FOX VALLEY EQUINE PRACTICE

1N303 LaFox Rd, La Fox, IL 60147
FVEP@foxvalleyequine.com
(630) 365-5600

Septic Arthritis & Osteomyelitis in a Foal

Definition

Septic arthritis is defined as an infection within a joint, and osteomyelitis is defined as an infection within the inner and outer parts of a bone. These disease processes often occur together and cause significant pain for the horse. Septic arthritis and osteomyelitis occurs most commonly in foals less than four months of age, and within that group, even more-so in foals less than six weeks of age. Large joints such as the stifle, tarsus (hock), and carpus (knee) are the most commonly affected joints. One or more joints may be affected. In the vast majority of cases, the foal's joint(s) and associated bone becomes infected secondarily to a primary infectious process of the umbilicus, respiratory tract, or gastrointestinal tract.

Pathophysiology

As was mentioned previously, septic arthritis and osteomyelitis in foals generally occurs from hematogenous spread. This is when an infectious process occurring in one area of the body, such as the umbilicus, travels into the blood stream (septicemia) and from there, into a bone and joint. There is a very rich blood supply in the bones of growing foals. At the ends of the long bones, small blood vessels twist and turn creating areas of fast and slow blood flow. The areas of slow blood flow allow bacteria in the blood stream to "settle out" and infect the bone. Often times, the bacteria then travel into the joint capsule from the bone.

Foals born prematurely and foals who experience failure of passive transfer are more at risk of developing infection anywhere in the body. Failure of passive transfer is when a foal fails to receive adequate levels of protective antibodies from the dam through her colostrum (first milk produced by the dam). This can happen for a variety of reasons. One example is when a foal fails to nurse properly after foaling. Adult horses almost never develop septic arthritis and osteomyelitis via hematogenous spread, but instead more commonly by means of a penetrating injury to a joint such as puncture wound.

Clinical Signs

Foals with an infected joint are often quite painful and exhibit swelling of the joint, warmth of the joint, lameness, and fever. These signs may occur concurrently with a primary infection such as an umbilical infection, or the signs may occur shortly after the primary infection resolves. Thus, if an infected joint/bone is suspected, it is important to carefully examine the foal looking for a primary inciting factor. The foal may also be lethargic, depressed, or inappetent.

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Diagnosis

If a foal is suspected of having a joint infection, radiographs of the joint are performed first. It is recommended to also compare to radiographs of the contralateral joint (same joint on other limb). Arthrocentesis (obtaining a sample of joint fluid) is performed. This fluid will be examined cytologically under a microscope and will be submitted for bacterial culture. A blood sample is also taken from the foal to submit for culture. Culture not only helps in diagnosis but also in guiding the practitioner in choosing the most effective antibiotic. The most common bacteria cultured from infected joints include E. coli, Strep., Salmonella, and Rhodococcus equi. In some cases, arthroscopy, placing a camera in the joint, is performed to look for changes in the joint.

Treatment

Foals with septic arthritis and osteomyelitis are best treated in a hospital setting. If a primary infectious process is present, that must be attended to in conjunction with the infected joint/bone. Systemic, broad spectrum antibiotics are begun immediately once a joint infection is suspected. The antibiotic regimen can be adjusted once culture results return. Joint lavage is also performed. This is accomplished by flushing copious amounts of sterile fluid into the infected joint while simultaneously allowing it to flow out of the joint. The idea behind this method is to flush out as much of the bacterial load and other inflammatory products from the joint as possible. Joint lavage is typically performed daily to every two days, and antibiotics are instilled into the joint at the end of each lavage.

Regional limb perfusion (RLP) is often performed in conjunction with joint lavage. RLP is when a tourniquet is placed on the limb closer to the horse's body than the infected joint. Antibiotics are then administered through a catheter placed in a vein on the limb near the joint. This achieves a higher level of antibiotics in the area of concern than systemic antibiotics alone achieve. Lastly, there are a few surgical options that may be pursued depending on other factors. Supportive care is also provided such as anti-inflammatory medication.

Prognosis

Foals have a fair to good prognosis if treatment is initiated early on in the course of disease, there are no radiographic changes, the foal responds quickly to treatment, and the lameness resolves. A foal has a poorer prognosis if the infection is more chronic in nature, involves multiple bones/joints, the foal is slow to respond to treatment, and resistant bacteria are cultured. In some cases where the joint infection is controlled and eliminated, the foal may still develop significant osteoarthritis at a later date. In any case, it is very important to contact your veterinarian at the first sign of disease in a foal. Proper treatment to control respiratory disease, GI disease, or any other infectious process is critical to ensuring a healthy foal and limiting the possibly of secondary infections such as septic arthritis. Ensure the dam has a safe and clean area to foal, and ensure that the foal nurses appropriately, receiving adequate passive transfer of immunity. This can be measured with a simple stall-side IgG test. A happy, healthy foal has the best chance at overcoming disease.