

Short communication

Surgical Management of Urethral Obstruction in three Bullocks

A.P. Bhokre*, Guesh Negash, Berihu Gebrekidan, Getachew Gugsa and Gebrehiwot Tadesse

College of Veterinary Medicine, Mekelle University, Mekelle, Ethiopia , P. O. Box 231

*Corresponding author: drbhokre@gmail.com

Abstract

Three typical cases of urolithiasis were reported for treatment at college of veterinary medicine, Mekelle clinics. All cases were of adult male bovine between 5-10 years of age group. The first and third case was of necrosis of penis and subcutaneous accumulation of urine in the prepuce and scrotal area, while the second case was of rupture of urinary bladder and subsequent uroperitoneum and uremia. The first and third case was operated for amputation of penis and drainage of urine from subcutaneous region and the second case was operated for post-scrotal urethrotomy and repair of ruptured urinary bladder through posterior left flank. The operative procedure for these cases including treatment of uremia is described in detail. All cases made an uneventful recovery.

Keywords: Amputation of penis, necrosis of penis, obstructive urolithiasis, rupture of urinary bladder, uroperitoneum.

Introduction

Urolithiasis is the formation of urinary stone (uroliths) in the urinary tract from less soluble crystalloids of urine as a result of multiple congenital or acquired physiological and pathological processes. It has a world wide distribution and occurs in all domestic animal species although there are some differences with regard to age, sex, species, season, feeding systems and contents of the diets, and soil nature (Radostits et al., 2003).. Urolithiasis is very important diseases of domestic animals caused by uroliths with a significant life threatening consequences like urinary obstruction and rupture of urethra and/or urinary bladder, uremia, coma and death. It can be detected by the history, clinical signs (physical examination), laboratory chemical tests, ultrasound, and radiographic techniques. Therapy of urolithiasis encompasses surgical and/or medical management of the obstruction to urine outflow, elimination of existing calculi, reversal of uremia, eradication or control of predisposing fac-

tors and urinary tract infections as well as prevention of recurrence of uroliths (Radostits et al., 2003).

The present paper deal with three typical cases of urolithiasis in bullocks reported at College of Veterinary Medicine Clinic, Mekelle University.

Case Reports

Case I

An adult bullock was presented to the College of Veterinary medicine Clinic in November 2009 with history findings of ventral abdominal swelling which begin from the prescrotal region to prepuce and dribbling of urine. The appetite was of the animal was not affected

Clinical examination of the animal revealed normal body temperature, respiratory and heart rate. Rectal examination discovered an empty urinary bladder. Based on historical and clinical examination findings a tentative diagnosis of urethral rupture was made. The animal was prepared for post scrotal urethrotomy operation.

Treatment:

Post Scrotal Urethrotomy:

Anesthesia; A local anesthetic infiltration of Iodocain 2% was made on midline for a distance of 8-10 inches behind scrotum.

Operative procedure: A midline skin incision behind scrotum for a distance of 5 to 6 inches was made. The subcutaneous tissue was dissected and the penis was located. Blunt dissections around the penis were made and the penis was exteriorized with much difficulty. The penis was found necrosed behind glans. The urethra was opened and was also found necrosed. Therefore a decision to perform amputation of penis was made. The dorsal artery of penis and veins were ligated with chromic catgut. Amputation of penis was made at the healthier part of penis by cutting the penis transversally. After the amputation the stump of the penis was anchored to the muscles below with catgut suture. The urethra was slit for 2 inches length and was anchored with skin by interrupted nylon sutures. An indwelling catheter was placed in the urethra and the catheter was anchored to skin. Afterwards the necrosed penis was dissected from the site. The penis was found adhered to the surrounding tissues.

After the penis was removed, it was found that the entire penis was necrosed with a big and gaping wound for 1 inch behind glans (Fig 1).



Fig 1. Necrosis of penis and urethra behind glans penis after dissection

The wound suggested that a sharp calculus has ruptured the urethra and caused infiltration of urine in subcutaneous tissue and muscles around ventral abdomen. However the calculus had escaped from the site. The skin on the ventral abdomen was bluish in appearance suggesting ischemia and necrosis of the skin. (Fig, 2). Three incisions were made on skin up to the depth of subcutaneous level to drain the urine (Fig, 2).



Fig 2. Necrosis of skin (bluish in color) around prepuce. Note the skin incision for drainage of urine in subcutaneous tissue

Post operative care: Daily dressing of the wound and parenteral antibiotics for 5 days.

Both the animals were able to pass urine freely through the anastomosed part of urethra with skin. The skin sutures were removed by 10th post-operative day.

Case II

A 6 year-old bullock was presented to the College Veterinary Clinic in December, 2009 with a complaint of anuria of 8 days duration, anorexia, and depression.

Clinical examination of the animal showed bilateral distension of abdomen and dehydration with rough dry hair coat and sunken eyeball. The skin pinch test at the neck revealed dehydration to more than 8% of body fluids. Per rectal examination showed the empty urinary bladder. The rectum was also empty with blood stained mucus. During per rectal examination fluid was felt in the abdominal cavity. For confirmation of fluid in the abdominal cavity paracentesis was done with 18 gauge hypodermic needle. On paracentesis fluid with urine smell escaped from the abdominal cavity. The case was diagnosed as

urethral obstruction with rupture of urinary bladder. The case was complicated since the animal had developed severe uremia, dehydration and uoperitoneam. Therefore a decision was taken to immediately operate the animal for post scrotal urethrotomy and repair of rupture of urinary bladder.

Treatment:

Post Scrotal Urethrotomy:

Anesthesia: local infiltration on mid line behind scrotum for a distance of 5-6 inches. Operative procedure: post-scrotal urethrotomy was performed. The penis was exteriorized and a calculus was felt behind sigmoid flexure in the urethra (Fig, 3) An incision was given on the urethra and the calculus of size a gram size was removed (Fig, 4).Afterwards an indwelling catheter was passed towards ischial urethra and the other end of the catheter was taken out from the prepuce. The urethra was sutured with 3/0 catgut in two layers by continuous pattern. The overlying subcutaneous tissues were apposed after sprinkling antibiotic powder and the skin was sutured with interrupted nylon. The catheter was anchored at prepuce. However, the animal was unable to get up immediately after urethrotomy. Hence the bladder repair was postponed till next day. The animal was given sufficient fluid therapy with antibiotic.



Fig 3: Urinary calculus located at the urethra



Fig 4: A calculus of size of a gram removed from urethra

Repair of ruptured bladder: the site of operation was in the posterior left flank in front of external angle of ileum. Local anesthetic infiltration was carried out and the operation was done in standing position. The left flank was opened for a distance of eight inch in length two inches below the transverse process of the lumbar vertebrae (Fig 5). After the incision of muscles and peritoneum it was seen that the urine was accumulated in the peritoneal cavity. The urine started coming out of the incision site (Fig 6).The urine was drained out by siphoning through a plastic pipe (Fig 7). Approximately 80 liters of urine was drained out. The urinary bladder was felt in the pelvic cavity. The bladder was found ruptured on ventral side. The vent in the bladder was sutured with 3/0 catgut blindly since the urinary bladder could not be exteriorized. After closure of the bladder it was observed that a small quantity of urine has accumulated in it. When the bladder was pressed the urine flowed through urethra normally. The muscles and the skin were sutured with catgut and nylon, respectively, by interrupted suture.



Fig 5: Posterior left flank incision for repair of ruptured urinary bladder



Fig 6: Escape of urine through incision site



Fig 7: Siphoning and draining of urine through a plastic pipe

Post operative care: Daily dressing of the wound and parenteral antibiotics were administered for 5 days. Plenty of fluid therapy was administered to the animal to correct the dehydration and uremia. The important thing in treatment of uroperitoneum is reversal of uremia. For this purpose the animal was administered with five liters of dextrose saline 5% daily which was impossible and not affordable to the owner. Hence the owner took the animal to his home. However the case recovered well without any complication.

Case III

An 8 year old bullock was brought to college clinic at Kelamino campus in December 2009 with a history of swelling on ventral side of abdomen around prepuce. The swelling has extended up to scrotum. The animal was unable to pass the urine freely. The appetite of the bullock was not affected.

Clinical examination of the bullock showed congestion of visible mucous membrane. The urine was dribbling. All physiological parameters were normal. Per rectal examination showed slight distension of urinary bladder. The case was diagnosed as urethral rupture and the animal was prepared for post scrotal urethrotomy.

The treatment and post operative care was same as described for case I.

Discussion

The clinical symptoms of the urolithiasis could be categorized in three forms.

Category I. Simple obstructive urolithiasis: in this category the patients showed anuria, difficult urination, straining and dribbling of urine (Fraser, 1991 and Radostits et al., 2003).

Category II. In this category there is a huge swelling at ventral abdomen around prepuce extending up to scrotum. (Case I & III) Here these cases showed subcutaneous infiltration of urine around penis. In case I & III the subcutaneous infiltration of urine has caused necrosis of penis and severe cellulitis leading to ischemia of skin. Radostits et al., (2003) opined that if the obstruction is not relived, perforation of urethra occurs and the urine leaks into connective tissue of the ventral abdomen wall and prepuce and causes an obvious fluid swelling resulting in a severe cellulitis and toxemia. The rupture of urethra is more common with irregular shaped stones causing partial obstruction and pressure necrosis of the urethral wall. However, no stone was detected in both the cases. The stone might have passed after necrosis of tissue.

Category III. The case II is categorized in this category. This includes patients with rupture of urinary bladder and associated symptoms of uremia and uroperitoneum. The round calculus found in case II has completely obstructed the urethra resulting in anuria and leading further to rupture of bladder. Similar results have been reported by Bhokre et al., (1985), Fraser (1991) and Radostits et al., (2003).

All cases were treated at college surgery laboratory by the standard operative procedure and treatment of uremia and agree with the findings of Bhokre et al., (1985), Tiruneh (2000) and Radostits et al., (2003) .Slatter (1985) opined that before specific surgical or medical treatment, the general condition of the patient must be assessed. Shock, anuria, dysuria, uremia, dehydration, electrolyte imbalances and anorexia must be recognized and corrected prior to definitive repair of the urethra or urinary tract.

All 3 cases of bovines operated for urinary obstruction survived. The case of ruptured bladder was an extreme case with no urination for 7-8 days but showed recovery.

Roman Tiruneh (2000) recorded varied results due to several reasons. Radostits et al., (2003) reported that only 35% of cases recovered in a series of 85

cases of surgical treatment of urethral obstruction in cattle and recommends slaughter if the ante mortem inspection is satisfactory. However, we feel that all attempts be made to save the animal in order to give maximum economic benefit to the farmers of this country.

References

- Bhokre A P., P.M.Kulkarni, S.M. Usturge, V.S. Panchbhai and L.B. Sarkate, 1985. Surgical management of urolithiasis in bovines with reference to some blood abnormalities... *Livestock Advisor*. 6: 46-50.
- Fraser, C. M., 1998. *The Merck veterinary manual*, Rahway, Merck and Co., Inc., 1143-1157,
- Radostits M., Gay C. C., Blood D.C. and Hunchcliff K.W. , 2003. *Veterinary Medicine* 10th edition, W.B.Saunders Company Ltd., 493-500
- Slatter, D.H., 1985. *Text book of small animal surgery*, W.B. Saunders Com., Santiago, California, 1807-1825,
- Tiruneh, R. 2000. A retrospective study on ruminant urethral obstruction in Debre Zeit area, Ethiopia. *Revue Medicine Veterinaire*, 2000, 151 (8-9), 855