

Laminitis in Ruminants

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ABSTRACT

Laminitis is an aching and devastating condition which mainly affects the hooves of ruminants such as goats, sheep and cattle. This is categorized by damage and inflammation of the sensitive laminae of hooves which results in lameness of the animal. If it remains untreated, the condition become more severe which will ultimately result in great economic losses.

Keywords lameness, laminitis, abnormal gait.

1. Introduction

Laminitis is an aching and devastating condition which mainly affects the hooves of ruminants such as goats, sheep and cattle [1]. This is categorized by damage and inflammation of the sensitive laminae of hooves which results in lameness of the animal. If it remains untreated, the condition become more severe, which will ultimately result in great economic losses. This also cause discomfort and severe pain in lower limb and in hoofs, additionally it includes anorexia, fever, depression, abnormal gait and shifting of weight Laminitis can have a noteworthy impression on the health and well-being of the ruminants which leads to reduction in the productivity and negotiated quality of life. There are many causes which results in the lameness of the animal including metabolic disorders, problems in diet given, imbalance of endocrine hormones and maybe any traumatic injury. In this article, we will discuss the causes, signs and symptoms and prevention of laminitis.

2. Causes of Laminitis:

Laminitis is caused by multiple factors; major factor includes dietary imbalance and its complex interaction with environmental factors [2]. Sometimes other metabolic disorders also play their role in causing laminitis in ruminants. Some causes are given in details are as follows:

2.1. Diet: Diet plays the major role in causing lameness problems in ruminants [3]. Risk of laminitis increases with the sudden change of a dietary plan of the animal [4]. Problem occurs when the complete diet plan of the animal is shifted. Providing feed stuff containing high starch contents or diet plans with high sugar stuffing plays its significant role in the cause of laminitis. Feed stuff having low fiber contents and imbalance nutritional components cause the disruption in the growth of normal microflora of rumen, which will cause in the production of endotoxins ultimately resulting in laminitis [5].

2.2. Metabolic Disorders: laminitis is caused by many metabolic disorders like insulin resistant animal, obese animal and other metabolic syndromes. Due to these metabolic problems, normal functions of the body get disturbed. These disturbed metabolic processes cause atypical blood flow throughout the body, as the nutrients reach the different body parts with the help of blood flow. These important nutrients fail to reach the hooves of the animal, which will give rise to laminitis [6].

2.3. Trauma and inflammation: Any kind of injury or trauma in ruminants can cause laminitis. Traumatic events may include standing of the animal on a hard surface for a long period, excessive trimming of the hoof, or any systemic infection which causes inflammatory response eventually laminitis [7].

3. Symptoms of Laminitis:

Signs and symptoms of laminitis varies from mild to severe. Some of the clinical signs and symptoms are given:

3.1. Lameness: lameness is the characteristic sign of laminitis in ruminants. The degree of lameness varies from mild distress to severe pain in lower limbs and hoofs. Animals affected with laminitis are reluctant to move, abnormal gait and animal cannot shift its weight between the limbs [8].

3.2. Heat and Pain in the Hooves: Heat and pain in the hooves occur due to the inflammation and damage in the sensitive laminae of the hoof. Animals show highly sensitive response to touch and pressure applied to the hooves. This causes difficulty in walking on the hard surfaces or floor [9].

3.3. Abnormal Hoof Growth: Abnormal hoof growth patterns are seen in most of the cases of laminitis. Growth patterns of the hooves include ridges, rings and separations. There might be some changes in the shape, structure and angle of the hoof [10].

3.4. Reluctance to Bear Weight: Animals with laminitis are reluctant to bear the whole-body weight with a balance on all 4 feet/hooves. In this condition, animal start to shift the body weight according to the condition and the severity of laminitis. This behavior of shifting the body weight is seen when the animal is in standing condition or laying down [11].

4. Prevention and Management of Laminitis:

Preventing laminitis in ruminants requires a comprehensive approach that addresses various risk factors. Balanced Nutrition; provide a well-balanced diet that meets the nutritional requirements of the animals while promoting rumen health. Avoid sudden changes in the diet and limit the consumption of high-starch or high-sugar feeds. Incorporate adequate fiber, such as good-quality forage, to support normal rumen function. Maintain appropriate body condition scores for the animals. Some of the preventions are given as follows:

1. Controlled grazing
2. Regular exercise
3. Hoof care
4. Environmental control
5. Regular monitoring
6. Early detection

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