A 7-year-old intact male American Pit Bull Terrier was presented with a three year history of skin disease. Initially signs included nonpruritic patchy alopecia and progressed to involvement of the nose with approximately one year of ulceration. Prior treatment included glucocorticoids and cefpodoxime with mild improvement. Activity level and appetite were normal.

What is the most likely disease process?

- Reactive histiocytosis (CORRECT)
- Angiocentric lymphoma
- Fungal rhinitis and dermatitis
- Nodular fasciitis
**Signalment and History:**

A 7-year-old intact male American Pit Bull Terrier was presented for a 3 year history of progressive nonpruritic alopecia with a one year history of progressive nasal involvement. Upon dermatologic examination there was bilaterally symmetrical destruction of the nasal planum and rostral muzzle with ulceration and granulation tissue, crust and peripheral erythema. Multifocal, asymmetric cutaneous nodules, coalescing plaques and foci of alopecia were also present over the rest of the body. The alopecic regions were atrophic and hyperpigmented. The oral mucosa was hyperemic and thickened. The dog was otherwise systemically well.

Fine need aspiration of a nodule on the hock was performed. Spindle cells, epithelioid macrophages, lymphocytes and few neutrophils were identified on cytology. Multiple skin punch biopsies were obtained. Prior treatment included glucocorticoids (primarily prednisone) and cefpodoxime with mild improvement.

**Histologic description**

Biopsy samples of haired skin contain similar regions of dense nodular inflammation within the deep dermis and subcutis by histiocytic cells, lymphocytes, neutrophils and plasma cells. The infiltrate often tracks along adnexal units or surrounds blood vessels. The dermis overlying the vasocentric inflammation contains atrophied hair follicles, orphaned apocrine glands, and regions of fibrosis with sclerotic collagen.

**Morphologic Diagnosis:** Severe nodular lymphohistiocytic and neutrophilic dermatitis with follicular atrophy and dermal fibrosis

**Name of the disease:** Reactive histiocytosis

**Comment**

Reactive histiocytosis is a disorder of dogs divided into two variants: cutaneous reactive histiocytosis (CH) and systemic reactive histiocytosis (SH) (likely a progression of CH). CH involves the skin and may drain to regional lymph nodes. SH involves the skin as well as nasal, ocular, or oral mucosa and viscera.

CH and SH are believed to be disorders of activated interstitial dendritic cells with accompanying CD 8+ T-cells. Lesion regression does not occur as in canine cutaneous histiocytomas, but may take a waxing and waning progressive clinical course. The histiocytic cells are positive for CD18, CD204, CD4, CD1a, CD11c, CD18 , CD90 and MHC II. These cells are negative for E-cadherin. An antigenic trigger has not been identified to date. The lesions of CH and SH in the skin tend to be “bottom heavy” and track along vessels of the deep dermis and subcutis progressing to track along adnexal units into the dermis, as opposed to the “top heavy” distribution of Langerhans cell histiocytosis and cutaneous histiocytomas. The histiocytes tend to have abundant eosinophilic cytoplasm with large reniform to oval nuclei and an open fine chromatin pattern. These cells may be mildly atypical, but are often uniform with few to rare mitoses. This condition can overlap histologically with infectious disease processes and inflamed
cutaneous lymphosarcoma. Marked vasocentricity/vasoinvasion may result in secondary cutaneous ischemia and potentially ulcers. Dogs with nasal planum/nares lesions may have a more biologically aggressive form of CH with a higher likelihood of lesion recurrence.

The age range for CH is broad and breed predispositions have not been elucidated. In SH large breed dogs including Bernese Mountain dogs, Rottweiler dogs, and Labrador Retrievers may be predisposed with a familial tendency reported in Irish Wolfhounds. Lesions in numerous viscera and bone marrow are variable, but a similar vasocentric infiltrate as seen in CH, is observed. The cells are far less pleomorphic than those encountered with histiocytic sarcoma. Remission and recurrence may recur in both CH and SH.

In this case the patient was treated with prednisone, doxycycline, niacinamide, and azathioprine. With an attempted tapering of the prednisone treatment there were more numerous dermal nodules found at a recheck examination. At an 8 month follow up visit there was continued improvement of lesions, especially of the nasal planum.

References


Moore, P. F. 2014; A Review of Histiocytic Diseases of Dogs and Cats; Vet Pathol; 51 (1), 167 – 184


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Figures

Figure 1. 7-year-old intact male American Pit Bull Terrier.

Figure 2. 7-year-old intact male American Pit Bull Terrier.
Figure 3. 7-year-old intact male American Pit Bull Terrier.

Figure 4. 7-year-old intact male American Pit Bull Terrier.
Figure 5. 7-year-old intact male American Pit Bull Terrier.