Equine Tyzzer’s Disease Update: January 1993–April 2015

Tyzzer’s disease was originally described in mice by the Japanese scientist, Dr. Saburo Tyzzer in 1917, and since then has been diagnosed in Thoroughbreds, three Tennessee Walking Horses, one Arabian, and a Pinto. Over the last 23 years, 92 cases of Tyzzer’s disease have been diagnosed at the University of Kentucky Veterinary Diagnostic Laboratory. The ages of affected foals ranged from 1 to 70 months with an average age of 20 days. Fifteen cases were 28 days of age or older. Of the 92 cases, 89 died in the months of February through July. The other three cases occurred in January, July, and October.

Economic Impacts of Vesicular Stomatitis Outbreaks

The recent identification of VS cases in Arizona, New Mexico, and Utah marked the start of a VS outbreak in the U.S. This came on the heels of a significant VS outbreak during 2014 in which a total of 435 premises in Arizona, New Mexico, and Texas were confirmed affected, 408 of which involved affected equines. In 2014, an estimated 20,000 horses on 515 premises in Arizona, New Mexico, and Texas were confirmed infected; 408 of which involved affected equines. In 2015, VS cases occurred in 17 counties.

VS cases can come in two forms, vesicular and enzootic. Vesicular VS is transmitted hematogenously and is most commonly the form seen in horses. Enzootic VS is transmitted by Culicoides insects and is commonly seen in ruminants. Vesicular disease is spread through contact with vesicles, or lesions. The virus infects the mucous membranes of the mouth and esophagus and causes lesions that are often confused with equine herpesvirus. The onset of clinic signs is usually between two to six weeks after exposure to the virus. Infected horses may develop fever, anorexia, coughing, and laminitis. Vesicular disease is spread by direct contact or by nasal secretions.

The high number of Thoroughbreds is consistent with the broad distribution typically seen at the diagnostic lab. The ages of affected foals ranged from 1 to 70 months with an average age of 20 days. Fifteen cases were 28 days of age or older. Of the 92 cases, 89 died in the months of February through July. The other three cases occurred in January, July, and October.

Figure 1. Ages of affected foals at the diagnostic lab

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First Quarter 2015

Report of disease outbreaks during the first quarter of 2015, identified by the US Equine Veterinary Association, report form must be filed in the United States Equestrian Federation (USEF) Equine Drugs and Medications section of the USEF, downloaded from the USEF website, at the time of competition.

first have a secondary bacterial skin infection (pyoderma), systemic signs, particularly fever, and a purulent nasal discharge. Diagnosis of equine dermatitis is based on its signs and symptoms, which can be confirmed by skin biopsy, culture, and bacterial sensitivity testing.
A new dermatitis, defined as an eczema, is a chronic inflammatory condition. It is characterized by redness, scaling, and dryness of the skin. Eczema can be caused by a variety of factors, including environmental allergens, contact with irritants, and genetic predispositions. Treatment of atopic dermatitis may include topical and systemic medications, as well as behavioral and lifestyle modifications.}

**Medications**: Antihistamines, steroids, and immunomodulators are commonly used to manage atopic dermatitis. Antihistamines can provide relief from itching, while steroids can reduce inflammation. Immunomodulators may be used to modify the immune response. Bottom line: Atopic dermatitis is a common and chronic condition that requires ongoing management and education.

**Atopic Dermatitis**

Atopic dermatitis is a common skin condition that affects people of all ages. It is characterized by dry, itchy skin, redness, and scaling. The condition is caused by an overactive immune system that responds to allergens, such as dust, pollen, and pet dander. Atopic dermatitis can be mild or severe and may require treatment with a combination of medications and lifestyle changes.

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A review of the literature on the effects of stress on the immune system in horses. It is noted that the stress response in horses is similar to that in other animals. The review examines the effects of different types of stress on immune function and the potential implications for horse health and welfare. It is concluded that further research is needed to fully understand the complex interactions between stress and the immune system in horses.
Economic Impacts of Vesicular Stomatitis Outbreaks

Tyzzer’s disease was originally described in mice in 1917, and since then has been diagnosed in various species, including horses. The disease is transmitted by biting flies, and can cause subclinical infections, but infections can vary significantly in severity. The disease can be spread through contact with infected animals or fomites.

The high number of Thoroughbreds is consistent with the disease distribution typically seen at the diagnostic lab. The ages of affected foals ranged from 7 to 270 days with an average age of 26 days. Fifteen of 28 foals were 8 days or older. Of the 28 foals, 20 died in the months of February through July, and 89 died in the months of February through July. Antemortem serology and fecal polymerase chain reaction (PCR) assay were typically used in combination with appropriate clinical signs to make presumptive clinical diagnosis. Additional diagnosis is made upon postmortem examination usually accomplished by examining the organs with characteristic lesions. Postmortem evacuation is done by macroscopic palpation during the organ examination by the detecting the organ’s gross material and cellular morphology.

There are no known effective treatments for the disease, and vaccines are not available. By PCR. There is no known effective treatment for the disease, and vaccines are not available. By PCR. There is no known effective treatment for the disease, and vaccines are not available.

**Environmental and local farm practices**

Environmental and local farm practices are up-to-date and followed, from county horse authority to stop the event in case of an inbound thunderstorm. We challenge all organizers of equestrian events to continue with classes when thunder can be heard, and their caddies to safety when the horn sounds. An outdated guideline (but one still referenced) is the 30/30 rule: If thunder is heard less than 30 seconds after seeing lightning, an outdoor event should be stopped and not started until 30 minutes after the last thunder. Newer guidelines, such as those from the National Oceanic and Atmospheric Administration (NOAA), an estimated 25 million lightning strikes occur in the US every year. According to NOAA, from 2006-2015, an average of over 600 people were injured or killed each year. Statistics on lightning-related deaths are maintained by the National Weather Service. A total of 287 people were killed by lightning in the US in 2015. According to NOAA, from 2006-2015, an average of over 600 people were injured or killed each year. Statistics on lightning-related deaths are maintained by the National Weather Service. A total of 287 people were killed by lightning in the US in 2015.

Commentary

Lightning is the long-anticipated horseback riding event for the summer. There is no safe place to be outdoors! Lightning can cause subcutaneous infection, but infections can vary significantly in severity. The disease can be spread through contact with infected animals or fomites.

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Vesicular stomatitis (VS) is a viral disease that can affect many livestock species, most often in horses, cattle, and pigs. It primarily infects the lower intestinal tract and affects oral tissues, including the tongue. The disease is transmitted primarily by blood-sucking flies, such as Stomoxys calcitrans, and can result in temporary lameness. VS is a reportable disease in the U.S., and affected premises are placed under quarantine to prevent disease spread.

The recent identification of VS cases in Arizona, New Mexico, and Utah marked the start of VS outbreaks in those regions. VS was first identified in horses and cattle in 1917, and since then has been diagnosed in 17 counties in the U.S. since 2005, and the economic impacts are substantial. In 2014, VS-affected premises in 17 counties reported a total of 435 premises. The impact of VS-affected states also suffered serious economic losses. VS can result in temporary lameness. VS is a reportable disease in the U.S., and affected premises are placed under quarantine to prevent disease spread.

For current information on the 2015 VS outbreak, see the VS situation reports on the APHIS website.

**Equine Disease Quarterly Newsletter**

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Lexington, Kentucky 40546-0099

**Address Service Requested**

**Economic Impacts of Vesicular Stomatitis Outbreaks**

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