

Case 12
Lymphohistiocytic dermatitis and vasculitis in calves associated with hemotropic
***Mycoplasma* spp**

Erica Noland, Ailam Lim, Steve Bolin, Tuddow Thaiwong, Barbara Steficek, Matti Kiupel, Dodd Sledge

Diagnostic Center for Population and Animal Health, Michigan State University, Lansing, MI

Signalment and History: Several Jersey-Holstein cross calves in one barn of approximately 250, 300lbs calves acutely developed swelling of the distal hind limbs and temperatures of 104F. Within two days, 16 more calves had moderate limb edema and 40% of all calves in the barn had erythema and edema around the dew claws. Affected calves had no lameness, but swollen areas were sore on palpation. The next morning, four animals developed signs of pneumonia and fevers of 104-106F, and few others had mild coughs. One animal was sacrificed for a field necropsy, during which only limb edema was observed.

Histopathologic Findings: The submitted slide represents skin from the pastern region. The superficial, mid, and deep dermal plexuses are surrounded by moderate aggregates of plump histiocytes, lymphocytes, few plasma cells, eosinophils, and, primarily surrounding superficial vessels, neutrophils. The deep dermal stroma is moderately expanded by nonstaining edema fluid, and there is occasional extravasation of red blood cells into the superficial and mid dermal stroma and small perivascular accumulations of extracellular karyorrhectic debris. Vessel walls of all dermal plexuses are frequently poorly defined and partially to fully obscured by smudgy amphophilic to eosinophilic material or are lined by plump, reactive endothelial cells. The epidermis is moderately hyperplastic and lined by marked laminar orthokeratotic to multifocally parakeratotic hyperkeratosis and multifocal crusts comprised of serum and dense aggregates of degenerate neutrophils. The epidermis is focally ulcerated and replaced by similar crusts.

Diagnosis: Severe lymphohistiocytic perivascular dermatitis and vasculitis; focal epidermal ulceration, moderate epidermal hyperplasia, hyperkeratosis, and crusts

Additional Findings: PCR on formalin fixed, paraffin embedded tissue was positive for 16s rRNA gene of *Mycoplasma* spp, and sequencing of a 597 bp amplicon from the same gene was consistent with 'Candidatus *Mycoplasma haemobos*'

Comment: There are several species of hemotropic mycoplasmas of veterinary importance, including *Mycoplasma wenyonii* (formerly *Eperythrozoon wenyonii*) and 'Candidatus *Mycoplasma haemobos*', both of which affect cattle and have been previously reported in Michigan dairy herds.¹ The exact pathogenic potential of these epierthyrocytic parasites in cattle is unclear. While the majority of infected cattle are subclinical, development of severe clinical disease has been reported previously, particularly in immunosuppressed or stressed animals, or cattle with concurrent infections. Few cases with similar histologic changes in the skin of cattle with severe hind limb edema and concurrent hemotropic *Mycoplasma* spp infection have been described.² However, the exact pathogenesis of these changes is not fully understood. Other differentials for the perivascular dermatitis and vasculitis observed in this case included septicemia, viral-induced vasculitis, and Hairy Vetch toxicosis. There was no histologic or laboratory evidence to support any of these causes in this and all calves had been restricted to the barn with no exposure to pasture.

References:

1. Sledge DG, Lim A, Bolin S. Identification of hemotropic *Mycoplasma* infections in Michigan dairy cattle including dual infections with *Mycoplasma wenyonii* and 'Candidatus *Mycoplasma haemobos*.' AAVLD annual meeting, Providence, RI, October 2015.
2. Smith JA, Thrall MA, Smith JL, Salman MD, Ching SV, Collins JK. *Eperythrozoon wenyonii* infection in dairy cattle. JAVMA. 1990;196(8):1244-1250.