

Diarrhea? What do I do?

Are you ready to talk some excrement? In this issue, we will tackle some of the questions about fawn diarrhea. Day to day I hear and read about producers discussing the diarrhea topic, even over dinner. What is diarrhea and how can we diagnose the cause then develop a treatment plan? Do we need to treat? What are we treating? If we empirically make a plan of treatment, are we actually going to exacerbate the problem? The Latin word Diarrhea is defined as Dia- through, rhea- to flow. Therefore, diarrhea means to flow through. Now, that is not a hard subject, is it? Actually it's very soft. Ok, joking aside, it is very important to break down diarrhea to know where the problem is occurring in the body in order to form a thorough and efficient plan of treatment. The intricacies of diarrhea appear to be as intertwined as wicker furniture. Where does it begin and end?

Signalment

What is a signalment? Before we make a plan we must organize our plan of attack from step one, the signalment. The signalment is a description of the individual. Species, breed, age, and sex are the key components to the signalment. Sounds simple, and that is the purpose of our plan, to be organized and precise, it will prove to be critical throughout our plan.

History

It is critical to be able to provide information about the problem at hand. It is imperative to write down the clinical signs (symptoms), duration of the event, color, consistency, and signalment. Providing a complete history is necessary for an accurate diagnosis.

Physical Exam

Temperature, Pulse, Respiration, and weight are the first items recorded on a physical exam. When discussing diarrhea, Veterinarians are trained to break down problems into categories depending on clinical signs (symptoms). Infectious and toxic disease processes typically cause depression, dehydration, and fever. Deer with arched backs and grinding of the teeth are symptoms of abdominal pain. Daily monitoring weight and overall physical body condition are critical with fawns.

Acute vs Chronic Diarrhea

The diagnostic plan begins with breaking down diarrhea into acute or chronic diarrhea. Acute diarrhea is an "all of a sudden" circumstance. Fawns are doing fine, then at the next feeding, we have diarrhea. Fawns with acute diarrhea exhibiting depression, fever, and dehydration (with or without blood), should be examined quickly for systemic ailments. A CBC (complete blood cell count) will demonstrate the fawn's current immune system function. Increased WBC (white-blood cell) counts are indicative of infection or inflammation. The PCV (packed cell volume); also called the HCT (hematocrit) is also demonstrated on the CBC and represents RBC (red blood cell) numbers per unit of fluid. Increased

PCV/HCT can be attributed to dehydration, while a low PCV/HCT is associated with anemia or blood loss. Acute bloody diarrhea in fawns can result in a rapid decrease in PCV/HCT (loss of RBC) causing anemia (weak, unresponsive fawns) resulting in a need for blood transfusion.

Chronic diarrhea is defined as diarrhea that has been unresponsive to treatment beyond 2-3 weeks.

Small Intestinal vs Large Intestinal Diarrhea

Diarrhea is the most common sign associated with intestinal dysfunction. Diarrhea is the body's response to eliminating an abnormal insult to the body. Providing medications to stop diarrhea can be extremely detrimental. Medications used to stop the gut eliminates the ability of the gut to naturally rid itself of an offense by decreasing gastric motility thus allowing bacterial to build in numbers and produce gas, which is not ideal. The small intestine's major function is to digest and absorb nutrients. Diarrhea resulting from this region is characterized by increased frequency of defecation with larger than normal amounts of soft to watery stools. Fawns exhibited signs such as weight loss and decreased appetites are also localized to the small intestine. The Large Intestine's major function is to absorb water. Tenesmus (straining to defecate) and Dyschezia (difficult or painful defecation) are signals of large intestinal diarrhea. Profuse watery diarrhea and mucous filled stools are also characteristic of a large intestinal disorder.

Categorizing diarrhea is critical for treatment planning. Bacteria, Parasites, and viruses typically choose the small or large intestine to inhabit and can choose both. The color, smell, and consistency of diarrhea are important. If diarrhea is black, we know for sure the disease process is occurring in the stomach or the small intestine. When blood enters the small intestine, the digestion of red blood cells causes the color of the feces to turn black. Certain bacteria and viruses directly affect the lining of the wall of the intestine. Black tarry stools are a severe warning sign of ulcerative disease of the small intestine and Veterinarian intervention is required ASAP.

Bright red blood in the stool is characteristic of the large intestine (colitis: Col=colon, -itis= inflammation) and is often frightening to producers. However, bright red bloody diarrhea is less frequently associated with life-threatening disease in fawns as compared to small intestinal bloody diarrhea. Fawns with severe colitis can dehydrate rapidly, thus requiring subcutaneous fluid therapy. When in doubt and you do not have ability to determine albumin or total protein from blood work, choosing subcutaneous (SQ) therapy is your safest choice. If a fawn has low blood protein, intravenous (IV) therapy can dilute out a fawn rapidly and cause the fawn to crash. SQ fluids allow the body to slowly move fluid into the blood stream as it is needed.

Infectious Causes of Fawn Diarrhea

Infectious diarrhea in fawns is typically associated with the small intestine. Fawn diarrhea is caused by two major mechanisms- Hypersecretion and Malabsorption. Hypersecretion occurs when the absorptive ability of the lining of the intestine is exceeded due to an abnormal amount of fluid that is secreted into the gut. Malabsorption occurs when the ability of the lining of the intestine to absorb fluids and nutrients is impaired and unable to keep up with the normal influx of ingested and secreted fluids.

Infections in the intestinal tract can have both Hypersecretion and malabsorption causing agents, but normally one or the other predominates. Both mechanisms result in rapid water loss and severe dehydration.

Escherichia coli (E.Coli) is one of the most common bacterial causes of diarrhea in fawns. There are mainly 2 strains of *E.Coli* noted for causing diarrhea in fawns. One strain invades the intestinal wall and can survive in the serum of the blood causing septicemia (infection in the blood stream). Clinical signs of septic fawns are depression, fever, and ultimately swollen joints. K99 strain *E.Coli* is known to produce enterotoxins (entero= intestine) which cause severe diarrhea but do not cause septicemia. *E.Coli* generally affects fawns less than 3 days of age. However, a third *E.Coli* strain, GHE (gastro hemorrhagic *E.Coli*) has been known to affect fawns greater than 3 days of age and the clinical sign associated with this strain is an inflammatory bloody diarrhea.

Salmonella typically causes diarrhea in fawns between 2-6 weeks of age. Salmonella is typically noted as an endemic bacteria (resides in the soil) and sporadic explosive outbreaks are noted. Salmonella are associated with high population areas and high contamination in pens over periods of time. The enterotoxins from Salmonella cause damage to the lining of the intestines and can cause permanent scarring thus preventing proper absorption of nutrients through the intestinal wall ultimately causing deer with chronic, unresponsive diarrhea. Salmonella infections are typically very acute and temperatures above 105 F can be observed. Fawns die within 24 hours. The characteristics of the stools are a putrid odor with mucus to large blood clots. Fawns physically exhibit severe abdominal discomfort, straining, and watery diarrhea.

Clostridium perfringens A,B,C, E can cause hemorrhagic (bloody) enteritis and rapid death. Clostridial toxins are necrotizing (rots the intestinal wall). However, *Clostridium perfringens* can also be found in the feces of healthy fawns.

Rotavirus/ Coronavirus commonly cause diarrhea in fawns between 5-15 days of age. These viruses damage the intestinal cells lining the small intestine and cause malabsorptive (improper absorption) diarrhea.

Cryptosporidium are protozoan organisms that typically cause diarrhea between 5-35 days of age and cause malabsorptive diarrhea that is non responsive to any treatment.

Coccidia/ Eimeria are protozoan agents that cause bright red bloody diarrhea in fawns greater than 2 weeks of age. Adults can carry the protozoan without clinical signs. If a fawn is less than 2 weeks of age with bloody diarrhea, it is not *Coccidia/ Eimeria* due to their life cycle.

Treatment

It is important to remember that there is a normal environment that is being established every day in young fawns. 75% of their immune system will be established from their gut. They pick up these helpful bacteria from mom, the environment, feed, water, etc. The types and number of bacteria, yeast, and protozoan a fawn establishes early on will predict their future health status. The most important

prevention of fawn intestinal health is momma's colostrum. Properly vaccinating prior to breeding and 60 days prior to fawning will ensure that she is healthy and that her body is not fighting underlying disease thus allow her to contribute a majority of effort to her colostrum antibody production. Fawns absorb these maternal antibodies through the intestinal wall less than 24 hours of age. Prevention is always more favorable than treatment.

Antibiotic treatment can be controversial, especially when diarrhea is not diagnosed correctly. Since it is obvious that fawn diarrhea is so complex, it is impractical to have 100% prevention. Improper antibiotic (Anti= against, Biotic= life) usage will kill desirable preventative good bacteria in the gastrointestinal tract. By removing the "good guys" and aiding the "bad guys," a devastating result will occur and potentially affect a group of fawns. Many medications are contraindicated in fawns that will cause permanent damage to their bodies. For example, treating dehydrated fawns with watery diarrhea with Gentamycin or Banamine can cause irreparable damage to the kidneys. This damage may not be observed immediately. The kidneys can actually function at 30% efficiency without showing clinical signs of disease. Physical exams on fawns, especially in nurseries, are critical in order to assess dehydration which can rapidly cause death in young fawns. Administration of commercial fawn paste preparations will boost the immune system by selectively supplying more antibodies, bacteria, yeast and protozoan into the intestinal environment.

It is crucial to have the signalment, history, and physical exam as comprehensive as possible. Age of the animal, color, consistency, volume, and frequency are all important indicators of disease of the intestine that together will aid in a proper diagnosis ensuring efficient treatment plans. Properly having all the pieces of the puzzle to assemble is critical. Simply treating with a "gut reaction" can actually create the opposite of your desired effect. Establish a good relationship with your Veterinarian and patiently work with them.

Key Points to Remember:

Management of diseases of the gut is important. An ounce of prevention is worth more than a pound of cure.

Reduce the contact time of animals in the pen (decreased concentration)

Isolate diseased animals

Provide excellent nutrition to the does and fawns- High quality protein from fiber.

Ensure that fawns consume more than 5% of their weight in colostrum within 12 hours of birth.

VACCINATE does twice a year- (Covexin 8, Virashield, Presponse, Lepto/Vibrio, Clostridium A, Fusoguard, etc.)