EQUINE YEW TOXICOSIS

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The needle-like leaves of the Japanese yew are extremely toxic to horses, donkeys, livestock, and other animals.

An owner calls your clinic saying that her horse "dropped dead." There was no history of illness, and no signs were observed before its sudden death. The owner mentions that the horse may have chewed on some discarded clipped branches that were in the enclosure. Pieces of plant material found in the gut during necropsy are later identified as Japanese yew.

Although the leaves of the Japanese yew tree are toxic to many animals, including companion pets and livestock, they are especially toxic to members of the Equidae family, which includes horses and donkeys. Found mostly in the Northern Hemisphere, yew trees are part of the Taxaceae family, which has five genera and 17 to 20 species.[1] Two main genera are *Taxus* and *Torreya*, found in North America, but only *Taxus* spp are toxicologically significant.[1] The *Taxus* spp are widely cultivated ornamental shrubs and evergreen trees with a scaly bark, needle-like leaves, and red seeded berries.[1,2] The regular maintenance that these shrubs require commonly leads to exposure because the trimmings are often discarded in pastures where they are eaten by horses and livestock. Often, owners are completely unaware of the potential hazard of discarding yew clippings near their pastures. In fact, dried leaves from clipped branches remain toxic for at least several months.[1] All parts of the plant are toxic except for the flesh of the fruit.[1,2]

MECHANISM OF ACTION

Taxus spp contain many biologically active constituents, but only the taxane derivatives are of toxicologic concern.[1] Taxines are derivatives of taxanes and are nitrogenous ester alkaloids or pseudoalkaloids.[1] Taxines are considered cardiotoxic, with taxine B known to be much more toxic than taxine A.[1] Taxine B causes decreased cardiac contractility and decreased coronary blood flow. It also causes markedly slow atrial and ventricular rates, eventually leading to death when the ventricles stop in diastole.[1] These *Taxus* alkaloids are biotransformed in the liver and excreted in the bile.[1]

TOXICITY

Since 2001, there have been numerous calls to the ASPCA Animal Poison Control Center concerning yew toxicosis in small animals, but only one equine case has been reported during this period. One possible reason for the small number of equine cases may be that even a single exposure of 0.1% of body weight can be lethal to members of the family Equidae, which often means that many animals are dead by the time owners and veterinarians are able to pinpoint yew as the cause of illness.[1] In many cases, animals need to ingest only a small amount of the plant before a toxic level is reached. Smaller animals may become intoxicated simply by chewing on the branches.

CLINICAL SIGNS

Although yew toxicosis in horses is often fatal, exposure does not always lead to death. Clinical signs include dizziness, dry mouth, mydriasis, abdominal cramping, salivation, and emesis.[1,2] The animal may have a rash and cyanotic lips. Weakness, bradycardia, cardiac arrhythmias, hypotension,

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and dyspnea have also been noted.[1,2]

Death occurs from cardiac or respiratory failure[1]; horses typically experience a few minutes of trembling and then die immediately thereafter. Often, the horse will simply drop dead.[1] Unfortunately, the diagnosis is usually made based on the animal's history and necropsy findings.[1]

TREATMENT

There is no antidote for yew toxicosis; therefore, treatment usually consists of symptomatic and supportive care. If the animal arrives asymptomatic, atropine can be given to enhance cardiac conduction but must be used with caution in horses because it can result in gut stasis and colic. Although lidocaine has been given in humans successfully, this approach would require continuous monitoring and repeated intravenous administration in horses and livestock.[1] Generally, once signs occur, it is too late for therapy, although administering activated charcoal may be useful.[1,2]

TECHNICIAN'S ROLE

It is important that veterinary technicians be aware of potentially life-threatening exposures and pass this vital knowledge on to the client. Owners should be made aware that this plant and its trimmings must not be in or near a horse's pasture because the risk to the animal is so high. This simple bit of information could save the life of a beloved companion.

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