22 year old QH mare with regionally extensive alopecia and scaling on one front limb and ventral chest (Figure 1 and 2).

**Which of the following is the most likely disease?**
- a. Sterile granuloma complex
- b. **Sarcoidosis  CORRECT**
- c. Fungal dermatitis
- d. Pemphigus foliaceous
- e. Cutaneous vasculitis

**Signalment:** Quarter Horse, *Equus caballus*, mare, 22 years old

**History:** One year history of progressive exfoliative skin lesions that started as a small focus around the elbow. Over time, this extended to include the entire forearm (Figure 1) and ventral thorax (Figure 2). Skin feels leathery but not pruritic nor painful. Pitting edema of the affected forearm occurred acutely but resolved with corticosteroid and antimicrobial treatment. Skin lesions have been refractory to treatment including a variety of topical therapies. Hematology, biochemistry and ACTH stimulation test within normal limits.

**Microscopic Description:**
Haired skin: Diffusely there is mild to moderate compact orthokeratotic hyperkeratosis with mild lymphocytic exocytosis. Throughout the dermis, there is a moderate perivascular to interstitial infiltrate of predominantly lymphocytes and histiocytes with a smaller number of plasma cells (Figure 3, 4). Superficially, a mostly lymphocytic-histiocytic moderate infiltrate is present, which is particularly intense around follicles and contains a smaller number of interstitial multinucleated histiocytic giant cells with peripheralized nuclei (Langhans type) (Figure 5, 6). Within the deep dermis, a moderately intense infiltrate of eosinophils predominates, with lesser numbers of lymphocytes, plasma cells and neutrophils. These are perivascular to interstitial in distribution. Scattered within the superficial dermis are small numbers of melanocytes and macrophages containing a dusting of intracytoplasmic melanin pigment (melanophages).

**Morphologic Diagnosis:**
Haired skin: Moderate diffuse lymphohistiocytic and eosinophilic interstitial dermatitis with multinucleated histiocytic giant cells

**Name the condition:** Sarcoidosis

**Comment:**
Histologic changes and clinical images are suggestive of the localized form of equine sarcoidosis. Equine sarcoidosis (also known as ‘equine idiopathic granulomatous disease’, ‘equine generalized granulomatous disease’, ‘equine systemic granulomatous disease’, ‘equine histiocytic disease’ and ‘equine histiocytic dermatitis’ is rare and may present as a generalized...
or localized exfoliative dermatitis and/or as granulomatous infiltration in multiple organs. The cause is unknown however an immune-mediated pathogenesis, Mycobacterium spp. and hairy vetch toxicosis have been implicated.\textsuperscript{1,5,6} In humans, it is believed that sarcoidosis may be an aberrant reaction to an infectious agent or an antigen, and this may also be true in the horse.\textsuperscript{4}

More recently, sarcoidosis has been categorized into three clinical presentations: generalized, partially generalized and localized.\textsuperscript{4} Peripheral lymphadenopathy may occur in the former two. The localized form is defined as localized areas of non-pruritic exfoliative dermatitis on one or two lower limbs with variable pain, edema and lameness. The partially generalized form is characterized by exfoliative dermatitis on one or two limb(s) and/or (sub)cutaneous nodular lesions on a limited body region. The generalized form shows non-pruritic cutaneous signs and/or (sub)cutaneous nodules all over the body with one or more of the following signs: low-grade fever, exercise intolerance, pain when touched, respiratory distress, weight loss and/or peripheral lymphadenopathy. The onset may be insidious or rapid.\textsuperscript{3} Most studies have not identified any age, breed or gender predilections, however, generally horses are over three years old and one study noted an over-representation of thoroughbreds and geldings.\textsuperscript{4,5}

The skin lesions are characterized by well-demarcated focal, multifocal or generalized scaling and crusting with varying degrees of alopecia and increased local skin temperature. Lesions are most common on the lower limbs. Internal nodules may be found in the lung, lymph nodes, liver, gastrointestinal tract, spleen, kidneys, bones, and central nervous system. In some generalized cases, skin lesions may not be present.\textsuperscript{2,3}

Histopathologic findings include a nodular-to-diffuse sarcoidal granulomatous dermatitis that may affect all portions of the dermis. Multinucleated histiocytic giant cells are numerous. Rarely, the subcutaneous fat may be affected to a lesser degree.\textsuperscript{2} Identical lesions are found in other organs in the generalized form.

The prognosis is poor for the generalized and partially generalized forms with most horses being euthanized within months of diagnosis. Prognosis for survival is good for the localized form but guarded for the localized skin disease.\textsuperscript{4} Spontaneous resolution has been reported in the generalized and localized form.\textsuperscript{2}

The differential diagnoses include dermatophilosis, dermatophytosis, pemphigus foliaceus, systemic lupus erythematosus, drug reaction, contact dermatitis, seborrhea, multisystemic eosinophilic epitheliotropic disease, epitheliotropic lymphoma, and toxicoses (arsenic, iodine, vetch). Definitive diagnosis is based on history, physical examination, and skin biopsy.\textsuperscript{2}

In this particular case, follow-up with the referring veterinarian revealed that the patient’s lesions regressed significantly following alternate day oral dexamethasone therapy for several months. The lesions became limited to the elbow region, with this being considered most representative of the ‘localized’ form of sarcoidosis. The horse is otherwise clinically well making prognosis for survival good, although prognosis for complete lesion resolution remains poor.

References


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Figures

Figure 1.

Figure 2.