostic option for horses with stifle disease, as evidenced by clinical signs and diagnostic analgesia, in which radiographic and sonographic examinations have not yielded a diagnosis and whose owners are reluctant to pursue general anesthesia and/or conventional arthroscopy. This technique is strictly diagnostic. The goal is "to distinguish between horses in which training can, with appropriate management, reasonably be expected to continue and those in which arthroscopic surgery under general anesthesia is indicated."[7]

Other Synovial Structures

Other synovial structures have been endoscopically examined but are currently seen rarely enough in routine practice to warrant only brief mention.

RESTRAINT

Physical

The procedure is best performed with the horse restrained in stocks, and with its head controlled by an experienced handler. If head ties are used, they should be easily releasable. Some horses respond well to a lip-chain or twitch, whereas others do not.

Chemical

Patients are sedated with intravenous xylazine hydrochloride (0.4–0.5 mg/kg) for clipping, primary limb preparation, and local anesthesia. Intravenous or intramuscular