

Dermatology Focus: Canine Pemphigus Foliaceus

By Dr. Chanran Ganta

What is Pemphigus Foliaceus?

Pemphigus Foliaceus is an autoimmune vesicobullous to pustular skin disease in dogs characterized by acantholysis or loss of adhesion between keratinocytes within the epidermis and hair follicles. The disease is characterized by production of autoantibodies against intercellular connections of the keratinocytes. This occurs in the superficial layers of the epidermis called desmoglein 1, causing weakening of the connections between the keratinocytes resulting in pustules that often contain free floating loose keratinocytes (acantholysis).

What are the clinical signs?

This is typically a disease of middle-aged dogs but any age can be affected. The clinical presentation is dependent on the type of breed, inciting factors (natural or drug induced) and the cyclical nature of the disease. Clinical lesions include pustules, crusts, erosions, ulcers and alopecia. The most common areas involved are dorsal muzzle, nasal planum, pinnae, periorbital skin and paw pads. A striking bilaterally symmetric distribution of clinical lesions is a key feature of this condition.

Figure 1: Clinical Presentation



Marked crusting and hyperkeratosis of foot pads

Crusting and pustules on the dorsal muzzle, nasal planum, pinnae, periorbital skin

What are the predisposing factors?

1. Natural form pemphigus foliaceus: Genetic predisposition is noticed in Bearded Collie, Akita, Chow Chow, Newfoundland, Schipperke, and Doberman Pinscher. In addition, English Springer Spaniel, Chinese Shar Pei, and Collie also have been shown to be at increased risk. The facially predominant form is most commonly seen in Chow Chows, and Akitas.
2. Drug induced form: The drug-induced form is more common in the Doberman Pinscher and Labrador Retriever. A drug induced form often mimics the naturally occurring condition with some variations, such as sudden onset, early age and oral involvement. Drugs commonly implicated in the disease include various antibiotics. The disease can also be seen in dogs on long term treatment for chronic skin conditions like allergies.

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Dermatology Focus (continued)

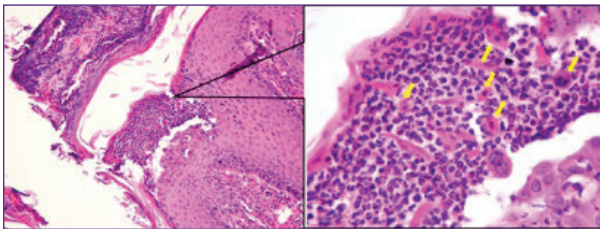
How do you diagnose the disease?

Surgical biopsy and histopathological examination of the skin remains the gold standard for diagnosis of pemphigus foliaceus. However, a definitive diagnosis cannot be reached in some instances due to the stage of the disease and the quality of the biopsy. Biopsies should be collected from sites directly adjacent to early pustules and vesiculopustules, immediately placed in formalin and submitted for microscopic examination. Subcorneal pustules with acantholytic keratinocytes are the hallmark lesion for diagnosis of pemphigus foliaceus. Note: Submitting multiple biopsies greatly

increases the likelihood of finding a diagnostic lesion. Often, secondary pyoderma complicates the disease process. It is often recommended to treat the dog for pyoderma prior to collecting samples for surgical biopsy. We recommend submitting a complete clinical history which includes breed, age, distribution of lesions, clinical course and past history of treatment and underlying skin conditions.

Please call KSVDL to setup a consult with Dr. Mary Swanson-Bagladi at the KSU Veterinary Health Center in regards to current treatment options for clinical management of this condition, 785-532-5690.

Figure 2: Histopathology



Skin showing subcorneal pustules with crusting

Arrows showing acantholytic keratinocytes admixed with neutrophils

References:

1. Skin Diseases of the Dog and Cat: Clinical and Histopathologic Diagnosis, Second Edition Thelma Lee Gross, Peter J. Ihrke, Emily J. Walder, Verena K. Affolter
2. Pemphigus: current therapy. Rosenkrantz WS Vet Dermatol. 2004 Apr;15(2):90-8.

Kansas Regenerative Veterinary Symposium

May 18-20, 2017 • Hilton Garden Inn, Manhattan, Kansas

Presented by the Kansas Department of Agriculture

Thursday, May 18th

5:00-7:00 p.m.
Cocktails (hosted bar), hors d'oeuvres and poster session

Friday, May 19th

- Sit down breakfast
- Full day of lectures with sit down lunch and coffee breaks
- Evening social event

Saturday, May 20th

1:00-4:00 p.m. Wet Lab

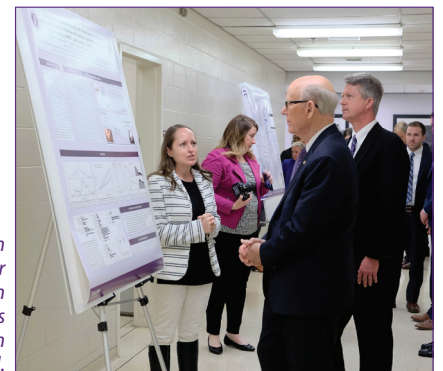
Register online at:
kansasregenerativesymposium.com

**KSVDL
receives visit
from Senator
Pat Roberts
and
Congressman
Roger
Marshall**

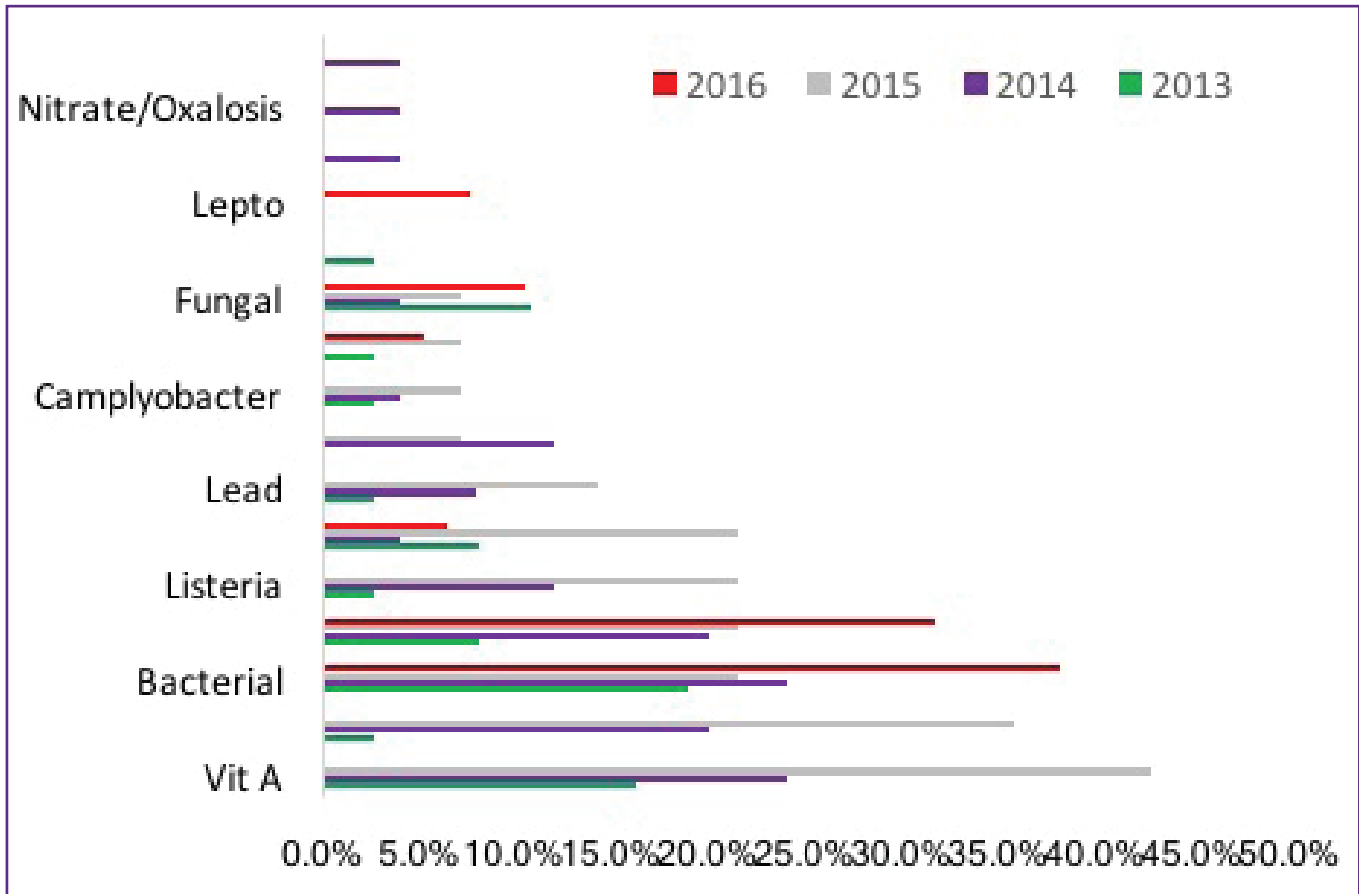


KSU CVM Dean Tammy Bekcham and KSVDL Director welcome Senator Pat Roberts to the KSVDL facility on February 23rd.

Dr. Megan Niederwerder presents her research to Senator Roberts and Congressman Roger Marshall.



Bovine Abortion Trends, 2013-2016
% submissions with diagnosis



Sample Selection for Bovine Abortion Workups

Fresh Tissues (place in clean bags, i.e. whirlpacks)

- lung
- liver
- kidney
- lymph node
- spleen
- heart
- thymus
- placenta-2-3 sections with cotyledons (place in separate bag)

Fixed Tissues (place in formalin)

1. placenta (4-5 sections)
2. thyroid gland
3. heart
4. lung
5. spleen
6. liver
7. kidney
8. adrenal glands
9. brain
10. skeletal muscle (3 sections)

Fresh Fluids (place in individual sterile tubes)

1. abomasal contents
2. thoracic fluid

Additional Appropriate Tests

- 1) Globe or ocular fluid (nitrate levels)

KSVDL Personnel Activities

- Dr. Megan Niederwerder presented a poster in the Research Topics Session at the American Association of Swine Veterinarians Annual Meeting in Denver, CO, on the associations between clinical outcome and the microbiome following PRRSV/PCV2 infection in swine.
- Dr. Mike Moore presented a poster at the K-State Animal Science and Industry Cattlemen's Day in Manhattan, KS
- Dr. Jianfa Bai, Xuming Liu, Lance Noll, Xiaorong Shi, T. G. Nagaraja, and Dr. Gary Anderson presented "Digital PCR detection and confirmation of Shiga toxin-producing E. coli without cultural isolation" at the Beef Industry Safety Summit 2017 in Houston, TX.
- Dr. Gregg Hanzlicek presented a poster at the K-State Animal Science and Industry Cattlemen's Day in Manhattan, KS
- KSVDL had an exhibit at the K-State Animal Science and Industry Cattlemen's Day in Manhattan, KS
- Dr. Gregg Hanzlicek was interviewed by the Angus Purebred Association's Radio Network on managing anaplasmosis in purebred beef herds.
- Dr. Gary Anderson traveled to Washington, DC to participate in meetings with various government agencies (NAHLN/NVSL, APHIS-VS, NIFA, ARS, FSIS, FDA-CVM, NAFV, CDC, DHS) and the AVMA, which was coordinated by leadership of the American Association of Veterinary Laboratory Diagnosticians and US Animal Health Association.

Field Investigations

- Dr. Gregg Hanzlicek and 4th-year veterinary students assisted a local practitioner in the investigation of atypical ocular issues in beef cows and calves.
- Dr. Gregg Hanzlicek and Dr. Nora Schrag assisted a local practitioner in the investigation of lameness in a cervid herd.
- Dr. Gregg Hanzlicek assisted a local practitioner in the investigation of poor post-calving health in a dairy herd.

KSVDL on YouTube

We have posted new videos on the KSVDL YouTube® channel covering the following topics:

- Tissues for Bovine Abortion Diagnosis
<https://www.youtube.com/watch?v=xlqHjIQ3Sps>
- Deep Pharyngeal Swab from Live Cattle
<https://www.youtube.com/watch?v=WB3luk1nQjY>
- Fecal Egg Count Reduction Test
<https://www.youtube.com/watch?v=SBYuKfBvX8&t=1s>



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March 26, 2017

**34th Annual Frank W. Jordan Seminar:
Shelter Medicine**

Frick Auditorium, K-State College of
Veterinary Medicine

www.vet.k-state.edu/alumni/events/

June 4-6, 2017

Annual Conference for Veterinarians

Hilton Garden Inn, Manhattan, Kansas

www.vet.k-state.edu/alumni/events/

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Test Results and Schedules

**Laboratory results available
online, all the time!**

Holiday Schedule:

Memorial Day: Closed: Monday, May 29th

Independence Day: Closed: Tuesday, July 4th

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