Signalment: 5 kg, adult, male, free-ranging raccoon (Procyon lotor)

History: This raccoon was found in Westchester IL with neurologic signs (staggering) in February 2021 and was euthanized. There was no known human or animal exposure.

Gross findings: Markedly thin body condition (absent subcutaneous, visceral, and pericardial adipose stores); Mild lymphadenopathy (mesenteric and tracheobronchial lymph nodes); The skin of the cervical neck just caudal to the right ear had a 1 cm diameter area of alopecia and dry, light pink exposed skin. The surrounding skin was mildly flakey. The left hind limb was immovably bent at 45 degrees and the entire length of the tibia was circumferentially, markedly thickened by a boney callus; Marked, diffuse hepatic fibrosis

Histologic findings: Marked, multifocal lymphoplasmacytic meningoencephalitis with intranuclear and intracytoplasmic eosinophilic inclusion bodies (Canine Distemper Virus; CDV); Moderate, multifocal (parabronchial), subacute interstitial pneumonia with type II pneumocyte hyperplasia (CDV); Marked cutaneous microfilariasis with mild suppurative dermatitis, mild diffuse, epithelial hyperplasia, moderate orthokeratotic hyperkeratosis, and intracorneal pustules

Kirstin Cook, DVM
ZPP resident
**Dermatopathology Mystery Slide Case Submissions for the 2021 ACVP Annual Meeting**

**ID:** Pedro Ruivo, DVM, MSc; Veterinary Pathology resident/Lab animal pathology Fellow; CPL & CNPRC, UC Davis (supervisors: Professors Denise Imai-Leonard)

**Slide ID:** HT492/19 34.2 (3 HE slides) HT492/19 35.2 (3 extra HE slides, if needed)

**SIGNALMENT:** Sprague-Dawley rat; male; 82 weeks-old

**HISTORY/GROSS:** A mass was detected in the right maxillary region of a Sprague-Dawley rat. The animal was having difficulties eating and showed signs of pain and discomfort, and for that reason, the lab animal veterinarians decided to euthanize the rat. At the cut section, the mass was large (3 x 2.3 x 2.1 cm), ulcerated, multilobulated, cystic, mildly firm, pale tan to yellowish and locally infiltrative.
History:
A 1-year and 4-month-old, intact female Golden Retriever dog was evaluated for skin scaling and itchiness that was present at and since adoption 1 year ago. Lokivetmab, oclacitinib, and betamethasone and gentamycin spray treatments performed by the primary care veterinarian were unsuccessful at mitigating the clinical signs.

Ancillary diagnostics:
Biopsy

Gross/Clinical description:
Moderate to severe, large, white and brown scale was generalized throughout the inguinal, ventral abdominal, truncal, ventral chest, and axillary skin, with most severe scale present in the axillary and inguinal skin.

Gross/Clinical Photos
Axilla:
Attn: Martha Delaney  
Zoological Pathology Program  
College of Veterinary Medicine  
University of Illinois at Urbana-Champaign  
c/o Chicago Zoological Society  
3300 Golf Road  
Brookfield, IL 60513

July 22, 2021

Dear Dr. Delaney,

Please find a case submission for the Dermatopathology Mystery Slide Session at the ACVP 2021 Annual Meeting. A brief report including signalment, history, gross description with photos, and case summary is attached, and three H&E slides are enclosed. Thank you for your consideration of this submission.

Sincerely,

Erin Luley, VMD, MPH  
Anatomic Pathology Resident  
Assistant Clinical Professor  
Animal Diagnostic Laboratory  
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Signalment

Neonatal female Holstein calf

History

A calf on a commercial dairy was found to have a sparse haircoat after an unassisted delivery. The calf was reportedly of normal size and was born after a normal length gestation. A bovine genetics company managed all breeding on this farm via artificial insemination. No similar cases had been reported on this farm, and the dam had previously delivered a healthy calf. The calf was able to nurse from a bottle but seemed reluctant to stand. The calf became increasingly painful and hypothermic. The calf died naturally at four days of age. A section of formalin-fixed skin was submitted with antemortem photos for evaluation. A complete necropsy was not performed.

Gross description

Thin, brittle hair was sparsely present along the dorsum, limbs, head, and neck, with regionally extensive, bilaterally symmetric alopecia on the remainder of the body (Figures 1 and 2). Both pigmented and non-pigmented skin were affected. The calf’s skin was thin and fragile. Abrasions and erythema developed over the alopecic skin, most prominently on areas of pressure. The mandible was disproportionately short relative to the maxilla (mandibular brachygnathism). No other abnormalities were noted on physical exam. A complete necropsy was not performed.
Figure 1: Neonatal calf with sparse haircoat
Laboratory diagnostics

None performed.
Diagnosis and case summary

*Congenital hypotrichosis with epidermal dysplasia in a Holstein calf*

Congenital hypotrichosis is reported in many species, including cattle, and may occur with other congenital defects. Both lethal and non-lethal forms of hypotrichosis are described in cattle. In Holsteins, an autosomal recessive mode of inheritance has been proposed.
SIGNALMENT: 12-year-old male electric eel (*Electrophorus electricus*)

HISTORY:
The patient had a history of intermittent ulcerative skin disease with biopsies taken in 2020 and was diagnosed with severe ulcerative lymphocytic dermatitis. Aerobic culture was also done and grew a rapid growing mycobacterium (presumed contaminant due to patient responding to antibiotic therapy). Recently, the ulcerative skin disease acutely worsened accompanied by weight loss. Patient also had two subcutaneous masses that were increasing in size. Patient was humanely euthanized due quality of life concerns and worsening of lesions.

GROSS FINDINGS:
~ 80% of the skin is irregularly pitted or raised, while 30% of the dorsal skin surface contains multifocal to coalescing areas of severe erythema, petechiae, and ecchymosis, and central pitting with raised, light pink margins. Within the caudal 1/3 of the body, there are two coalescing raised, soft, round, smooth nodules on the dorsum measuring 5 mm and 18 mm. On sectioning nodules are light pink and homogenous with a central cystic cavity containing clear fluid.
Case ID: 21U-1467

History: Athymic nude sentinel mouse submitted for routine health surveillance screening. Housed as a set of 2 athymic nude homozygotes and 2 heterozygotes. Exposed to colony animals by dirty bedding and exhaust ventilation.

Ancillary diagnostics: Routine health surveillance screening including nasopharyngeal, cecal and skin cultures, direct parasitologic examination of skin and intestinal contents, and PCR testing for *Helicobacter* sp. and *Pneumocystis* sp. on feces and lung, respectively.

Gross pathology: Mild scaling of the skin along the dorsum.

Submitter:
Denise Imai-Leonard, DVM, PhD, DACVP
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Signalment: Five-month-old, intact female, Boer goat, Caprine (Capra circus).

History
The doe presented with a two-month history of worsening proliferative and ulcerative skin lesions on the distal limbs that failed to respond to multiple topical and systemic treatments over several weeks. A week before presentation, the doe became progressively more lethargic and exhibited pain when ambulating. The herd has a history of orf, mange, and caseous lymphadenitis. Physical examination revealed extensive proliferative, moist, malodorous dermatitis on all distal limbs, pale tan oral mucous membranes, and hematochezia. Complete blood count revealed hypochromic hypovolemic anemia, reticulocytosis, thrombocytosis, lymphocytosis. Serum chemistry demonstrated increased blood urea nitrogen (BUN), decreased alkaline phosphatase (ALP), decreased aspartate aminotransferase (AST), hyperglycemia, hyponatremia, hypocalcemia, hypophosphatemia, hypomagnesemia, and hypoproteinemia characterized by low albumin and globulins. Fecal flotation on initial presentation revealed numerous Eimeria spp. oocysts. The doe was treated for coccidiosis. The distal limbs were bathed with chlorhexidine, but the lesions did not improve. A punch biopsy of the distal forelimb was taken on the fourth day after the initial presentation and submitted for histopathology. Crusts were submitted for bacterial and fungal culture and electron microscopy.

Ancillary diagnostics
Ultrastructural evaluation of the crust demonstrated rods and numerous extracellular virions consistent with parapoxvirus. Bacterial culture from the crust revealed a mixed population of bacteria, including heavy growth of Proteus mirabilis, Providencia sp., Streptococcus dysgalactiae, Enterococcus faecalis, Trueperella pyogenes, Corynebacterium sp., moderate growth of Pseudomonas aeruginosa and Proteus sp., and light growth of Staphylococcus aureus. Fungal culture was negative.

Gross or clinical description
All distal limbs were circumferentially expanded by thick, irregular, firm, pink-tan tissue with miliary small, red to brown, raised plaques and covered with crusts and odorous yellow exudate. This lesion extended from the carpus or tarsus distally to the coronary band and interdigital spaces of all feet. The medial and lateral claws of the right front limb were markedly separated by the expansile tissue. Small plaques with a similar appearance were present on the skin over the abdominal, inguinal, and perivulvar areas.
Gross or clinical photo

Submitted by Ching Yang, DVM and Ryan Jennings, DVM, PhD, DACVP, The Ohio State University, USA