

PRAIRIE DIAGNOSTIC PERSPECTIVE



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Fee Update – Effective June 1, 2026

Prairie Diagnostic Services (PDS) will be implementing a fee adjustment effective June 1, 2026. Most prices will increase by approximately 5%.

The updated 2026 PDS Tests and Services Guide will be distributed in late May—please watch your inbox for details.

We appreciate your continued support and value our ongoing partnership.

Updates to Necropsy Fees

The Necropsy department has implemented several updates to our fee structure to better reflect the time, expertise, and resources required for more complex and specialized submissions. Please review the changes below:

- **Complex Necropsy Cases (Additional Charges)** - \$100.00 per hour

This fee applies to neurological and other complex cases that require additional time and resources. Examples include (but are not limited to) bandsaw use, additional technical support, detailed musculoskeletal examinations, and photographic documentation.

- **Sample Repackaging for Improperly Packaged or Leaking Tissue Samples** - \$20.00 per submission

This fee will be applied when samples arrive inadequately packaged or leaking and require repackaging to ensure safe handling and proper processing within the laboratory.

- **Pregnant Animal Submissions**

Submissions involving pregnant animals may incur an additional Necropsy – Whole Fetus – Ruminant fee, applied at the discretion of the pathologist.

This fee covers the examination of the fetus and will be applied at the discretion of the pathologist unless otherwise specified on the submission form.

Welcoming New Expertise to Our Team

Dr. Rodrigo Puentes Palombo DVM, MSc, PhD

We are pleased to welcome Dr. Rodrigo Puentes Palombo as Lead Microbiologist at Prairie Diagnostic Services. Dr. Puentes Palombo brings over 25 years of experience in veterinary microbiology, immunology, and infectious disease research, with extensive training and a strong background in both academic and diagnostic settings. His work has focused on molecular diagnostics, pathogen characterization, and advancing our understanding of infectious diseases in animals. He has also contributed to research on innate immunity, enteric diseases such as swine dysentery, and antimicrobial resistance in livestock. At PDS, Rodrigo is focused on advancing diagnostic microbiology, integrating molecular tools into routine diagnostics, and strengthening applied research collaborations to better serve our clients and the animal health community.



Diagnosing the Unexpected: *Pasteurella multocida* in a Bovine Abortion Case

Dr. Tat Chuan Cham (Anatomic Pathologist, PDS)

Dr. Ruwani Karunaratna (Diagnostic Microbiologist, PDS)

An aborted full-term bovine fetus was submitted for necropsy. Histologically, approximately 60% of the examined pulmonary parenchyma was affected by bronchopneumonia characterized by bronchi and bronchioles filled with large numbers of neutrophils and degenerating neutrophils admixed with sloughed squamous epithelial cells, keratin debris, meconium, and rare bacterial colonies composed of short rod-shaped organisms (Fig. 1). These findings are consistent with **suppurative bronchopneumonia with evidence of intrauterine aspiration of amniotic fluid**, suggesting fetal distress and hypoxia prior to abortion. Gram staining demonstrated that the intralesional bacteria were **Gram-negative short rods**.

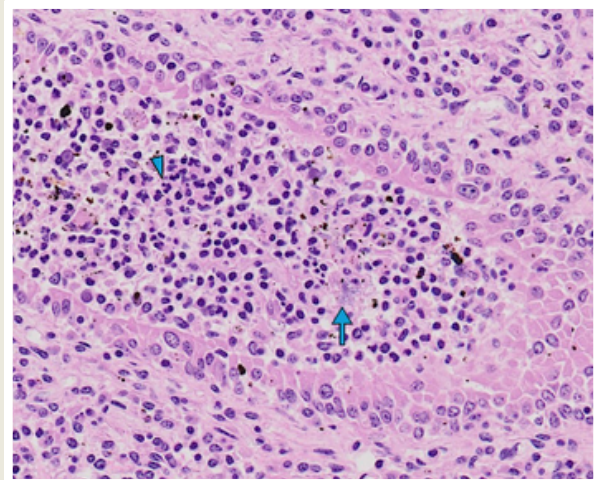


Fig. 1

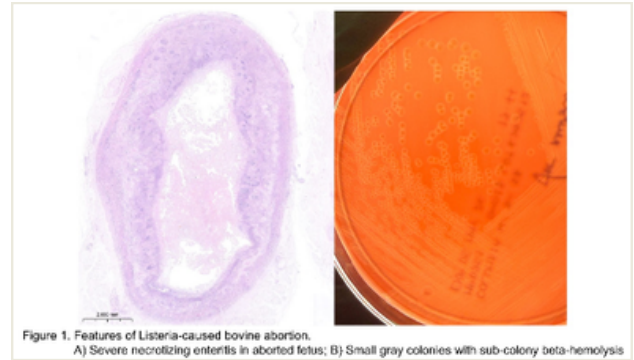
Bacterial culture yielded **pure cultures of *Pasteurella multocida*** in high abundance from abomasal fluid, fetal spleen, and kidney. Ancillary testing, including vitamin A/E analysis, and mineral panels did not identify nutritional deficiencies. Bovine reproductive sequencing panel (**BovRepSeq**) targeting most common 17 abortogenic pathogens was performed on abomasal fluid and obtained negative results. By analyzing off target sequencing reads from the above, we observed high abundance of *P. multocida* reads.

Pasteurella multocida is a well-recognized pathogen associated with **bovine respiratory disease complex**, typically causing bronchopneumonia in calves and adult cattle. However, abortions associated with *P. multocida* are considered uncommon and are usually reported as sporadic cases. Infection of the fetus may occur through hematogenous transplacental spread or ascending infection, and fetal pulmonary lesions may develop following aspiration of contaminated amniotic fluid. Although uncommon, this case highlights that respiratory bacterial pathogens such as *P. multocida* can occasionally be associated with bovine abortion. Monitoring the dam for signs of respiratory disease may be warranted in similar cases. Moreover, this case illustrates the importance of **integrating histopathology, bacteriology, and ancillary diagnostic testing including BovRepSeq** when investigating bovine abortion to reach a definitive diagnosis.

As winter wears off and the 2025-2026 abortion season comes to an end, it is important to ruminare on bovine abortions of bacterial etiology.

Authors: Oleksii Obshta (Laboratory Technologist, Bacteriology, PDS), Dr. Ruwani Karunarathna (Diagnostic Microbiologist, PDS). Photo credits: Dr. Ivanna Kozii (Anatomic Pathologist, PDS)

An aborted fetus from a twin pregnancy was submitted to Prairie Diagnostic Services. Multiple abortions were reported from the submitting farm. The owner suspected mycotoxin involvement due to previously noted mold in the silage. Bacterial culture from the abomasum yielded pure heavy growth (4+) of *L. monocytogenes*, while the placenta and liver also yielded heavy growth (4+) of *Listeria monocytogenes* (figure 1) along with *E. coli* and *B. cereus*. Histopathology revealed mild interstitial to necrotic placentitis, necrotic enteritis, multifocal hepatic necrosis, and bronchopneumonia (figure 1). BovRepSeq abortion panel, which targets the 17 most common abortigenic infectious agents, revealed only the presence of *L. monocytogenes*. All of the above confirm the most likely cause of abortion in this case is *L. monocytogenes*.



Listeriosis, usually caused by *Listeria monocytogenes*, is prevalent in poor-quality silage with elevated pH, which facilitates *Listeria* proliferation. Once ingested by pregnant cows, *Listeria* invades through the intestine into the bloodstream and subsequently, through the placenta, causing abortions. Therefore, typical pathological changes include placentitis, hepatitis, and lesions in other organs, which consist of neutrophils, necrotic debris, and occasionally, lymphoid depletion. *Listeria* is most commonly associated with sporadic abortions, although abortion storms associated with poorly fermented silage have also been reported.

This case highlights the importance of regular quality and safety assessments of silage for pregnant heifers and underscores the significance of cooperation between owners, vets, and diagnostic professionals to understand the best approach to investigate the cause of abortions.

Bovine Abortion Investigation with BovReproSeq in the toolbox

Yanyun Huang, CEO and Anatomic Pathologist
Dhinesh Periyasamy, Molecular Biologist

Prairie Diagnostic Services (PDS) has developed and validated a Bovine Reproductive Pathogen Sequencing Panel (BovReproSeq), which enables the simultaneous detection and partial characterization of 17 pathogens associated with bovine reproductive disease. BovReproSeq leverages high-throughput sequencing technology to multiplex and analyze PCR assays targeting these pathogens in a single workflow.

The panel includes: *Coxiella burnetii*, *Chlamydia abortus*, *Ureaplasma diversum*, *Campylobacter fetus subsp. fetus*, *Campylobacter fetus subsp. venerealis*, *Campylobacter jejuni*, *Leptospira spp.*, *Listeria monocytogenes*, *Bacillus licheniformis*, *Mycoplasma bovis*, *Trueperella pyogenes*, *Trichomonas fetus*, *Neospora caninum*, *Toxoplasma gondii*, *Sarcocystis spp.*, bovine alphaherpesvirus 1 (BoHV-1), and bovine viral diarrhoea virus (BVDV). The development and validation of this assay have been published in Clinical Microbiology (Periyasamy, 2024).

In spring 2025, PDS conducted diagnostic investigations on 86 beef cattle abortion cases. Each case was evaluated using a comprehensive diagnostic approach, including necropsy, histopathology, bacterial culture, trace mineral analysis, vitamin A and E testing, and BovReproSeq.

Etiological diagnoses were achieved in 77% of cases. Infectious causes accounted for 47% of abortions, nutritional deficiencies for 22%, and congenital anomalies for 8%, while 23% remained undiagnosed. Among infectious etiologies, bacterial infections predominated, with *Trueperella pyogenes* (5) and *Bacillus licheniformis* (4) most frequently identified. Viral causes were less common; BoHV-1 was the only viral etiology diagnosed, accounting for five cases.

BovReproSeq proved to be a valuable addition to the diagnostic toolbox, particularly for detecting infectious agents in abortion cases. These findings also reinforce that a comprehensive diagnostic approach is critical to maximizing diagnostic success in bovine abortion investigations.

Reference

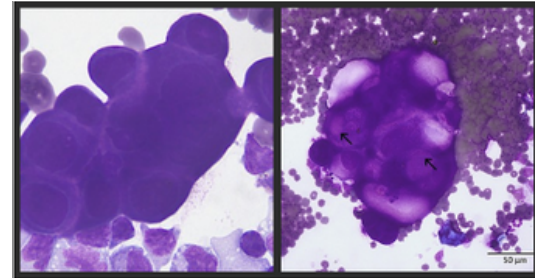
Periyasamy, Dhinesh, Yanyun Huang, and Janet E. Hill. "Targeted syndromic next-generation sequencing panel for simultaneous detection of pathogens associated with bovine reproductive failure." *Journal of Clinical Microbiology* 63.1 (2025): e01433-24.

Synovial Metastasis of Carcinoma Presenting as Lameness in a Dog

Dr. Lilani Munasinghe (Clinical Pathologist, PDS)

Lameness and joint swelling are common clinical complaints in dogs and are most often associated with orthopedic or inflammatory disease. Rarely, however, joint abnormalities may reflect metastatic neoplasia. This case highlights an uncommon but clinically important cause of lameness and emphasizes the diagnostic value of synovial fluid cytology.

A 7-year-old male neutered Shepherd-cross dog was presented for a more than two-week history of progressive left thoracic limb lameness and carpal swelling that did not respond to analgesics or activity restriction. Three months earlier, the dog had been tentatively diagnosed with prostatic or urothelial carcinoma with suspected vertebral metastases and was receiving palliative radiation therapy. Due to persistent joint pain and swelling, synovial fluid was aspirated from the left radiocarpal joint and submitted for cytologic evaluation.



Special thanks to LaRhonda Sobchishin, Research Technician in the Department of Veterinary Pathology, for capturing the images.

The synovial fluid sample was of low cellularity with mild blood contamination and an eosinophilic granular background. Cytospin preparations contained small clusters of pleomorphic epithelial cells characterized by round to oval nuclei with prominent nucleoli and moderate amounts of basophilic cytoplasm. Occasional cells contained pink cytoplasmic eosinophilic inclusions (arrows) which appeared like Melamed-Wolinska bodies often reported in urothelial cells. Rare binucleated or multinucleated cells and mitotic figures were observed. Notably, there was no cytologic evidence of inflammation. These findings were interpreted as carcinoma cells within the synovial joint, with metastatic prostatic or urothelial carcinoma considered as the primary differentials.

Radiographs revealed periosteal new bone formation affecting the lumbar vertebrae and sacrum, consistent with metastatic disease, while changes in the carpal joint were inconclusive. The dog was humanely euthanized one month later due to clinical decline; necropsy was not performed.

Synovial metastasis is exceedingly rare in dogs, with only a few reported cases involving carcinomas. This case underscores the importance of including neoplasia as a differential diagnosis in dogs presenting with unexplained lameness or joint effusion, particularly in patients with a known history of malignancy.

Selected References

1. Ryu KN, et al. Synovial metastasis: clinicopathologic and imaging features. *Skeletal Radiology*. 2001; 30:373-379.
2. Valli VE, et al. *Tumors of the joints*. In: *Tumors in Domestic Animals*, 5th ed. Wiley-Blackwell; 2017.

New Hematology Analyzer

We're pleased to announce that the new Sysmex XN-V Series™ Hematology Analyzer is now LIVE and fully functional in the Prairie Diagnostic Services Clinical Pathology Laboratory.

This advanced system strengthens our ability to deliver continuous, accurate, and reliable hematology results, reinforcing our commitment to providing timely, high-quality diagnostic services to our valued clients.

Visit the Sysmex website (www.sysmex.com) if you are interested in more information on the Sysmex.

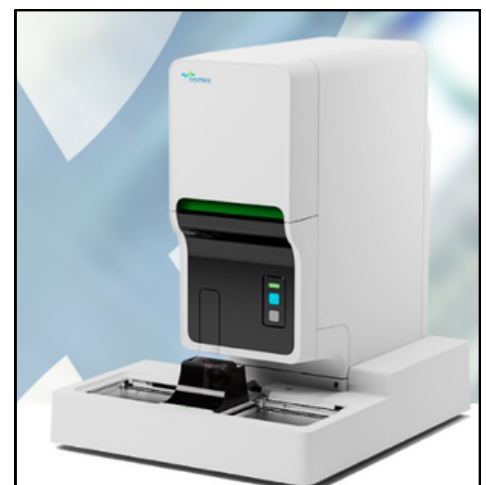


Photo credit: www.sysmex.com

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