



## Case Report

## Eosinophilic Granuloma in the Forelimb of an Arabian Mare

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## ABSTRACT

A mare presented with lameness and a large swelling palmarolateral and proximal to the right carpus. Radiography revealed mineral opacity, bone remodeling, and soft tissue swelling. At surgery, fibrous tissue was removed from the subcutaneous area and sulfur granules were removed from near the carpal canal. Histopathology revealed eosinophilic inflammation. Habronemiasis was the primary differential, although no larvae were found. The swelling resolved, and the mare was sound 1 year after initial presentation.

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## 1. Introduction

Cutaneous swellings, masses, and wounds are common in the distal limb of horses. Habronemiasis, a granulomatous lesion caused by nematode larvae, is a well-described cause of skin lesions in horses; their typical appearance is a proliferative and ulcerative lesion [1–4]. The diagnosis of habronemiasis is often based on history and clinical signs, including the presence of yellowish granules in the lesion [3]. Nonulcerated swellings may be due to neoplasia, trauma, inflammation, scar tissue, calcification, or infection of deeper structures [5–7]. In this report, the clinical presentation of a nonulcerative swelling in an Arabian mare is described. Despite atypical clinical findings, the findings on surgical exploration and histopathology were consistent with habronemiasis. Cosmetic and functional outcome was excellent.

## 2. Case History

A 3-year-old Arabian mare (454 kg) presented to the Lloyd Veterinary Medical Center at Iowa State University in the month of September for swelling of the right carpus and lameness. The owner first noticed the swelling about 2 months before presentation at Iowa State University. There was no known history of injury and no wounds or draining tracts had been seen. No other horses on the farm were affected with similar swellings. The referring veterinarian performed radiographs and an ultrasound when the owner first noticed the swelling. The radiographic findings were normal at that time, and there was no definitive diagnosis made by the veterinarian on ultrasound. Treatment prescribed included cold water therapy, topical 1% diclofenac cream 15 cm strip topically q 24 hours (Surpass, Beohringer Ingelheim Vetmedica, Inc, St Joseph, MO), and stall rest. The swelling continued to slowly get larger during the course of this treatment, so the horse was referred for further evaluation.

## 3. Clinical Findings

The patient was bright, alert, responsive, and in good body condition. Temperature, pulse, and respiration were

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within normal limits at 37.5°C, 40 beats per minute, and 16 breaths per minute. An approximately 10 × 15 centimeter firm swelling was present on the palmar aspect of the right carpus, near the area of the accessory carpal bone and just proximal to it (see Figs. 1 and 2). The swelling was not painful on palpation. On lameness evaluation, the mare was grade 1/5 lame on the right front and had a decreased range of flexion of the carpus. Radiographs of the carpus revealed severe soft tissue swelling centered at the level of the distal radial physeal scar, extending proximal from the chestnut and distally to the distal row of carpal bones. In the center of the mass, finely stippled mineralization was evident. The mineralization extended from just proximal to the accessory carpal bone to a level approximately 4 cm proximal to the physeal scar of the distal radius and had an irregular moderately granular appearance. It was more radiodense than the surrounding soft tissue, but less radiodense than the nearby bone. The palmarolateral margin of the accessory carpal bone exhibited moderate exostosis with a smoothly undulant margin (see Figs. 3 and 4).

Blood work was performed. Fibrinogen was elevated at 600 mg/dL (reference range, 100–400 mg/dL), neutrophils were decreased at  $1.71 \times 10^3/\mu\text{L}$  ( $2.1\text{--}6.7 \times 10^3/\mu\text{L}$ ), and hematocrit was elevated at 46.3% (34%–45%). Serum chemistry revealed a slightly elevated AST of 477 (100–465 IU/L), decreased albumin 3.0 gm/dL (3.3–4.6 gm/dL), and



**Fig. 2.** Close up view of preoperative appearance of the swelling palmar to the right carpus. The mass was firm and was not painful to palpation.

decreased chloride of 100 mEq/L (102–114 mEq/L); the eosinophil count was within normal limits at  $0.12 \times 10^3/\mu\text{L}$  ( $0.0\text{--}0.5 \times 10^3/\mu\text{L}$ ).

#### 4. Treatment

An IV catheter was placed in the left jugular vein, and phenylbutazone 4.4 mg/kg bwt IV (Phenylbutazone, VetOne, Boise, ID) and gentamicin 6.6 mg/kg bwt IV (Gentamicin Sulfate, Phenylbutazone, VetOne, Boise, ID) were administered. Butorphanol 0.01 mg/kg bwt IV (Torbugesic, Zoetis, Florham Park, NJ) and xylazine 1 mg/kg bwt IV (Xylamed, VetOne, Boise, ID) were administered for sedation, followed by ketamine 2.2 mg/kg bwt IV (Ketaset 2.2 VetOne, Boise, ID) for induction. The mare was maintained on isoflurane during surgery to explore the mass and debulk it. The mare was placed in left lateral recumbency, and the right carpus was clipped and aseptically prepared. An approximately 12-cm incision was made over the mass on the palmarolateral aspect of the carpus.

A large amount of fibrous tissue was encountered in the subcutaneous area. A poorly encapsulated mass of gritty, granular material with consistency and appearance of sulfur granules was present in the region of the carpal canal (see Fig. 5). The fibrous tissue superficial to the carpal canal was excised. The granular material was encountered deep to this fibrous tissue and was encapsulated by a very thin layer of soft tissue which tore easily on palpation and manipulation. Manual removal of the granular material was initiated, and then, removal was completed with



**Fig. 1.** Preoperative appearance of a 3-year-old Arabian mare with a large swelling palmar to the right carpus. The mare had a mild (grade 1/5) lameness present in the limb.

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