



Diagnosing *Clostridium perfringens* Type A: questions and answers

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Clostridium perfringens Type A has been implicated in serious and often deadly gastrointestinal diseases. In fact, the problems may be underestimated because necropsies are often not performed. Following are answers to some of the most frequently asked questions about diagnosing this increasingly common bacterial disease. If you have additional questions, please call Novartis Animal Health customer service at 1-800-843-3386.

Q. What are the clinical signs in calves affected by *C. perfringens* Type A?

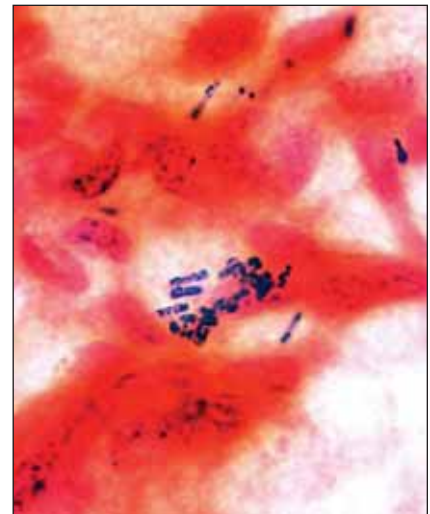
A. Calves with a *C. perfringens* Type A infection show signs of quick onset of abdominal distension with pain, bloat, depression, feed refusal and sudden death. Postmortem examination will show inflammation of the lining of the rumen and abomasum, with ulceration and hemorrhage.

Q. What are clinical signs of cows affected with hemorrhagic bowel syndrome (HBS)?

A. In cases of HBS or “bloody gut,” animals are often found dead or dying with no warning signs. Clinical symptoms may include: anorexia; rapid pulse and respiratory rate; a severe drop in milk production; black, tar-like feces; and right ventral abdominal distention due to fluid and feed accumulating in the small intestine. Low-pitched “pings” can be detected in the lower right abdomen.

Q. Is an ultrasound or rectal palpation helpful for detection of HBS?

A. Yes. If using ultrasound, observation of multiple loops of severely distended bowel, approximately 6 to 10 centimeters in diameter, are seen. When conducting rectal palpations, evidence of constipation, accompanied by melena or frank hemorrhages and clots within the rectal vault will be noted; dilated intestinal loops also may be palpable. However, only with exploratory surgery or necropsy does one confirm distinct sections of the jejunum distended by a large amount of blood.



Rod-shaped clostridial cells are apparent in this Gram stain from the abomasal contents of a calf with a distended abomasum due to clostridial abomasitis. Fluid from a healthy calf would normally have very few bacteria and no clostridia present.

Q. *To obtain an accurate diagnosis, what samples should be collected from calves with suspected C. perfringens Type A or cows with suspected HBS?*

A. Generally, a field necropsy report along with fresh and fixed tissues supportive of a complete histopathology, bacteriology, virology and toxicology workup should be submitted to your local veterinary diagnostic laboratory. Many laboratories will assist you by providing directions for procuring and shipping the appropriate specimens. Most importantly, the ubiquitous nature of *C. perfringens* Type A requires that samples be from a freshly dead, non-autolyzed animal in order for an accurate diagnosis to be made.

Clostridia are not difficult to culture, as long as an anaerobic culture is requested. PCR genotyping should be requested. Multiplex PCR is currently used to categorize this diverse species into distinct types or genotypes. Genotyping is based on detection of gene sequences for alpha, beta, beta₂, epsilon, and iota toxins and enterotoxin.

Q. *Isn't C. perfringens Type A found in healthy animals? How should culture results showing the organism be interpreted?*

A. *C. perfringens* Type A is commonly found in the environment as well as in the intestine of normal animals. Furthermore, it can rapidly overgrow in the gut lumen following death. Therefore, the collection of samples and interpretation of diagnostic results should be done carefully. Isolation of *C. perfringens* Type A should only be considered significant if samples were taken and preserved appropriately from a fresh cadaver with compatible history, clinical signs and lesions.

C. perfringens Type A diagnosis should not be based solely on isolation. The histopathological results should show lesions consistent with *C. perfringens* Type A and other enteric pathogens or toxicities should be ruled out.

Q. *If C. perfringens Type A is identified as a culprit, what prevention practices might be employed?*

A. You will want to evaluate and correct any nutritional and management concerns that may be predisposing cattle in the herd. There is now a USDA conditionally licensed vaccine – **Clostridium Perfringens Type A Toxoid** – from Novartis Animal Health US, Inc. that aids in the control of disease syndromes caused by the alpha toxin of *C. perfringens*.

Q. *Does Novartis have any resources available to help in the diagnosis of C. perfringens Type A?*

A. Yes. Novartis has a team of diagnostic experts who work closely with veterinarians to identify disease-causing pathogens and help determine the best course of action to combat them. Most diagnostic samples are processed in-house.

For more information, please contact our diagnostic lab at 1-888-466-8325, extension 4291.



This ultrasound image shows an HBS intestinal lesion. It is typical to see multiple loops of severely distended bowel, approximately 6 to 10 centimeters in diameter, when using ultrasound.



Abdominal distention, especially in the lower right abdomen, is a symptom of HBS. When the animal is standing, the abdominal contour appears round or pear-shaped.