Treatment of Large Extensor Process Fragments of the Distal Phalanx

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Large extensor process fragments of the distal phalanx (coffin bone) can cause lameness, but to our knowledge little information exists regarding appropriate treatment and success with surgery. Surgical removal by arthrotomy resulted in a return to full performance in 7/11 (64%) horses. Authors’ address: Dept. of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO 80523. © 1998 AAEP.

1. Introduction
Large extensor process fragments are uncommon, and they often pose a difficult problem regarding appropriate treatment. These fragments often have a radiographic appearance suggesting chronicity, even when the onset of lameness is recent. Their chronic appearance makes internal fixation a less valid option, and the fragments are too large for removal by using arthroscopy. Fragment removal by arthrotomy is another option, but to our knowledge little information exists regarding case selection and treatment results for either internal fixation or fragment removal.

Four cases of large extensor process fragments have been reported in which screw fixation was used,1–4 and three have been reported in which fragment removal was used.5,6 Fragments receiving internal fixation had the radiographic appearance or clinical history of an acute fracture, and a full return to function was reported for three cases.1,3,4 Success was reported for the three cases in which fragment removal was used, but two of these fragments more closely resembled the small fragments that would now be removed by the use of arthroscopy.

The purpose of this report was to test the hypothesis that the surgical removal by arthrotomy of large extensor process fragments having a chronic radiographic appearance would result in a favorable outcome.

2. Materials and Methods
Case records of 11 horses with large extensor process fragments associated with lameness were retrieved from the hospital records at Colorado State University between 1992 and 1998. Information obtained from the medical record included signalment, use, affected limb, severity and duration of lameness, diagnostic tests, and radiographic and surgical findings.

All fragments were removed through a dorsal midline arthrotomy incision, with horses in lateral or dorsal recumbency. Follow-up information was obtained by telephone interview with the owner, referring veterinarian, or both. A successful outcome required that the horse...
be able to perform at a level equal to or better than that achieved before surgery, or with young horses, that they achieve their expected level of performance.

3. Results

Eleven horses were included in the study, of which 7/11 (64%) were Quarter Horses, and 10/11 (91%) were males. Eight of 11 (73%) horses were younger than 5 years old (range 1.5–10 years). Nine of 11 (82%) horses had a history of chronic lameness (~30 days), with three (27%) horses being lame for more than 1 year. The right forelimb was involved in six (55%) horses, the left forelimb was involved in three (27%) horses, and bilateral involvement was present in two (18%) horses. The median lameness grade was 2/5, and 7/11 (64%) horses had a buttress foot appearance. Additional diagnostic tests were used to localize lameness in 7/11 (64%) horses.

Radiographs confirmed the presence of large fragments (1.0–2.5 cm in height on a lateromedial radiograph projection) in all cases, with one horse appearing to have multiple fragments. Mild osteoarthritic changes (osteophytes at the distal aspect of the middle phalanx or the medial or lateral margins of the distal phalanx) were present in three (27%) horses. An extra-articular bony proliferation of the fragment was often present.

Immediate postoperative discomfort was significant in one horse, with the remainder having either a transient mild increase or a decrease in lameness as compared with preoperative parameters. The median recovery time was 6 months (range 2–8 months). At follow-up, 7/11 (64%) horses had a successful outcome, 2/11 (18%) were improved but still lame, 1/11 (9%) did not improve, and 1/11 (9%) is still convalescing.

4. Discussion

Large extensor process fragments seem to be more common in young horses, and they are often associated with chronic lameness. These fragments have been hypothesized to result from direct trauma, extreme hyperextension at high speeds, or excessive pull of the common digital extensor tendon. However, a developmental etiology cannot be ruled out, and these fragments may represent a type of nonhealing fracture, similar to osseous bodies previously described in foals.

All fragments in this study had a chronic radiographic appearance, despite a more recent history of lameness in two horses. Reasons for lameness developing are unclear, as the fragments are rarely movable at surgery, and overt osteoarthritic changes were not seen. As the fragments have the appearance of a chronic non-union, a more recent traumatic episode may result in micromovement of the fragments. Associated synovitis may also contribute to the lameness.

Factors associated with lack of success are difficult to determine. Larger fragment size or more severe lameness preoperatively was not present in the unsuccessful cases. Two of the unsuccessful cases had lameness lasting longer than 2 years, which may have been a factor in their less favorable outcome.

5. Conclusions

This study supports a favorable prognosis for a successful outcome following the removal of large extensor process fragments by arthrotomy. Despite fragment size and the use of an arthrotomy, joint instability and permanent soft-tissue injury do not seem to be a problem.

References