Surgical Management of Urolithiasis in Male Buffalo Calves

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Abstract

25 Male buffalo calves with urolithiasis and subsequent uremia were managed with surgical intervention. The condition was corrected by tube cystotomy and post-operative feeding of Ammonium chloride. Out of 25 calves, 21 recovered and resumed normal urination after 15-35 days post-operative.

Keywords: Ammonium chloride; buffalo; calf; tube-cystotomy; urolithiasis

Introduction

Retention of urine or urolithiasis causes high mortality in buffalo calves as well as huge economic loss to farmers. Urolithiasis is common during winter seasons and generally diet, age, sex, breed, genetic makeup, season, soil, water quality/minerals and urinary tract infection plays important role in genesis of urolithiasis (Udall and Chow, 1969).

Urinary calculi/ uroliths are mineral concentrate formed in urinary tract. Occurrence of urolithiasis is more common in male animals compared to female due to anatomical composition. Retention of urine occurs at an early age in ruminants (Smith and Sherman,1994). The prevalence of urolithiasis may occur due to imbalance of mineral intake in feed as calves receive more cereals and concentrated feeds during growing period. These feeds contain more level of phosphorus and magnesium and relatively less level of calcium and potassium, as a result may lead to urolithiasis (Unmack *et al*., 2011).

Tube cystostomy along with medical dissolution of calculi is considered as an effective technique for resolution of obstructive urolithiasis in small ruminants. Advantages of this technique include simple procedure, fewer recurrences, preservation of reproductive function of animal and field friendly (Ewoldt *et al*., 2008).

Clinical Signs and History

25 Calves in the age group of 6-18 months were presented with history of anuria, anorexia, dehydration, signs of discomfort and distended abdomen.

Treatment/ Procedure

Epidural anesthesia was given with Lignocaine @ 2-8 mg/ kg body weight (Meyer *et al.,* 2007). Animals were kept on lateral recumbency with para medial right area was prepared for antiseptic surgery and site of incision was infiltrated with 2% Lignocaine. A linear skin incision was given (Fig. 1). Fascia, muscles and peritoneum were separated by scissors to open the abdominal cavity and bladder was located. The status of bladder was checked. If bladder was intact, a subcutaneous tunnel starting from anterior end of incision and parallel to the prepuce was made by passing straight artery forceps through the subcutaneous tissue opening near the preputial orifice. Foley's catheter of 18G/ 20G was passed through tunnel and stabbed at an acute angle into the bladder at an avascular healthy area (Fig. 2). Once the urine started to dribble through drainage channel then catheter bulb was inflated with sterile normal saline (20-30 ml) to fix the catheter tip inside the bladder. Alternatively, in cases of ruptured urinary bladder, cystorrhaphy was done with chromic catgut no 1 followed by placement after necessary debridement. Peritoneum, muscles and subcutaneous tissue were sutured with absorbable suture material. Skin was sutured with non-absorbable suture in routine manner (Fig. 3). The free excess hanging Foley's catheter was fixed near the opening with skin on the ventral abdomen (Fig. 4).

Post-operatively, Ceftriaxone-Tazobactum (Intacef Tazo[a]) @ 20 mg/kg b. wt. along with analgesic Meloxicam (Melonex[a]) (0.5 mg/kg b. wt.) and Vitamin B (Mecovet[b]) 2 ml were administered by

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a - Brand of Intas Animal Health, Ahmedabad
b - Brand of Carus Laboratories Pvt. Ltd., Karnal

Fig. 1: Linear skin incision

Fig. 2: Stabbed Foley's catheter

Fig. 3: Skin was sutured with non-absorbable suture in routine manner

Fig. 4: Free excess hanging Foley's catheter was fixed near the opening with skin on ventral abdomen

Fig. 5: After surgery

intramuscular route for five days. Ammonium chloride 500 mg/ kg b.wt. per day orally was given for one month. Local antiseptic dressing with Almizole WS[c] spray was applied twice daily till healing. The catheter was allowed to drain freely for five days; thereafter the owner was instructed to block the urinary drainage outlet of catheter to block the urine flow in order to determine the urethral patency. After normal urination through urethra resumed, the catheter was removed by deflating the bulb. The skin sutures were removed after ten days (Fig. 5).

Result

Out of 25 calves 4 calves died after 6-24 hours of surgery, 21 calves survived and started urination from natural orifice after 15-35 days.

Conclusion

Tube cystostomy along with oral administration of Ammonium chloride has good success rate in management of cases of urinary obstruction in buffalo calves in field condition.

c - Brand of Alembic Pharma Ltd., Mumbai

References

Ewoldt, J.M., Jones, M.L. and Miesner, M.D. **(2008)**. Surgery of obstructive urolithiasis in ruminants. *Vet. Clin. N. Am. Food A.* **24**: 455-65.

Meyer, H., Starke, A., Kehler, W. and Rehage, J. **(2007)**. High caudal epidural anesthesia with local anesthetics or alpha (2)-agonists in calves. *J. Vet. Med. A Physiol. Pathol. Clin. Med.* **54**: 384-89.

Smith, M.C. and Sherman, D.M. **(1994)**. Urinary system, p. 398-402. In: Cann, C.G. (ed.) *Goat Medicine*. Philadelphia, Lea and Febiger Reproduction. **134**: 683-93. DOI: 10.1530/REP-07-0229

Udall, R.H. and Chow, F.H. **(1969)**. The etiology and control of urolithiasis. *Adv. Vet. Sci. Comp. Med.* **13**: 29-57.

Unmack, A. **(2011)**. Constituents of calculi from the urinary tract of bulls and bullocks. Evidence of silica urolithiasis in cattle in Denmark. *Kongeli Veterinaer-og Landbohoiskoles Aarsskrift* **1963**: 1-12.

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