

## Surgical Management of Obstructive Urolithiasis in a male Cow calf

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### Introduction

Urinary calculi, or uroliths, are concretions of solid mineral and organic compounds that cause disease through direct trauma to the urinary tract and obstruction of urinary outflow. Urinary calculi formation usually results from a combination of physiologic, nutritional and management factors. It is mainly attributed to excessive or imbalanced intake of minerals (Larson 1996, Radostits et al. 2000). Obstructive urolithiasis means the formation of calculi in the urinary tract with subsequent urinary blockage by uroliths (Payne 1989, Radostits et al. 2000). It is a common and frustrating problem in small and large ruminants for owners and veterinarians. It appears to affect equally both sexes, but urinary blockage is an important problem only in males because of the anatomical conformation of their urinary tract (Larson 1996). In cattle, urethral obstruction typically occurs at the level of the sigmoid flexure. Mortality rate of obstructive urolithiasis in suffering animals due to rupture of the urethra or urinary bladder is very high (Gasthuys *et al.*, 1993). The surgical management of obstructive urolithiasis in male cow calves and buck includes urethrotomy, cystotomy or urethrostomy. The present study place on record, a typical case of obstructive urolithiasis in cow calves and in buck and its surgical management.

### Case History

A six month old zebu cow calf was presented to the department with a complaint of not passing urine and discomfort since last 24 hrs. Animal showed uneasiness and abdominal pain manifested by straining, kicking at the belly, twitching of the penis and frequently attempt to urination.

### Clinical observations

The animal showed urination by dribbling,

elevated body temperature, increased heart rate and respiration rate. On per rectal examination urinary bladder was found to be distended. On clinical examination, animal was found to be dehydrated with abdominal distension. The case was tentatively diagnosed to be of obstructive urolithiasis and it was decided to perform post-scrotal urethrotomy.

### Surgical procedure

After aseptic preparation postscrotal urethrotomy was performed under posterior epidural anaesthesia which was achieved using 6 ml of 0.5% bupivacaine hydrochloride. After aseptic preparation of the site, an incision of about 7-8 cm long was made through skin and subcutis exactly on the midline in the post-scrotal region. Incision was deepened through the fascia between the two retractor penis muscles, through the bulbocavernosus muscle and corpus cavernosum urethrae. Urethra was incised just above the seat of obstruction and it was removed (Fig-1). After removing the urolith, a suitable sized sterilized polyethylene tube was passed anteriorly towards the bladder and posteriorly towards the external urethral



Figure-1: Obstructive calculus in urethra of calf.

orifice and was fixed at the orifice. The urine flow from the tube was continued till the completion of the surgical procedure. Post operatively I/M injections of streptopenicillin 1 gm for 5 days, meloxicam 5 ml for 3 days, Vitamin B complex 5 ml for 3 days was given. Daily dressing of wound was done with betadine ointment and liquid. Polyethylene tube was removed on 5<sup>th</sup> postoperative day and skin sutures were removed on 8<sup>th</sup> postoperative day.

#### Discussion

The treatment of obstructive urolithiasis is primarily surgical (Larson 1996, Van Metre et al. 1996). The animal recovered completely after removal of the calculi and normal flow of the urine was re-established. The healing was uneventful in a time span of 10 days. Urolithiasis occurs especially in cattle receiving rations high in cereal grains, oil meals or grazed in pastures containing large quantities of oxalate, estrogen or silica (Radostits *et al.*, 2000). In present case, the calf was solely fed with paddy straw, rice bran besides grazing in the field. Paddy straw is very rich source of oxalates if it is given without urea treatment. The owner of the animal was giving paddy straw without urea treatment which might be responsible for causation of urolithiasis. Further, no mineral supplementation was done in the diet of the animal leading to calcium-phosphorus imbalance in the feed. Similar observations have also be reported by Larson (1996). The surgical treatment was adopted as per the standard procedure outlined by Kumar (1996).

Dilution of calculogenic ions in the urine is of primary importance in prevention of urolithiasis in ruminants. It is important to impress upon owners the importance of encouraging increased water consumption in ruminants at risk for urolithiasis. Adding sugar-free flavoring to the water may encourage increased intake. The water containers should be regularly and vigorously cleaned to maintain water palatability. Allowing access to pasture or browse may increase dietary water intake. The salt content of the diet can be gradually increased to promote water intake and formation of large volumes of dilute urine. Thus, immediate surgical intervention in cases of obstructive urolithiasis in bullock could be very useful in preventing the mortality due to this ailment.

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