Soft Tissue Swelling in an Arabian Gelding

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A 14-year-old Arabian gelding was referred to our hospital for examination of a slowly expanding soft tissue swelling proximal to the point of the right hock. The swelling reportedly had an acute onset approximately 2 months previously. At that time, it was suspected to have resulted from trauma, although no injury or skin blemishes were observed. No lameness was associated with the swelling. Three days before presentation, a bloody discharge was observed draining from the lateral aspect of the swelling.

On presentation, the physical examination results were unremarkable except for the localized soft tissue swelling, which was centered approximately 6 cm proximal to the point of the right hock. The mass was firm, softball sized, nonpainful, and intimately associated with the adjacent soft tissue structures, appearing to occupy the space immediately cranial to the common calcaneal tendon, from the medial to lateral aspect of the limb. There was a small draining tract on the lateral aspect of the swelling, from which fluid had drained and dried, resulting in matting of the hair distal to the swelling. The horse was not lame at the walk and did not resent flexion of the hock, which resulted in a viscous, serosanguineous discharge that flowed freely from the draining tract. A sample of draining fluid was collected and submitted for cytologic examination, revealing neutrophils and eosinophils in numbers greater than those associated with blood contamination, hyperplastic synovial epithelial cells, and moderate numbers of mast cells on a proteinaceous background. These results were interpreted as a mixed inflammatory response, likely of synovial origin.

1. Based on the clinical presentation and fluid cytology, what is your differential diagnosis?
2. What further diagnostic procedures would help make a definitive diagnosis?
3. How would you manage this case?
4. What information regarding the lesion could you give the owner?
Clinical Snapshot: Soft Tissue Swelling in an Arabian Gelding

Answers and Explanations

1. The differential diagnosis includes localized infection, chronic flexor tendon injury, hypersensitivity secondary to insect or spider bite, and neoplasia.

   A longstanding cutaneous swelling may be due to diseases/conditions such as hypersensitivity reactions, infectious diseases, sterile inflammatory diseases, and neoplasia; however, in this case, the slow expansion of the mass over 2 months, with no other cardinal signs of inflammation (e.g., redness, pain, warmth), strongly supported neoplasm as the most likely diagnosis. However, with fluid cytology identifying a mixed inflammatory response in what was most likely synovial fluid, potential involvement, infectious or otherwise, of the synovial structures of the caudoproximal aspect of the hock should be investigated further.

2. Plain and contrast radiography (B and C), fluid culture and sensitivity testing, and biopsy of the mass were all performed. Plain radiographs revealed a soft tissue mass with granular mineralization without bone involvement. Contrast radiography was performed by injecting a non-ionic contrast material, iohexol, directly into the soft tissue mass. The contrast remained within the margins of an irregular mass measuring 73 × 92 × 92 mm with no evidence of extension into the calcaneal bursae or tarsal sheath. Serosanguineous aspirate from the mass was submitted for culture and sensitivity testing, but no growth was yielded. With the patient under standing sedation, a needle core tissue biopsy was performed, and histopathologic examination revealed a mast cell tumor.

3. Treatment options for mast cell tumors include wide surgical excision, intralesional corticosteroid injection, or systemic administration of antihistamines. In this case, surgical excision was not performed because the tumor was near tendinous and synovial structures. Instead, 80 mg of methylprednisolone acetate was injected intralesionally. At a follow-up 5 months after treatment, the owner reported that the mass was no longer draining and had decreased to half its original size within 2 months after initial treatment, and the horse remained sound on the limb.

4. Mast cell tumors are uncommon cutaneous neoplasms in horses. Three forms are recognized:
   - Multifocal, congenital
   - Benign, cutaneous, solitary, nodular; on the extremities
   - Malignant

   The congenital form is rare and is observed at or shortly after birth. Affected horses have multifocal raised nodules varying from a few millimeters to 3.0 cm in diameter on the trunk and pelvic limbs. These nodules may progressively enlarge, ulcerate, and then heal spontaneously, forming a fibrous nodule.

   The most common form is a slow-growing, solitary, benign, mobile cutaneous mass, ranging from 0.5 to 20 cm in diameter. These tumors may be firm or fluctuant on palpation and, in a few cases, alopecic, hyperpigmented, or ulcerated. They usually involve the dermal and subcutaneous layers of the head or limbs and are not bound down to the muscular layers. These masses may be immobile if they develop near a joint or synovial structure and, surprisingly, rarely result in lameness, as in this case. Male horses are more commonly affected than female horses, and some authors report overrepresentation of Arabians.

   The malignant form has been rarely described in horses and is characterized by the development of circulating eosinophilia, hyperfibrinogenemia, lesion-associated and generalized pruritus, affliction of synovial joint structures resulting in severe lameness, and local lymph node metastasis. It is debatable whether most mast cell tumors in horses are truly neoplastic; therefore, the term *equine cutaneous mastocytosis (ECM)* has been advocated as the most suitable.

   The malignant and benign forms are differentiated by clinical signs, especially lameness and peripheral eosinophilia, and histopathologic differences. Mast cell tumors are characteristically well defined on histopathology in horses, and mitotic figures are rarely seen in benign forms of ECM. Mast cells are the predominant cell type and are identified by metachromatic staining of intracy-
toplasmic granules using toluidine blue stain. Eosinophils are observed in various numbers.

The typical radiographic appearance of ECM is a soft tissue mass with granular mineralization without bone involvement. The differential diagnosis for this radiographic appearance includes calcinosis circumscripta and mineralizing granulomas. Surgical excision of benign ECM is normally curative, and recurrence is rare, even with incomplete excision. Intralesional corticosteroid injection may be successful when excision is inappropriate or not possible.

References

Suggested Reading
