

## SURGICAL TECHNIQUE FOR THE MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A BUFFALO CALF: A CASE REPORT

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### ABSTRACT

In the present study a technique of tube cystostomy using Foley's catheter in terms of tolerance by the animal and overall outcome of the patient suffering from obstructive urolithiasis is reported and discussed. Foley's catheter was blocked permanently when free flow of urine was observed through urethra. Post-operatively, the calf remained in good health. Foley's catheter was removed by pulling after deflating its balloon on 12 days after the free flow of urine had established. The wound healed uneventful and small opening left after removal of Foley's catheter was dressed antiseptically until healing. Tube cystostomy and oral administration of tablets ammonium chloride along with cystone were resulted in speedy and uneventful recovery.

**Keywords:** Foley's catheter, tube cystostomy, obstructive urolithiasis, buffalo

result in increased concentration of less soluble crystalloids in the urine (Osborne and Kruger, 1984). A single urolith/calculus is usually responsible for obstruction in cattle, but sheep are normally affected by multiple calculi blocking the urethra for several centimeters leading to rupture of urethra or urinary bladder. Fatality rate in urolithiasis due to rupture of the urethra or urinary bladder is very high and so is the economic impact of this disorder (Gasthuys *et al.*, 1993; Radostitis *et al.*, 2000). Tube cystostomy is a less expensive procedure, which can be performed easily, require less time and preserve breeding ability. However, problem of ascending infection, recurrent obstruction and displacement of the tube by the animal may occur (William and White, 1991). The utility of the tube cystostomy with medical dissolution of urethral/cystic calculi has been reported (Singh, 2005; Ansari and Moulvi, 2009). The present paper describes obstructive urolithiasis and its surgical management in a male buffalo calf and puts on record.

### INTRODUCTION

Urolithiasis is defined as the formation of uroliths as a consequence of multiple congenital and/ or acquired pathophysiological process that

### CASE HISTORY AND OBSERVATIONS

A male buffalo calf of three and half months age presented with the complaint that there

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was only few drops of urine passed or none at all for the last 72 h despite making painful attempts and showing signs of uneasiness. The calf was in poor condition and off-feed. Physical examination revealed there was marked pitting edema on ventral abdominal area and penis could not be extruded due to marked subcutaneous edema (Figure 1). Percutaneous massage of penis did not provide any relief except the removal of some minute particle through external orifice. Examination of the preputial orifice has disclosed chalky white flakes precipitated of the preputial hairs and resemble calculi in shape. On the basis of clinic-physical examinations the animal was diagnosed as suffering from obstructive urolithiasis. Keeping in view the fact of the complete blockage of the urinal passage may result in rupture of urethra or the bladder, it was decided to performed tube cystostomy using Foley's catheter to correct the disorder.

## SURGICAL TECHNIQUE

Paramedian anterior to the brim of the pubis was shaved and prepared for aseptic surgery. The animal was restrained in right dorsolateral recumbency. The animal was operated under lumbosacral epidural analgesia, induced with 3.5 ml of 2% lignocaine hydrochloride (Xylocaine, Astra-IDL, Bangluru). This is usually accomplished using the "hanging drop" or the "lack of resistance" technique during injection (Figure 2). Additional local infiltration analgesia at the site operation was done as and when required. An incision was made at the caudal-ventral abdomen, lateral and parallel to the penis. Abdominal muscles were separated by dissection. A Foley's catheter (no.14) (Uro-cath, Romsons Medicons, Agra) was passed through a subcutaneous tunnel of about 8 inch in length

parallel to the penis up to the level of preputial orifice and brought up to the site of the incision. A K-wire was anchored in the eye of Foley's catheter and it was inserted into the bladder through its ventral aspect with a sudden thrust without incising the urinary bladder (Figure 3). After insertion of the catheter its balloon was inflated by infusing 10 ml of sterile physiological normal saline to prevent it from dislodgement from the bladder and the K-wire was pulled out slowly. The laparotomy incision was sutured in standard procedure and the catheter was fixed to the abdominal wall with simple interrupted sutures along the length of the tube (Figure 4). The post-operative care included daily dressing of the skin wound with 0.5% povidone iodine solution till healing. Antibiotic cover with injection Ampicillin plus Cloxacillin at the dose rate of 5 mg/kg (AC Vet, Intas Pharma, Ahmedabad) used twice in a day intramuscularly for 7 days, injection Meloxicam at the dose rate of 0.2 mg/kg (Melonex, Intas Pharma, Ahmedabad) body weight intramuscularly once daily for 5 days, injection vitamin A (Intavita, Intas Pharma, Ahmedabad) 2 ml intramuscularly on six day interval for three time. Tablet ammonium chloride 500 mg/kg body weight and tablet cystone 3 tablets in thrice in a day orally for 10 days were advocated. Foley's catheter was blocked permanently when free flow of urine was observed through urethra. Post-operatively, the calf remained in good health. Foley's catheter was removed by pulling after deflating its balloon 12 days after the free flow of urine had established. The wound healed uneventful and small opening left after removal of Foley's catheter was dressed antiseptically until healing.



Figure 1. A buffalo calf suffering from urolithiasis.



Figure 2. Hanging drop technique during lumbosacral epidural analgesia.



Figure 3. Placement of Foley's catheter into the bladder With the help of K-wire.



Figure 4. Fixing of the external part of the Catheter with abdominal wall after completion of tube cystostomy.

**RESULTS AND DISCUSSION**

The case was attended instantly without delay as the complete blockage of urinary passage may result in rupture of urethra or the bladder. The Foley's tube cystostomy was performed in this as advocated by William and White (1991) in dog and cat. Foley's catheter was much flexible and its inflated balloon or cuff covered the entire circumference of the catheter, which prevented leakage of urine. This is in agreement with the findings of Singh (2005). Foley's catheter was well tolerated by the buffalo calf. The surgical maneuvering of the bladder through para-median was found easier when the calf was kept in dorsolateral recumbency as reported by Ansari (2005). Difficulty in placing the catheter and suturing of bladder as observed in other approaches (Prasad *et al.*, 1978) could be overcome since the bladder lies very superficially and can be approached conveniently. The abdominal wound healed without any complication in 12 days and calf urinated through the urethra without any difficulty. Additional combination therapy can be considered more fruitful in combating uraemic toxæmia primarily due to bladder rupture. Ammonium chloride was used for acidification of the urine to induce dissolution of the calculi. The efficacy of ammonium chloride in the management of urolithiasis has been described by others also Jones *et al.* (2009). Cystone tablet by virtue of its marked diuretic action would have contributed to the diuresis. No occurrence of urolithiasis or other condition leading to retention of the urine was observed. Author is of the opinion that post-operative oral administration of ammonium chloride and cystone tablets might have helped to avoid recurrence. Similar observation has earlier been reported by Ansari (2005) in a cow calf.

**REFERENCES**

- Ansari, M.M. 2005. Surgical management of obstructive urolithiasis in a calf. *Vet. World*, **4**: 73-75.
- Ansari, M.M. and B.A. Moulvi. 2009. Surgical technique and management of obstructive urolithiasis in a lamb. *Intas Polivet*, **10**: 307-309.
- Gasthuys, F., M. Steenhaut, A. De Moor and Sercuk. 1993. Surgical treatment of urethral obstruction due to urolithiasis in male cattle: A review of 85 cases. *Vet. Rec.*, **133**: 522-526.
- Jones, M.L., R.N. Streeter and C.L. Goad. 2009. Use of dietary cation anion difference for control of urolithiasis risk factors in goats. *Am. J. Vet. Res.*, **70**: 149-155.
- Osborne, C.A. and J.M. Kruger. 1984. Initiation and growth of uroliths. *Vet. Clin. N. Am.*, **14**: 1400-1404.
- Prasad, B., S.N. Sharma, J. Singh and R.N. Kohli. 1978. Surgical repair and management of bladder rupture in bullocks. *Indian Vet. J.*, **55**: 905.
- Radostitis, O.M., D.C. Blood, C.C. Gay and K.W. Hinchcliff. 2000. *Veterinary Medicine: a text book of disease of cattle, sheep, pig, goat and horses*. Bayllieri Tindall, London. 1877p.
- Singh, T. 2005. *Studies on aetiopathogenesis and surgical management of urolithiasis in goats*. Ph.D. Thesis, IVRI, Izatnagar, India.
- William, J.M. and R.A.S. White. 1991. Tube cystostomy in dog and cat. *J. Small Anim. Pract.*, **32**: 598-602.