TUBE CYSTOTOMY FOLLOWING URETHRAL OBSTRUCTION IN A CROSSBRED CALF - A REPORT

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SUMMARY
Three jersey cross bred calves aging 3-12 months were clinically diagnosed as cases of urolithiasis and the confirmation was made by kidney function tests coupled with ultrasonography. The massive bilateral distension and urine thrill was relieved by abdominal paracentesis by trocharization. This helped relieving intra-abdominal pressure and decreasing the uraemic threat in the animals and helped to prepare the animals for surgery. The surgical judgment demanded tube cystotomy due the presence of massive gritty and multiple sized calculi in the entire course of urethra and urinary Bladder. The detailed treatment protocol is documented

Introduction
Urolithiasis is defined as the formation of urolith anywhere in the urinary system. The disease is reported worldwide and occurs in all species of the animals but has most frequently been recorded in feeder steer and lambs. Consequent to urethral obstruction urine accumulates in the bladder in pace with duration of obstruction and vesicoureteral reflex occurs and an Intracystic pressure is build up in the bladder. In ruminants, obstructive urolithiasis can be successfully treated if diagnosed earlier (1). Prolonged, unrelieved pressure may lead to respiratory compromise, renal impairment, cardiac failure, shock, and death. Abdominal compartment syndrome another name is diagnosed by measuring intra-cystic pressure as a reflection of intra-abdominal pressure. For the management of urolithiasis the first 48 hours are extremely important for enhancing survival rate of such animals (2, 3). Beyond which the urine accumulates in the bladder resulting in development of intracystic pressure which opposes glomerular filtration pressure and results hydronephrosis. Different approaches have been documented in the literature for the treatment of condition depending upon the clinical status, kidney function tests and position of calculi in the urinary conducts. Tube cystotomy can be achieved via flank approach, ventral abdomen, post scrotal and sub ischial (4, 5). The present paper documents the placement of catheters via flank approach for the management of urolithiasis in three calves successfully.

Case history
Three male calves aging 3-12-month with history of urinary retention for 3-5 days were presented, treated at Teaching Veterinary Clinical complex Shuhama. The animals were having Crouching Posture, Slight tenderness of abdomen, urinary thrill, dribbling of urine and bilateral abdominal distension (Fig 1). The animals were having Blood Urea nitrogen (BUN) level Up to 100 and Creatinine up to 2 mg
The calves were diagnosed with obstructive urolithiasis after clinical examination and ultrasonography (USG). On USG there was rupture of bladder and accumulation of fluid inside abdomen (Fig 2). On palpation there was a fluid thrill. The animals were subjected to abdominocentesis, which demanded tube cystotomy as a measure to cure the ailment.

**Material and Methods**

Urethrotomy, either post scrotal or post-ischial at the site of calculi lodgment is widely recommended and practiced to relieve the obstruction. However, postoperative leakage of urine from the site of obstruction leads to necrosis of urethra and subcutaneous tissues. The technique of tube cystotomy is a method of fixation of tube in the urinary bladder for the free passage of urine, followed by chemical dissolution of calculi which shows excellent results (6). All the calves of this group were premeditated using Triflupromazine (Siquil)\(^1\) @ 0.05mg/kg b.wt intravenously, to achieve sedation. The calves were put in dorsal recumbency. The site was prepared aseptically in conventional manner. About 10ml of Lignocaine hcl 2%\(^2\) were infiltrated at the sites using linear infiltration technique.

Ventral abdomen approach was done, bladder was approached. On exteriorization Bladder was having trabaculae formation and there was leakage of urine as shown in (Fig 3). Catheter/tube was placed inside the bladder with the help of cannula (Fig 4), stay sutures were applied and the bladder was sutured with vicryle 2-0 suture material. Then peritoneum and muscles were sutures, the skin was sutured with interrupted sutures. External end of the tube was cleaned and animal was made to stand (Fig 5).

1. Siquilinj 20mg/ml, Sarabhai Zydus.Private Ltd, INDIA.
2. Lignocaine hcl inj IP 2%, ASTRAZENECA PHARMA LTD.

Urine started coming out from the tube and thus the tension on bladder was relieved. Post-operatively animals received injections of Ampicillin-cloxacillin\(^3\) and Meloxicam\(^4\) @ 12 mg/kg and 0.5mg/kg b.wt. Respectively intramuscularly for 7 days.

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**Fig (1) Calf presented with obstructive urolithiasis**

**Fig (2) Calf suffering from obstructive urolithiasis being put to Ultrasonography**
Result and Discussion

The treatment of obstructive urolithiasis is primarily surgical however it varies in case of sheep and goats as they manifest partial urinary obstruction and due to the presence of urethral process. Tube cystotomy is cheaper and safer than standard tube cystotomy however swelling at the site of operation could occur which is due to increased vascular permeability at the site in response to the release of vasodilators like prostaglandins, bradykinin and histamine, resulting from post-surgical inflammatory reaction.

The cases presented a very high urea nitrogen and creatinine levels (Pain is a natural body response to tissue injury and inflammatory processes. Moderate pain, noticed at 24 post-operative hours which can be managed. Urolithiasis occurs especially in cattle receiving rations high in cereal grains, oil meals grazed in pastures containing large quantities of oxalate, estrogen of silica reported by(6,7). In present case, the calf was solely fed with grains, rice bran besides grazing in the field. The owner of the animal was grains (concentrate feeding) responsible for causation of urolithiasis.
Further, no mineral supplementation was done in diet of animal leading to calcium-phosphorus imbalance in the feed as mentioned by (8). The ration should be modified, which includes elimination of alfa-alfa feeding, reduction or elimination of grain feeding, a change to grass hay as primary forage, encouragement of grazing and ammonium chloride supplementation (9). The animal recovered completely after normal flow of the urine was reestablished. The healing was uneventful in a time span of 10 days.

3 AC-Vet Forte, 3g vial, and 4 Melonex, 30 ml vial. Intas Pharmaceuticals Ltd, 2nd floor Ashram road, Ahmadabad- 380009, INDIA.

Conclusion

Urolithiasis is a common disease of male calves, sheep and goats in Kashmir causing significant losses to livestock owners. Treatment continues to challenge clinicians, due to mortality and numerous postoperative complications and reoccurrence. Tube cystostomy is a practicable, quick and reliable method for the management of obstructive urolithiasis in cattle. Tube cystostomy is cheaper and safer than standard tube cystostomy for the management of obstructive urolithiasis in calves, especially in field conditions (10). The animal micturated normally after 10 days and the catheter/tube was safely removed. (10) has reported that seven in 8 animals that underwent cystotomy were discharged performed sound follow-up revealing cystotomy followed by a proper dietary management is a more effective long-term solution for the disease. The haemoglobin (Hb) values varied from 7.6 mg/dl to 10.3 mg/dl on day 0 and followed a slight declining trend towards recovery. The values were very consistent, however clinically an improvement was noted. PCV values followed the same trend and varied from 30.8 to 35.1% in different groups of animals and reduced to 29.1 and 32.5% in different groups of animals. The elevated Hb and PCV, in confirmed cases of urolithiasis may be due to haemoconcentration and dehydration (11)

References


