



Problems following grain consumption

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***Reader's Question:* We have a male llama that is about three years old. We live near San Antonio, TX. Occasionally he will throw up after eating. We learned we could slow down his eating by placing rocks in the feeder and placing a layer of hay on top. That helped a lot but he still throws up a bit every couple of weeks. Our other llamas are doing great. What else should we do to stop this problem?**

In reference to a 3-year old male llama that seems to regurgitate food after eating. This is a more disconcerting issue as there is potential that this might indicate an untreatable, and ultimately, debilitating disease. There are two primary disease processes to differentiate in this scenario, choking and megaesophagus. This second disease is the worse case scenario.

Choking can be the result of abnormal feeding behavior, inappropriate feed form or some combination. Symptoms of gagging, coughing and regurgitation immediately following food consumption are associated with choking. One can often observe a "bolus" of food lodged somewhere along the length of the esophagus along the right side of the neck. This is often a problem in cattle consuming apples where the apple is swallowed whole and lodges in the esophagus. Horses are often affected by choke when consuming pelleted feed and have limited access to water. Choke in llamas and alpacas is similar to that of horses in that it is associated most often with pellet consumption and rapid rate of intake.

However, choke can also occur with grain, alfalfa cubes, and apples in llamas and alpacas. Smaller diameter and firm consistency pellets are less conducive to these problems. More times it is feeding behavior or facilities that are the cause of the choking problem.

Food blockage inducing choke can occur anywhere along the length of the esophagus, starting at the pharynx, and can involve the trachea (more appropriately termed "aspiration"). Complete obstruction is an immediate emergency requiring application of methods to relieve the blockage, or other extreme measures to ensure the animal's ability to breathe or eructate fermentation gases until the blockage can be corrected. In less severe blockages, food material in the esophagus may be gently massaged upward to relieve the obstruction. Be sure no food or water is available to an animal experiencing choke until after the blockage has been resolved. Aspiration of food materials or water can lead to more severe secondary complications.

Other than pellet consistency, feeding management and facilities can be modified to prevent the problem. From a feeding management perspective, make sure there is sufficient feeding space for animals to consume without being intimidated by others. Aggressive pellet consumption may be due to a dominant animal attempted to "eat it all" or a timid animal trying to get what they can as quickly as possible. As was stated in your inquiry, adding large rocks and layering pellets with hay can help reduce consumption rate. Review the design

of your feeding facilities. If pellets are provided in a deep bowl or trough, this may facilitate animals consuming large mouthfuls and predisposing them to choke. Provide pellets in a shallow vessel or long shallow trough to limit amount consumed in one bite.

The other disease issue to be ruled out in this situation is megaesophagus. The Merck Veterinary Manual (www.merckvetmanual.com) defines megaesophagus as a moderate to severe distention of the esophagus with no known cause. Observed symptoms include difficult swallowing (dysphagia), salivation, and regurgitation; similar to what was described for choking. However, the clinical presentation is very variable with megaesophagus. Secondary signs of nasal discharge, cough, and fever may be resultant of aspiration of regurgitated food. A published review of 15 cases of megaesophagus in llamas describes age of onset ranging from 13 months to 9.5 years with duration of observed signs from 1 week to 5 years (Watrous et. al., 1995). Most affected animals become unthrifty, are smaller in size, and progressively decline to a point where they can no longer be managed.

Definitive diagnosis of megaesophagus must be done by a veterinarian using special contrast radiography to observe esophageal function. Many local veterinarians will not have the equipment to complete these studies and may need to refer you to a veterinary teaching hospital. There is no known treatment to correct esophageal function and long term prognosis in most cases is poor. Feeding the animal on an incline to take advantage of gravity in moving a food bolus down the esophagus has been advocated. Feeding highly digestible feeds frequently and in small meals may help to maintain body weight over a period of time. I truly

hope this is not the diagnosis for your animal, but you need to find out for certain. Make some of the changes suggested to prevent choking to see if the problem resolves. If not, contact your veterinarian to initiate the diagnostic workup to determine if megaesophagus is present.

References

Watrous, B. et al., Megaesophagus in 15 llamas: a retrospective study (1985-1993). *J Vet Intern Med.* Mar-Apr;9(2):92-99, 1995.