



Management of chronic urinary bladder prolapse by cystectomy

Tanjila Hasan^{1*}, Azizunnesa¹, Md. Anowar Parvez¹, Md. Monir Hossan², Pranab Paul¹

¹Department of Medicine and Surgery, Faculty of Veterinary Medicine, Chittagong Veterinary and Animal Sciences University, Khulshi, Chittagong-4225, Bangladesh

²Veterinary Surgeon, Upazilla Livestock office, Manikganj Sadar, Manikganj, Bangladesh

ARTICLE INFO

Article history

Accepted 10 May 2018
Online release 28 May 2018

Keyword

Urinary bladder
Prolapse
Management
Cystectomy

*Corresponding Author

Tanjila Hasan
✉ tanjila.cvasu@gmail.com

ABSTRACT

Genital prolapses are prevalent throughout the world for dairy cattle as reproductive disorders. But prolapse of urinary bladder is very rare. A four years old high yielding Holstein Friesian cross bred cow was registered at Teaching Veterinary Hospital in Chittagong Veterinary and Animal Sciences University (CVASU) with history of recent parturition followed by urinary bladder prolapse. Physical and clinical examination was done. Explorative needle puncture revealed urine from the mass. The prolapsed was removed surgically. For further confirmation histopathology was performed. Histopathology showed huge proliferation of fibrous connective tissue within the transitional epithelium in the wall of urinary bladder. Blood sample was collected to know different parameter of blood e.g. calcium, phosphorus, magnesium etc. Post operative care was given for 14 days. The cow was followed for next one year. The cow recovered successfully without further complications. It is concluded that cystectomy is one of way for managing urinary bladder prolapsed for dairy cows. The present study is the lesson for the veterinarian and stakeholder towards successful treatment of prolapse of urinary bladder in Bangladesh.

INTRODUCTION

Prolapse of the genital organ especially uterus, cervix and vagina are common, but prolapse of urinary bladder is very rare. It is regarded as an emergency condition and should be managed before excessive edema, mucosal trauma, contamination and fatal hemorrhage lead to a grave prognosis (Miesner and Anderson, 2008). Eversion of the urinary bladder through the genital organ has been reported in cows (Hentschl and Walton, 1966). Prolapse of the urinary bladder may take place at the time of parturition (Brunsdon, 1961), or early within the puerperium (Hentschl and Walton, 1966). The exact cause of the disorder has not been ascertained (Roberts, 1971). In some cases, the urinary bladder is trapped within the prolapse and cannot be emptied, and thereby causes further enlargement of the prolapse (Youngquist and Threlfall, 2007). Prolapse of the urinary bladder may be followed by uterine torsion (Frazer, 1988). Prolapse of the urinary bladder must be differentiated by physical examination from vaginal prolapse, vaginal or

vulvar tumors, a mass of fat protruding through a rupture in the floor of the vagina, or vaginal or vulvar hematomas (Brunsdon, 1961). Herniation of the intestine may occur into the everted urinary bladder, posing a serious threat to the life of the dam, but this event is uncommon (Frazer, 1988). There is limited or no information in regards to urinary bladder prolapse was found in Bangladesh so far. Prolapse of urinary bladder is not diagnosed and corrected leads to necrosis and life threatening for the animal.

CASE PRESENTATION & HISTORY

A high yielding variety Holstein Friesian cross (HFX) breed cow about four years of old was registered in TVH with the history of faced dystocia in fifteen days before, during parturition forceful delivery was driven by quack with help of rope for the delivery of the fetus. The whole urinary bladder protruded at the vaginal floor of the cow (Figure 1) but the owner was unable to recognize this. Supportive therapy was given to the cow. But there was no progress of this

condition, with the elapsing time prolapse of urinary bladder become swollen, reddened, fibrotic, necrotic and finally noticed from outside of the vulva. Then the owner bought the cow in our TVH. At first Physical examination was done such as body temperature (103.4°F), pulse rate (65/min), respiration rate (30/min), and body weight (200kg). Special examination was performed by per vaginal examination, per rectal examination and explorative needle puncture for urine (Figure 2). Blood sample was collected into two vacuum container with anti coagulant and

without anticoagulant for the estimation of hemoglobin (HB), Erythrocyte Sedimentation Rate (ESR), total count of Red Blood Cell (RBC), total count of White Blood Cell (WBC), Packed cell Volume (PCV), lymphocyte, neutrophil, eosinophil, monocyte, basophil, serum calcium, serum magnesium, serum phosphorus (Table 1). The case was confirmed as necrosed fibrotic prolapsed of urinary bladder and thereafter decided to treat the case with surgical approach for removal of necrosed fibrotic prolapsed bladder mass by cystectomy.

Table 1
Biochemical and hematological analysis of blood.

Name of the test	Result	Normal Range
Serum Calcium	8.43	9.7-12.4 mg/dl
Serum Magnesium	1.13	1.8-2.3 mg/ dl
Serum Phosphorous	2.73	5.6-6.5 mg/dl
Hemoglobin	7	8-15 gm%
ESR(Wintrobe tube method)	5	6-10 (mm in 1 st hour)
Total count of RBC (Red Blood Cell)	3	5-10 million/ cumm
Total count of WBC (White Blood Cell)	6	4-12 thousand/ cumm
PCV (Packed Cell Volume)	23	24-46%
Lymphocytes	76	45-75%
Neutrophils	20	15-45%
Eosinophils	5	0-20%
Monocytes	4	2-7%
Basophils	1	0-2%

LABORATORY DIAGNOSIS

Biochemical assessment of blood showed that serum calcium, phosphorus and magnesium levels were 8.43mg/dL, 2.43 mg/dl and 1.13 mg/dL. The other parameters were remained within normal range. Hematology results revealed lymphocytosis which was a primary indication that the mass was turning into tumor. Afterward isolation was done by culturing the tissue sample in to blood agar, MacConkey agar and mannitol salt agar. *E. coli* (Figure 3 and Figure 4) and *S. aureus* (Figure 5) were identified based on colony morphology, staining properties and biochemical analysis. Cultural sensitivity (CS) test was performed to find out the suitable antibiotic for the cow using

commonly used antibiotic discs as per the procedure described by Begum et al., (2007). In antimicrobial sensitivity test only ceftiaxone and ciprofloxacin were found to be highly sensitive, gentamycin oxytetracycline, sulphatrimithoprim and azrithomycin were shown intermediate resistance and amoxicillin was resistant.

HISTOPATHOLOGY

In histopathology there found presence of huge amount of fibrous connective tissue proliferation within the transitional epithelium of necrosed urinary bladder along with lymphocytic infiltration in the fibrovascular tissue which was

distinguishable from the normal bladder (Figure 6 and Figure 7).

SURGICAL MANAGEMENT

The perineal region and surrounded area was washed with clean water. Then ice was applied on the surface of prolapsed mass to reduce its volume. Due to severe straining low epidural anesthesia

was done at 1st and 2nd coccygeal vertebrae using 2% lidocaine hydrochloride (10 ml). Again local anesthetic was applied in a circular way around the necrosed area (Figure 8). Then a ligature was applied immediately in front of the urinary bladder (Figure 9) and the mass was excized posterior to the ligature (Figure 10). The excised bladder was sent for histopathological findings (Figure 11).



Figure 1
Cow with prolapsed urinary bladder.



Figure 2
Explorative needle puncture revealed urine.

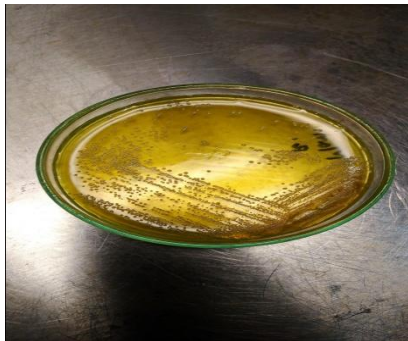


Figure 3
Staphylococcus aureus in mannitol salt agar.



Figure 4
Escherichia coli in blood agar.

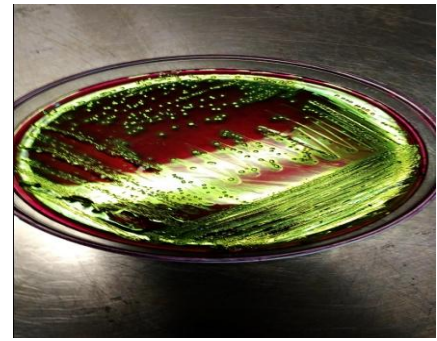


Figure 5
Escherichia coli in MacConkey agar.

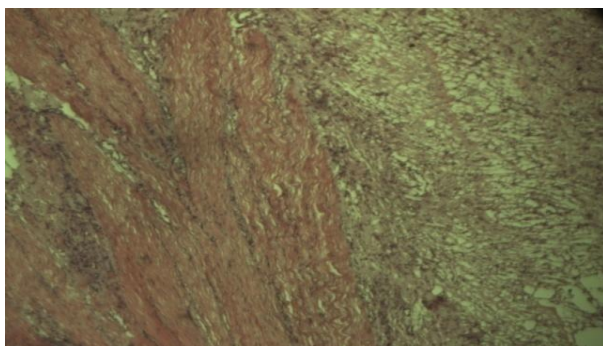


Figure 6
Presence of huge amount of fibrous tissue proliferation.

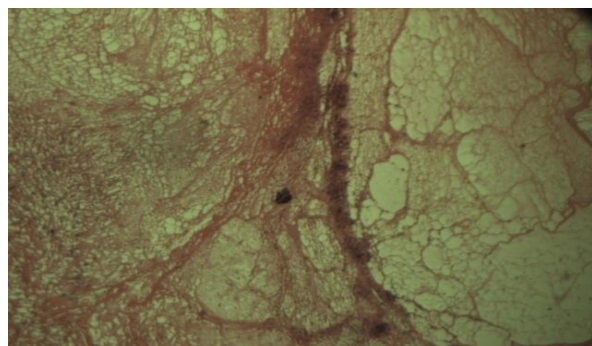


Figure 7
Fibrovascular tissue with lymphocytic infiltration.



Figure 8
Administering local anesthetic at the site of ligature.



Figure 9
Site of ligature.



Figure 10
Cystectomy of the mass.



Figure 11
Mass after cystectomy.

POST OPERATIVE CARE AND MANAGEMENT

As post operative care Antibiotic injection (Ceftriaxon 2gm), Antihistaminic (Hista Vet 10ml), pain killer (Meloxicam 10ml) were given intramuscularly. Normal saline @ 3000ml was given intravenously daily for ten days. The cow was completely recovered after twenty days.

Urinary bladder prolapse is not common. It may be occurring as concurrent cervicovaginal prolapse (Padheriya et al., 2016). Urinary bladder prolapse is usually seen immediately or within hours of calving. Dystocia, injury, repeated irritation of the birth canal and excessive pressure during pulling fetus leads to uterine prolapse (Jyothi et al., 2015). In the present case, the serum calcium was estimated at 8.43 mg/dl indicating hypocalcemia one of the main cause of prolapse which is almost similar to the findings of (Youngquist and Threfall, 2007). Lack of uterine tone, nutritional

deficiency, hypocalcemia and poor body condition can increase the incidence of genital prolapses (Richardson et al., 1981; Misra, 1998). Retained placenta or a loose uterine attachment in the abdominal cavity, which could be a heritable factor. Genital prolapse should be regarded as an emergency condition which leads to edema, mucosal trauma, fibrosis hemorrhage and finally septicemia (Bhattacharya et al., 2007) similar with result of this study. Prolapse of urinary bladder and rectum in a pregnant graded murrah Buffalo as a sequel to chronic cervico vaginal prolapse demonstrated by (Joythi et al, 2016) which was not match of our study due to species variation. Azawi et al., (2012) reported a case of vaginal and cervical prolapse complicated with herniation of urinary bladder dissimilar of this study.

CONCLUSION

The study suggests that cystectomy is an effective way for managing urinary bladder prolapse when

it cannot be corrected otherwise. However, the surgical treatment approach is a lesson for veterinarian and stakeholder towards successful recovery of urinary bladder prolapse of cow.

ACKNOWLEDGEMENTS

Authors are thankful to the Director of Teaching Veterinary Hospital, Chittagong Veterinary and Animal Science University for providing necessary facilities to this case study.

REFERENCES

- Azawi OI, Aziz DM, Al-Hyani OH (2012). Vaginal and cervical prolapse complicated with herniation of urinary bladder in a cow: a case report. *Asian pacific journal of reproduction*, 1(3):231-232.
- Begum HA, Uddin MS, Islam MJ, Nazir K, Islam MA and Rahman MT (2007). Detection of biofilm producing coagulase positive *Staphylococcus aureus* from bovine mastitis, their pigment production, hemolytic activity and antibiotic sensitivity pattern. *Journal of Bangladesh Society for Agricultural Science and Technology*, 4: 97-100.
- Bhattacharyya HK, Peer FU, Buchoo BA, Ansari MM (2007). Management of uterine prolapse in cattle of Kashmir. *Indian Veterinary Journal*, 84: 744-745.
- Brunsdon JR (1961). A case of urinary bladder prolapse in the cow. *Veterinary Record*, 73: 437-438.
- Frazer GS (1988). Uterine torsion followed by jejunal incarceration in a partially everted urinary bladder of a cow. *Australian Veterinary Journal*, 65: 24-25.
- Hentschl AF, Walton JF (1966). Repair of an everted bladder in a cow. *Veterinary Medicine Small Animal Clinician*, 61: 253.
- Jyothi KD, Mahesh R, Sumiran N and Rao M (2015). Prolapse of Urinary Bladder and Rectum in a Pregnant Graded Murrah Buffalo as a Sequel to Chronic Cervico Vaginal Prolapse -A Case Report. *International Journal of Livestock Research*, 5 (3): 122-125.
- Miesner MD and Anderson DE (2008). Management of uterine and vaginal prolapse in the bovine. *Veterinary Clinics Food Animal*, 24, 409-419.
- Mishra SS (1998). Surgical and medical management of recurrent uterovaginal prolapse in the bovine. *IntasPolivet*, 1(1): 51-54.
- Padheriya HM, Patel PB, Dodia VD, Vadalía JV, Vala KB and Solanki KP (2016). Surgical management of recurrent genital prolapse in gir cow by using pervaginum ovariohysterectomy. *International Journal of Science, Environment and Technology*, 5(3): 1333 – 1339
- Richardson GF, Klemmer AD and Knudsen DB (1981). Observations on uterine prolapse in beef cattle. *Canadian Veterinary Journal*, 22: 189-191.
- Roberts SJ (1971). *Veterinary obstetrics and genital diseases*. 2nd ed. Edwards Brothers Inc, pp. 189-196.
- Youngquist RS, Threlfall WR (2007). *Current therapy in large animal theriogenology*. 2nd ed. Elsevier Ltd., pp. 573.