



Selected foreign animal disease investigations

Dr. Greg Mayr

Diagnostic Services Section

Foreign Animal Disease Diagnostic
Laboratory

Discussions

- Describe the lesions and give a morphological diagnosis.
- Discuss differential diagnoses.
- Best samples to collect to send to the lab.

Case 1. Clinical history

- One animal affected out of 65.
- Owner purchased calf at auction three weeks ago.
- Calf has lost weight and was not eating well.
- Private practitioner found oral erosions during physical examination.
- FADD was called.





Differential Diagnosis

- FMD
- VSV
- Bovine papular stomatitis

Samples submitted

- Priority 3
- Oral swabs in 2 ml of media
- Serum
- EDTA Blood
- Heparin Blood



Laboratory results

Serum:

FMD 3ABC ELISA- Negative

VSV NJ and IND1 Ab ELISA- Negative

Laboratory results

Swabs:

- VSV rRT-PCR- Negative
- VI- Positive
- FMD rRT-PCR using VI isolate- Negative
- VSV rRT-PCR using VI isolate- Negative
- Parapox r-PCR using VI isolate- Positive



Final diagnosis

Parapox infection: Bovine papular stomatitis

Case 2. Clinical history

- Pigs were brought to the slaughter plant on 2/2016.
- FSIS veterinarian noticed 50-60% of pigs were lame with foot lesions, and about 10% had snout lesions.
- 70 out of 118 swine affected.
- No intact vesicles present; snout lesions appear to be erosions with skin tags.
- Foot lesions were at or below the coronary band and were open wounds with skin tags and possible necrosis .
- All lesions could have possibly been vesicles.









Differential diagnosis

- FMD
- VSV
- SVD
- Seneca Valley A virus

- Note: VES is no longer considered a significant possibility, so testing is only performed for this if all else is negative.

Samples submitted

- Priority 2- samples from 5 animals
- Serum
- Blood (EDTA and Heparin)
- Swabs and tissue from feet and snouts



Laboratory test results

Serum:

FMD 3ABC ELISA- negative

Laboratory test results

Swabs:

- VSV rRT-PCR- Negative
- VI- Positive
- FMD rRT-PCR using VI isolate- Negative
- VSV rRT-PCR using VI isolate- Negative
- SVD rRT-PCR using VI isolate- Negative
- SVA virus rRT-PCR using VI isolate- Positive

Final diagnosis

- Idiopathic vesicular disease caused by Seneca Valley A virus.

Case 3: Clinical history

- Owner leases roping stock, these two were returned and one developed lameness.
- The other animal was simultaneously seen to have oral lesions.
- 2 out of 300 cattle affected.
- The red steer had trauma-like lesion on the right front fetlock.
- The black bull has significant oral lesions and may have pneumonia.









Differential diagnosis

- FMD
- VSV

Samples submitted

- Priority 2
- Serum
- EDTA Blood
- Lesion swabs (foot from red steer, oral from black bull)
- Probang sample from black bull



Laboratory test results

Serum:

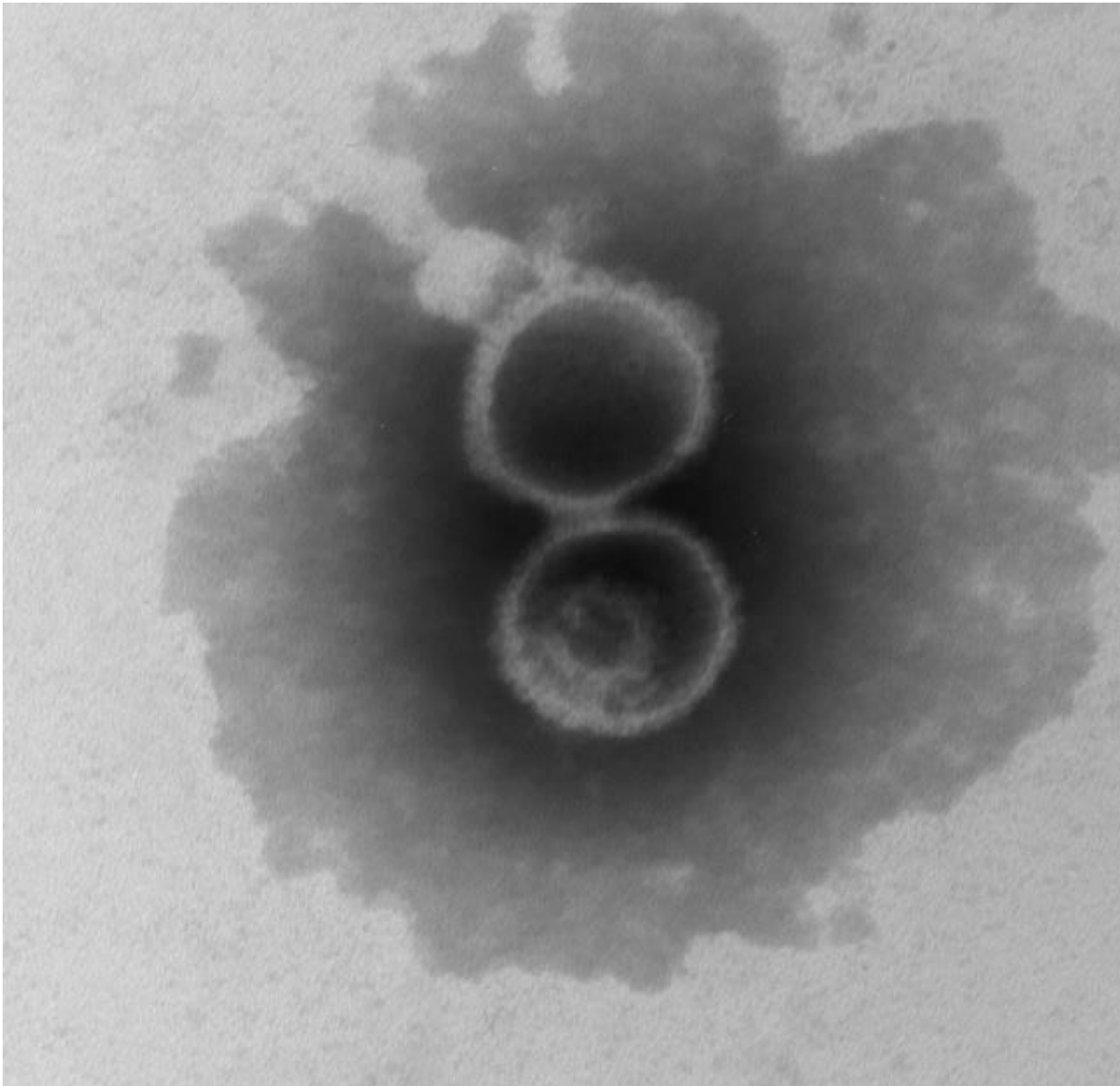
FMD 3ABC ELISA negative

VSV NJ and IND1 Ab ELISA negative

Laboratory tests results

Swabs and probang:

- FMD rRT-PCR negative
- VSV rRT-PCR negative
- VI Positive
- FMD rRT-PCR using VI isolate- Negative
- VSV rRT-PCR using VI isolate- Negative
- EM using VI isolate- Herpesvirus particles observed



Final diagnosis

- Bovine herpesvirus

Case 4: Clinical history

- One cow out of 250 affected.
- None of the 42 sheep or 6 goats were affected.
- Owner noticed 10-14 days ago that an 800lb Holstein heifer had hives all over, one eye with purulent discharge, oral lesions and vesicle like lesions on the teats and vagina
- Treated with penicillin and the animal improved but signs reappeared and did not disappear upon renewed antibiotic treatment





United States Department of Agriculture















Differential diagnosis

- FMD
- VSV
- BPS
- BT and EHD
- MCF

Samples submitted

- Priority 3
- Serum
- Oral, nasal, eye, vaginal and teat swabs
- Nasal, mouth, and teat scabs
- Teat vesicular fluid
- EDTA and Heparin blood

Laboratory test results

Serum:

FMD 3ABC ELISA- negative

VSV NJ and IND1 Ab ELISA- negative

BT ELISA- negative

EHD AGID- negative

MCF IP- negative

Laboratory test results

Swabs and probang:

- VI- negative
- MCF AHV 1 and 2 rPCR- negative
- MCF OHV 2 rPCR- Positive

Final diagnosis

- Ovine strain malignant catarrhal fever, MCF-OHV2.

Lesson- don't put cattle with sheep and goats!
Even clinically healthy lambs can carry and shed OHV2.

Case 5. Clinical history

- 2 yr. old Jersey cross heifer had wart-like lesions in ears, shoulder, and neck.
- Heifer was vaccinated with a papilloma vaccine.









Differential diagnosis

- Bovine fibropapilloma
- Lumpy skin disease

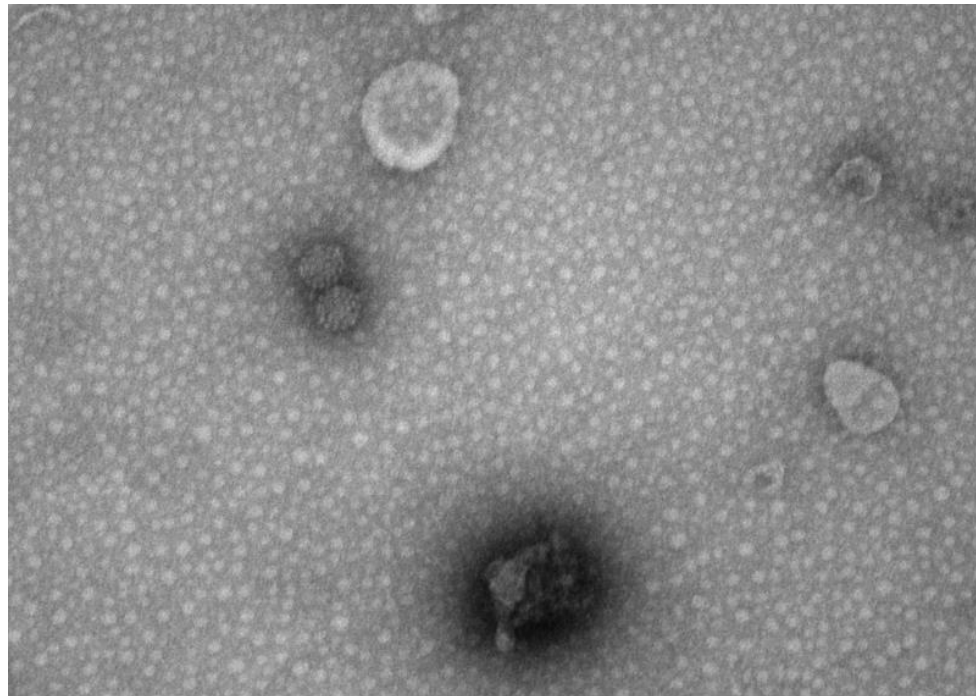
Samples submitted

- Fresh tissues
- Formalin-fixed tissues
- Serum
- EDTA blood

Laboratory test results

- Capripox PCR negative
- Virus isolation negative
- Histopathology: Cutaneous fibropapilloma

Negative staining-Papilloma virus



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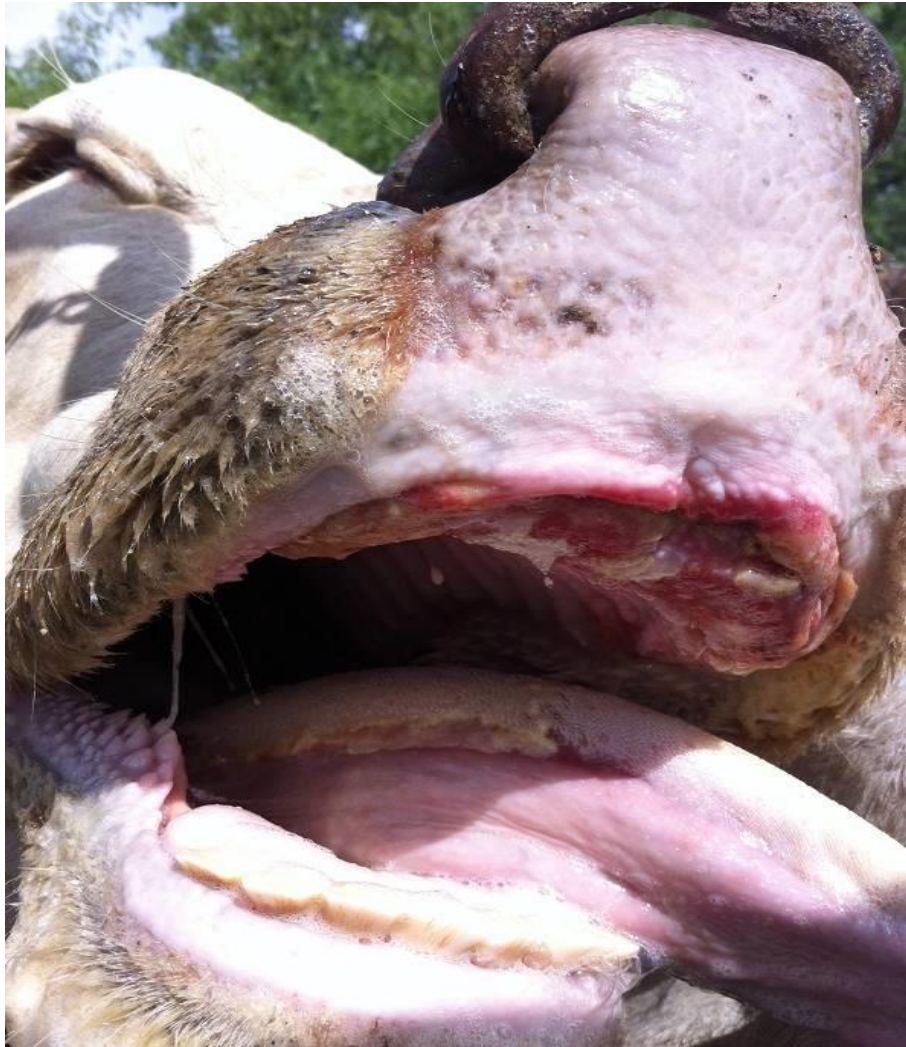
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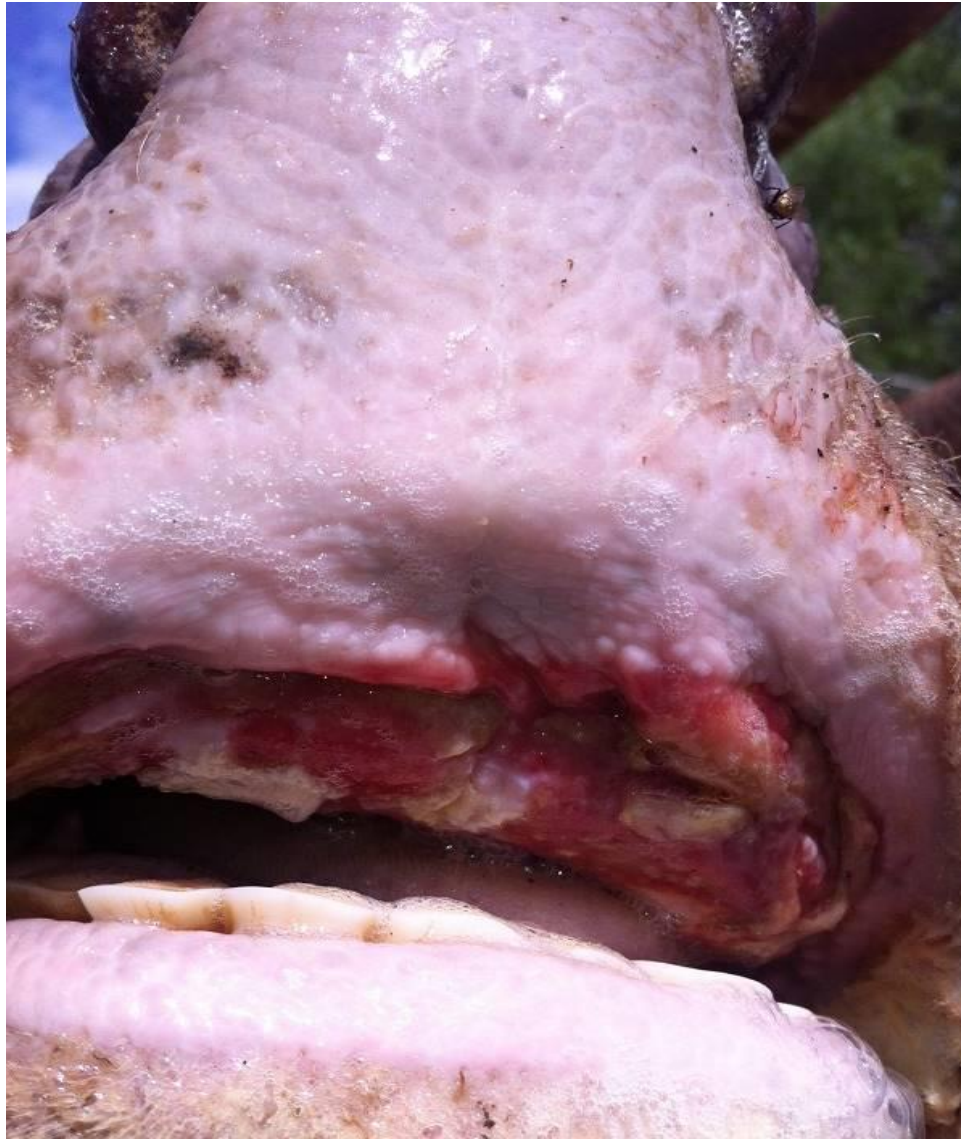
Final diagnosis

- Cutaneous fibropapillomas
 - Bovine Papilloma viruses (BPV) 1,2, or 5

Case 6. Clinical history

- Owner noticed a cow sticking its tongue out and drooling on 06/23/14. No lesions were noted by the owner at this time.
- Referring veterinarian diagnosed a bull with erosions on the gums and dental pad and a cow with erosions on the dental pad, gums, and tongue on 06/26/14.









Differential Diagnosis

- FMD
- VSV
- EHD and Bluetongue
- Bovine papular stomatitis

Samples submitted

- Swabs in TBTB
- Tissue tags in TBTB
- Serum
- EDTA Blood
- Heparin Blood

Laboratory results

Serum:

FMD 3ABC ELISA negative

VSV IN Ab ELISA negative

VSV NJ AB ELISA positive

VSV NJ CF positive at titers of 1:20 and 1:40

BT ELISA positive

EHD AGID weak positive

Laboratory results

Swabs:

- FMD rRT-PCR negative
- VSV IND rRT-PCR negative
- VSV NJ rRT-PCR positive (all samples)
- VI negative

EDTA Blood:

- BT rRT-PCR negative
- EHD rRT-PCR negative

Final diagnosis

- VSV NJ positive by PCR and serology, including CF positive at a titer of 1:40



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