

Management of Grade I Vaginal Prolapse in a Friesian Cross: A case report

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Abstract: A 350kg Friesian cross was presented to the Veterinary Teaching Hospital, University Putra Malaysia with a complaint of a bulging vagina one month after parturition. On physical examination, there was evidence of a grade I vaginal prolapse with presence of a yellowish mucoid secretion from the vulva. All the vital parameters were normal. Blood workout showed leucocytosis accompanied by neutrophilia with left shift, lymphocytosis and monocytosis. Creatine kinase was elevated ten folds, while serum globulin was only slightly elevated. There was a slight decline in calcium level in the blood. The prolapse was corrected surgically by applying Buhner's suture. Systemic analgesic, antibiotic, multivitamin and calcium infusion were administered to minimize pain, prevent bacterial complication and normalize the calcium level in the blood, respectively. The prognosis was good and the prolapse regressed completely after a week. Prompt and timely management of vaginal prolapse is necessary in order to avoid serious complications that may predispose to uterine infections, infertility and death due to septicemia.

Keywords: Vaginal prolapse; Dairy cow; Buhner's suture; Calcium

I. Introduction

Vaginal prolapse is an outward protrusion of the vagina through the vulva. It is a condition commonly encountered in small and large ruminants especially in the last trimester of pregnancy or following parturition [1,2,3] Vaginal prolapse have been reported to be predisposed by several risk factors which include, hypocalcemia, high estrogen content in diet, overcrowding and hormonal imbalances [2,4,5]. Breed predisposition is another factor that predisposes to vaginal prolapsed in cattle, and Holstein Friesians are reported to be the most commonly affected breed of cattle [2] Vaginal prolapse can be acute or chronic based on course. However, a more accepted grading of vaginal prolapse is based on severity, and these are graded as I,II,III and IV [4,5,6]. Early intervention in cases of vaginal prolapse is paramount in avoiding associated complications and the severity of the condition. Grade I and II prolapse can be easily managed by returning the vagina into the pelvic cavity and applying stay sutures or Buhner suture [6,7]. Therefore, prompt and timely intervention in cases of vaginal prolapse is necessary in order to ensure future reproductive capacity in the cow. This report highlights the management of grade I vaginal prolapse in a cow.

II. Case Report

History

A Friesian cross weighing 350kg Friesian cross was presented with a protruding vagina one month after parturition. The farmer gave Amoxicillin 20ml but noticed no improvement and presented the cow to the Veterinary Teaching Hospital, University Putra Malaysia.

Physical examination

A yellowish mucoid discharge was observed drooling from the vulva (Fig.1). The temperature, pulse and respiratory rates were all within the reference values. Blood sample was collected and sent to the hematology laboratory for evaluation of complete blood count, serum protein, calcium and creatine kinase.

III. Results

There was marked leucocytosis evidenced by neutrophilia with left shift, lymphocytosis and monocytosis. Serum globulin was slightly elevated while creatine kinase was elevated about 10 folds. Similarly, mild hypocalcemia was observed (Table 1.).

Table 1: Hematological and biochemical values observed in the cow during three farm visits.

Hemogram	1 st Visit	2 nd Visit	3 rd Visit
Band neutrophils ($\times 10^9/L$)	0.48	0.36	0.16
Segmented neutrophils ($\times 10^9/L$)	8.16	4.53	2.30
Lymphocytes ($\times 10^9/L$)	12.72	10.50	10.32
Monocytes ($\times 10^9/L$)	1.20	1.45	0.82
Biochemistry			
Calcium (mmol/L)	2.19	2.14	2.53
Creatine kinase (U/L)	----	2025	227
Globulin (g/dL)	46.3	52.7	48.1

IV. Diagnosis

Grade I vaginal prolapsed with leucocytosis, hypocalcemia and hyperglobulinemia.

V. Management and Treatment

The case was managed by the application of Buhner suture around the vulva. Briefly, the sacral area was shaved and routine skin preparation was done using chlorohexidine, alcohol and povidone iodine. The sacrococcygeal space was determined by moving the tail up and down and the space was located by palpating the most cranial part of articulation. An 18G needle was inserted into the space with 5ml of lignocaine (Fig.2). The tail was then observed for flaccid sign and a reduction in the anal tone. The retention of the vagina was performed after the onset of paralysis. The perineal area was cleaned with normal saline and the surrounding skin was disinfected with chlorohexidine. The prolapse was then gently pushed back into the pelvic cavity. Buhners suture was applied around vulva area in which two horizontal incisions were made just below the ventral and dorsal commissures of the vulva. The suture tape was then tied using quick release knot (Fig.3)



Fig.1: The perineum showing distended vulva with bulging vagina and a yellowish mucoïd secretion.



Fig.2: The lumbar area after shaving and preparation for epidural anesthesia.

Flunixinmeoglumine (1.1mg/kg), oxytetracycline (20mg/kg), multivitamin (20ml) and Theracalcium (50ml) were administered intramuscularly.



Fig.3: Application of Buhner's suture around the lateral and ventral commissures of the vulva in order to hold the vagina in place.



Fig.4: The perineum showing a fully regressed vagina with absence of exudation one week after.

VI. Follow Up

After a week, the cow was active and there was no bulging of the vagina (Fig.4). However, all the hematological values have normalized except for the lymphocyte count which was still elevated. The calcium level had normalized, while the serum globulin level was still slightly elevated.

VII. Discussion

Vaginal and uterine prolapse are among the most common conditions after parturition in farm animals [3]. This is because immediately before and after parturition, there is a sustained straining by the animal which predisposes to these conditions. However, other factors including breed predisposition, dietary deficiencies of calcium and excess estrogen in diet have been incriminated in causing vaginal prolapse in large animals [2,4,5]. In this report, we have three possible risk factors; the breed of the animal, mild hypocalcaemia and history of previous parturition. The cow is a Friesian cross, which puts it among the most susceptible breed to develop vaginal prolapse [2]. Secondly, a mild decline in calcium level was observed. Calcium is known to play a vital role in the pathogenesis of vaginal prolapse since it is an important mineral required for muscle contraction. Therefore, a decline in calcium results in flaccidity of the muscle and a loss in tone. The blood workout showed leucocytosis evidenced by neutrophilia with left shift, lymphocytosis and monocytosis. This signifies a systemic infection perhaps originating from an inflamed uterus; endometritis. Inflammatory conditions are known to enhance tissue migration of leucocytes and increased levels in the blood [8]. Although there was no evidence of fever, it is likely that the infection is in a sub acute stage as the cow calved more than a month ago. Hyperglobulinemia was also observed and this may be due to production of immunoglobulins by plasma cells in response to the tissue injury.[9]reported hyperglobulinemia in cattle to be due to inflammation, infection or near term pregnancy. Another interesting finding observed was a tenfold increase in the level of creatine kinase (CK). CK has several iso-enzymes that are produced in numerous organs of the body, therefore it is said to be a non specific marker for muscle damage [8]. However, CK is generally elevated in muscle injuries and highly elevated levels have been reported in cows with endometritis [10].The yellowish discharge we observed from the vulva during examination may be associated with a suppurative endometritis. The case was easily managed by application of Buhner's suture as described [7]. Usually, grade I and II vaginal prolapse are easier to manage than grade III and IV prolapse, due to the lesser severity and high chance of success. However, untreated impending uterine infection is a common complication of vaginal prolapse and left unaddressed may cause severe metritis predisposing to conception failure and infertility [4,5]. We thus sought out to correct these deficits by administration of systemic antibiotics, analgesic, multivitamin and calcium injection. The prognosis was good as there was a recession of the prolapse and cessation of exudation from the vulva.

VIII. Conclusion

Effective management of vaginal prolapse in the cow depends on the degree of prolapse and the presence or absence of secondary complications. Buhner's suture can be effectively used to manage grade I and II vaginal prolapse as reported earlier. However, routine systemic antibiotic administration is necessary in order

to prevent secondary vaginal and uterine infections that may predispose to infertility and death due to septicemia.

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