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Injection of subchondral bone cysts with triamcinolone is relatively easy to perform and requires equipment available at most surgical facilities. Intracyst injection results in a high overall achievement of usefulness for many performance disciplines. Authors’ addresses: Illinois Equine Hospital, 5S045 Eola Road, Naperville, IL 60563-9610 (Foerner, Watt); University of Wisconsin, School of Veterinary Medicine, 2015 Linden Drive, Madison, WI 53706 (Keuler, Santschi); Alamo Pintado Equine Medical Center, 2501 Santa Barbara Avenue, Los Olivos, CA 93441 (Rick); Manor Equine Hospital, 15801 Old York Road, Monkton, MD, 21111 (Juzwiak); and Equine Veterinary Clinic, 9620-N 132nd Street, Omaha NE 68142 (Smalley); e-mail: paravets1@juno.com (Foerner). © 2006 AAEP.

1. Introduction

Subchondral bone cysts (SBCs) have been reported in all diarthrodial joints of the equine appendicular skeleton, and the most common location is the medial femoral condyle.1 Radiographs of SBCs reveal lucent circular areas in subchondral bone that are often surrounded by a sclerotic margin.2 SBCs can be an incidental radiographic finding3 but also are a cause of lameness. Young horses (<3 yr) are most commonly affected1,4 and usually have little or no degenerative joint disease. An important factor in cyst formation seems to be cytokine-mediated inflammation.5

Successful treatment of equine SBCs is challenging.1 Success is usually defined as a resolution of lameness, because radiographic resolution of the cyst (particularly of the medial femoral condyle) is not necessary.6 Treatment of cysts by surgical debridement is often recommended,9 but can be difficult to achieve in some locations. Injection of bone cysts in humans with corticosteroids has been used successfully,7 and there is one short report about its use in the horse.8 This technique is particularly applicable to the treatment of cysts inaccessible by other surgical approaches. The purpose of this study was to describe the corticosteroid injection of SBCs causing lameness in a large number of horses and to assess the results of treatment on lameness.

2. Materials and Methods

The medical records of 73 horses with 91 SBCs injected with triamcinolone acetonide8 at five equine hospitals were reviewed. Cysts were injected transarticularly or transcortically under radiographic (n = 24), arthroscopic (n = 21), or ultrasono-
graphic (n = 28) control. All cysts were injected with 10–20 mg of triamcinolone, and 40 were also injected with 1–3 ml of autologous bone marrow. Most horses received 4–6 mo of rest after injection. Follow-up information was collected by physical examination or telephone conversation with caretakers at a minimum of 6 mo after injection.

Outcome (excellent, good, fair, poor) was tested for association with several variables including age, number of joints affected, cyst area and location, occupation, presence of osteoarthritis, and the use of bone marrow. Mean values of the continuous variables with outcome were compared using ANOVA, and association for categorical variables with outcome was determined using a two-sided Fisher's exact test. Significance was set at p ≤ 0.05.

3. Results

Breeds of horses in the study included 33 Quarter horses, 11 Thoroughbreds, 8 Arabians or grade Arabians, 8 American Paint horses, 8 Standardbreds, and 5 others. Horses ranged in age from 8 mo to 13 yr (median = 2 yr) and were used, or intended for use, in several athletic disciplines. There were 35 females and 38 males (25 geldings, 13 intact). There were 58 horses with 75 medial femoral condylar (MFC) cysts in the study and 15 horses with 16 cysts in other locations (7 fetlock joints, 1 elbow, 6 pasterns, 1 carpus, and 1 proximal tibia). All MFC cysts were graded as group A.

Previous treatments for many horses included rest and oral phenylbutazone, which was ineffective in resolving the lameness. Intra-articular injection of corticosteroids and hyaluronic acid had been performed on at least 15 horses and had also been unsuccessful. There were no complications of cyst injection. The average length of time for lameness to resolve was 6.3 mo (range, 2–18 mo). Performance outcomes of 73 horses treated by intrasional injection were 48 (66%) excellent (sound), 8 (11%) good (used as intended, but mild lameness), 9 (12%) fair (improved but lame), and 8 (11%) poor (same or worsened lameness), for a summary of 77% of horses used as intended and 23% unable to be used as intended or euthanized. Age of patient, breed, number of joints affected, cyst location (medial femoral condyle or not), cyst area, and injection of bone marrow did not affect outcome.

There was an overall association between occupation and outcome (p = 0.05); pairwise tests showed that ranch horses and pre-training juveniles had significantly different distributions of scores (p = 0.04). Ranch horses were rated 40% excellent, 30% good, 20% fair, and 10% poor, whereas the corresponding proportions were 75%, 0%, 0%, and 25%, respectively, for juveniles. Radiographically apparent osteoarthritis at injection was associated with outcome (p = 0.01); horses with radiographic signs of arthritis were rated 73% excellent, 2% good, 13% fair, and 13% poor, whereas the corresponding proportions were 44%, 39%, 11%, and 6%, respectively, for horses without apparent osteoarthritis.

4. Discussion

Selecting the appropriate treatment for equine SBCs is a challenge because little is known about their pathophysiology. Injection of cysts with triamcinolone by intra-articular puncture or transarticular drilling can be an effective treatment of lameness caused by SBCs in horses without pre-existing osteoarthritis when combined with rest. The ability of subjects to perform after cyst injection is similar to surgical debridement. Cyst injection with triamcinolone is believed to reduce local bone inflammation, arrest cyst progression, and promote cyst healing. Performance results after injection indicate it is a realistic alternative to surgical debridement.

References and Footnote


*Vetalog, Fort Dodge Animal Health, Fort Dodge, IA 50501.