1962

Sudden Death in the Horse Due to Myocarditis

William S. Monlux

Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/iowastate_veterinarian

Part of the Animal Diseases Commons, Large or Food Animal and Equine Medicine Commons,
and the Veterinary Pathology and Pathobiology Commons

Recommended Citation
Available at: https://lib.dr.iastate.edu/iowastate_veterinarian/vol24/iss1/8

This Article is brought to you for free and open access by the Journals at Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State University Veterinarian by an authorized editor of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
Sudden Death in the Horse
Due to
Myocarditis

William S. Monlux, D.V.M., PhD*

Sudden death in young horses, three to six years of age, is frequently observed. The owners usually state the horses were in good condition and had not been observed to be ill. While being worked or exercised the horses suddenly die or show respiratory distress and die after a very brief illness.

Additional questioning of the owners usually reveals that the horses have recently recovered from a respiratory disease diagnosed either as strangles or influenza, or that the animals have recently been purchased. In the latter case the horses have probably been through a sales barn or have been grouped together with other horses where the chance of exposure to either strangles or influenza is quite likely.

Similar losses are quite common in military horses which have just recovered from an outbreak of strangles or influenza, or in horses which have recently been acquired from a remount depot where large numbers of animals have been collected. In the remount depot it is quite likely the horses have been exposed to equine respiratory diseases. Rubarth has reported a number of sudden deaths of a similar nature in Swedish military mounts.

Those animals which live for a short period of time have a very severe dyspnea. Pink foam appears at their nostrils prior to death. This is an indication that acute edema and congestion of the lungs are present. The heart rate is very rapid and the pulse is fast and almost imperceptible. The mucous membranes are cyanotic and the veins, especially the jugulars, are distended with blood. Some of these animals develop a diarrhea.

Unless a very careful postmortem examination is made the cause of death will be overlooked. The diagnosis will probably be acute edema and congestion of the lungs, early pneumonia, or overwork.

The cadaver shows an acute general passive hyperemia. There may be a slight general edema due to the vascular disturbance. The lungs show an acute passive hyperemia and edema, and the bronchi, trachea, and nasal passages are filled with pink foam. If the horse lives for several hours, consolidation of the lungs may occur. The pneumonia is usually found in the antero-ventral portion of the lungs.

A diffuse hyperplastic lymphadenitis involves the lymphoid tissue of the pharynx and upper respiratory tract (Fig. 1). The surrounding connective tissue shows a slight to moderate edema. Because of the mucus which is present upon the surface of the pharynx and tonsils, the throat lesions are usually called a catarrhal hyperplastic pharyngitis and tonsillitis.

Microscopic examination of the lymph nodes draining the pharyngeal region shows an acute, subacute, or chronic lymphadenitis. The lymphadenitis may be

*Dr. Monlux is professor in Veterinary Pathology at Iowa State University, College of Veterinary Medicine.
suppurative or lymphocytic depending upon whether or not bacteria are present in the node. The presence of pus indicates bacteria are present.

The heart, especially the right ventricle shows a moderate to severe dilatation. Because of the dilatation, valvular insufficiency has been present. The myocardium may or may not show gross lesions. When lesions are visible they are most easily seen in the large papillary muscles where they appear as grey or yellowish-white streaks and foci.

Histological examination reveals an acute, subacute, or chronic non-suppurative myocarditis (Fig. 2). The cells of the exudate consist primarily of macrophages and lymphocytes. The muscle cells show cloudy swelling, fatty degeneration, and coagulative necrosis. If the myocarditis has been present for several weeks, considerable repair will have taken place. The necrotic muscle has been partially or totally removed and fibroblasts are proliferating in the area bringing about healing by substitution.

Bacteriological examination of the pharynx and the regional lymph nodes results in the isolation of *Streptococcus equi* and *Streptococcus zooepidemicus*. No bacteria are found in the myocardium unless a septicemia is present. This indicates that the myocardial lesions are probably the result of the action of toxins or other substances absorbed from the focal infection in the throat region. In the case of influenza it may be a manifestation of the direct action of the virus on the myocardium and the blood vessels in the myocardium.

It can only be speculated as to how many young horses, in which death does not occur, are injured by milder or sub-

![Fig. 1. Hyperplasia of the lymphoid tissue of the pharynx.](image1.jpg)

![Fig. 2. Non-suppurative myocarditis.](image2.jpg)

clinical forms of the disease. No doubt there are many. Probably this is the reason why many young horses never fulfill their track expectations or do not develop into the best show or work animals. Many promising young race horses exposed to strangles or influenza are never able to reach racing condition again. The reason for this is the myocardial injury they have received as the result of the respiratory disease. Because of this injury the heart cannot provide the circulatory requirements of the running horse which makes the difference between a champion and an also-ran.

**REFERENCE**