CASE REPORT
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FLYING SCAPULA IN GIR-CROSS COW

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ABSTRACT

Flying scapula, or dorsal scapular displacement, is a rare myopathy in cattle characterized by the abnormal protrusion of the scapula due to rupture or degeneration of the serratus ventralis muscle. This paper presents a clinical case of a 4.5-year-old Gir-cross cow exhibiting abnormal stance and difficulty in walking following parturition and subsequent trauma. Clinical examination revealed bilateral cranial protrusion of the scapula, abduction of the thoracic limbs, and a large ventral swelling near the manubrium. Hematological analysis indicated neutrophilia with leukopenia, and serum biochemistry showed elevated AST levels. Radiography confirmed scapular displacement without fractures, while ultrasonography of the swelling revealed a hypoechoic fluid-filled area. Diagnosis was consistent with degeneration of the serratus ventralis muscle and a concurrent thoracic abscess. Treatment involved abscess drainage, systemic antibiotics (enrofloxacin), anti-inflammatory therapy (meloxicam), fluid therapy, and supplementation with selenium and vitamin E. The clinical signs and findings aligned with those reported in nutritional myodegeneration, though selenium and vitamin E levels were not directly assessed. Contributing factors likely included trauma and potential nutritional deficiencies. The case underscores the importance of nutritional management, injury prevention, and supportive care in the diagnosis and management of this condition.

Keywords: Flying scapula; Dorsal scapular displacement; Nutritional myodegeneration; Serratus ventralis muscle; Cattle

INTRODUCTION

Flying scapula in cattle is a condition characterized by the abnormal protrusion of the scapula (shoulder blade) away from the thoracic wall, giving it a "winged". This paper describes a case of flying scapula in a cow.

CASE HISTORY AND OBSERVATION

A 4.5-year-old Gir-cross cow was presented to the Veterinary Clinical Complex, Faculty of Veterinary and Animal Sciences, Institute of Agricultural Sciences, Banaras Hindu University, with abnormal stance and difficulty in walking since 2 months. The cow weighed around 450 kgs. The cow also had a large swelling on the ventral region near the manubrium. The cow had a history of weakness and was recumbent immediately after parturition 3 months back. While manual lifting of the cow was attempted, the grip slipped and fell on a slippery floor with its forelimbs splayed bilaterally. Since then, the animal has been showing these signs and symptoms.

On physical examination, the animal had a bilateral cranial protrusion of the cranial border of the scapula along with an abduction of the thoracic limb at the scapular region (Fig. 1). A large swelling was also noticed ventrally towards the manubrium region. The animal had a 101.1°F temperature, heart rate was 100 bpm, respiratory rate was 52 breaths per minute and the mucous membrane was pale and dry. The animal had 1 rumen motility per 2 minutes. Complete blood count revealed neutrophilia with leukopenia and the rest of the values were within the normal range (Table 1). Serum AST was elevated and the rest of the other serum biochemical parameters were within normal ranges (Table 1). Radiographs of the scapula and shoulder joint were obtained and they revealed no fractures and dislocations of the shoulder joint and found that there was an abnormal abduction of the scapula from the thoracic wall. Ultrasonography of the ventral swelling was performed and found a large hypoechoic area suggestive of fluid. The case was diagnosed as degeneration of the serratus ventralis muscle, which is also known as the Flying scapula and an abscess on the ventral thoracic region.

Fig. 1A: Front view of the animal for the right forelimb

Fig. 1B: Left side view of the animal

Fig. 1C: Front view of the animal for the left forelimb

Table 1: Complete blood count and Serum Chemistry values

Complete Blood Count		**Serum biochemistry**	
Measure	Value	Measure	Value
Hemoglobin	8.9 g%	Total Protein	7.66 g%
Packed Cell Volume	26.8%	Albumin	2.68 g%
Total Erythrocyte Count	5.3 millions/mm^3	Globulin	4.98 g%
Total Leukocyte Count	7.9 Thousand/mm^3	Total Bilirubin	0.13 mg%
Neutrophils	58.4 %	Direct Bilirubin	0.08 mg%
Lymphocytes	36.8 %	Indirect Bilirubin	0.05 mg%
Monocytes	0.12 %	AST	165.3 IU/L
Eosinophils	5.5 %	ALT	27.6 IU/L
Platelets	725 Thousand/mm^3	ALP	63 IU/L
MCV	50.6 fL	Blood Urea	30.8 mg%
MCH	16.8 pg	Blood Urea Nitrogen	14.39 mg%
MCHC	33.2 %	Creatinine	0.86 mg%

TREATMENT AND DISCUSSION

The abscess at the ventral thoracic region towards the manubrium was opened and drained its contents. Around 8-10 liters of pus were drained. The cavity was then clearly washed with povidone iodine mixed with normal saline and packed the cavity using roller gauze dipped in povidone iodine. The animal was hydrated prior to opening of the abscess with 3.5 liters of normal saline given through a phlebotomy done at the left jugular vein. Preemptive analgesia was provided prior to abscess opening with meloxicam at a dose rate of 0.5 mg/kg body weight intravenously and advised to continue for 5 days. Antibiotic therapy was initiated using enrofloxacin at a dose rate of 7.5 mg/kg intravenously and advised to continue for 5 days. The animal was prescribed selenium and Vitamin E oral supplements. Abscess cavity cleaning and dressing were advised to continue along with wound dressing.

Flying scapula, or dorsal scapular displacement, is a rare myopathy characterized by sinking of the thorax between the forelimbs and abnormal protrusion of the scapula above the thoracic vertebrae. It results from bilateral rupture or damage of the serratus ventralis muscles, which normally attach the scapula to the thorax (synsarcosis), giving the animal a humpback-like appearance. (Saadi et al., 2022; Mearns and Lewis, 2007; Buergelt et al., 1996).

This myopathy condition can be caused by various factors such as, nutritional myodegeneration, Deficiencies in selenium and/or vitamin E is the principle cause that lead to muscle degeneration, making the serratus ventralis muscle susceptible

to muscle degeneration and rupture, Overexertion (excessive physical activity particularly after a period of inactivity), and rupture of the serratus ventralis muscle (Saadi et al., 2022; Mearns and Lewis, 2007; Buergelt et al., 1996).

The clinical signs include protruding scapula giving the appearance of a humpback, stiff gait (awkward gait due to pain and muscle weakness), reluctance to move or stand, muscle spasm, and limited range of motion of the shoulder joint.

Flying scapula is usually diagnosed by physical examination reveals protruding of the scapula above the thoracic vertebrae (scapular protrusion) leading to an impression of humpback appearance of the affected animal, radiographic examination (reveals luxated scapula on right and left side), and hematology (to assess selenium and vitamin E levels and muscle enzyme markers like creatine kinase) (Saadi et al., 2022; Mearns and Lewis, 2007; Buergelt et al., 1996).

Treatment usually involves nutritional supplementation with Selenium and Vitamin E, along with rest and supportive care. In some cases, surgical intervention may be required to repair the damaged muscles.

Flying scapula can be prevented by ensuring adequate Selenium and Vitamin E levels in cattle's diet (especially during periods of stress), minimizing trauma and injury to the animals, and managing nutritional myodegeneration through appropriate supplementation (Saadi et al., 2022; Mearns and Lewis, 2007; Buergelt et al., 1996).

SUMMARY

This article describes a case of flying scapula in a cow. This condition is usually a deficiency disorder due to low selenium and Vitamin E. This case is diagnosed as a flying scapula with muscle trauma. Since the blood selenium and vitamin E was not measured, we are unsure about the deficiency factor. As far as the authors' knowledge, this is the first manuscript on flying scapula in cattle in India.

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