

SURGICAL MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A BITCH: A CASE REPORT

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A Spitz female dog aged seven years was presented with a complaint of haematuria and dribbling of urine since last 5 days. Abdominal palpation revealed a distended urinary bladder. Radiographic examination showed 3-4 large radiodense calculi in the urinary bladder. The owner was advised for the emergency surgical removal. Cystotomy was performed under general anaesthesia using atropine-xylazine-ketamine and uroliths were removed by cystotomy. Cystotomy wound and laparotomy incision were closed routinely. Post-operatively antibiotics and analgesics were given for 5 days and skin sutures were removed on 10th post-operative day.

Keywords: Bitch, Cystic calculi, Cystotomy.

Urolithiasis has been considered as a consequence of various causative agents that increase concentrations of less soluble crystalloids in urine. The formation of uroliths has been attributed to interaction of multiple physiological and pathological processes (Osborne *et al.*, 1996). Urolithiasis describes the concretion of urinary calculi or organic compound, which may lodge any where in the urinary system (Arulpragasam *et al.*, 2013). Small sized urolith may pass through urine without causing obstruction while larger sized urinary stones often get struck up in the urinary tract thereby leading to clinical syndrome (Ettinger and Feldman, 2000). The urinary obstruction is more common in 5-7 years of age group. But bitches are also prone for occurrence of few types of Uroliths (Linda *et al.*, 2011). Lower urine volume and fewer numbers of micturitions resulting in increased mineral concentrations in smaller breed dogs compared with larger breed dogs may predispose for uroliths (Stevenson *et al.*, 2001). Cystotomy is the most common procedure to remove cystic calculi in small animals. For permanent resolution of the problem, removal of obstructing calculi is indicated using a suitable technique depending upon the site of obstruction and condition of the patient.

Case History and Observations

A 7 year old spitz female dog was presented to Teaching Veterinary Clinical
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Complex, C. V. Sc. & A.H., OUAT, Bhubaneswar with the complaint of haematuria and dribbling of urine since last 4 days. On physical examination the bitch was dehydrated, tense abdomen attributed to pain and distended urinary bladder with crepitation and a grating sensation. Hematological findings revealed anaemia (Hb = 7.7 gm/dL), increase in packed cell volume (64%) and neutrophilia (88%). Biochemical parameters revealed mild increase in values of blood urea nitrogen (33mg/dL), serum creatinine (2 mg/dL), SGOT (24U/L) and SGPT (137 U/L). Suspecting the case of urolithiasis, the patient was subjected to radiographic examination which confirmed the presence of 3-4 big radiodense triangular shaped calculi completely packed in the urinary bladder (Fig. 1).

Hence, an emergency cystotomy was planned to retrieve the cystic calculi.

Surgical Treatment

The animal was premedicated with atropine @ 0.04mg/kg I/M and xylazine @ 1 mg/kg I/M followed 10 minutes later with by ketamine @ 5 mg/kg I/M. With the animal restrained in ventral recumbency, cystotomy was performed at paramedian site. The urinary bladder was isolated and packed with sterile sponges. Prior to surgery urine was removed from the bladder using 20 gauge needle attached to a 20ml syringe to prevent abdominal contamination. The bladder was temporarily immobilized by two stay suture

(cranial and caudal) including serosa to submucosa in the apex and neck. The bladder was incised with blade and then extended with scissor. Upon incising the bladder wall ventrally, the uroliths were removed. Retrograde urohydropulsion was done using a metallic catheter to remove any other small

sized calculi, debris or casts inside the urethra. Cystotomy incision was closed in Lambert pattern followed by abdominal muscle closure in simple continuous manner using catgut no. 1 while the skin incision was closed by application of horizontal mattress sutures using braided silk.



Fig. 1: Radiograph showing pyramid shaped uroliths in the bladder



Fig.2: Removed uroliths after surgery

Postoperatively ceftriaxone 20mg/kg I/M for 5 days, meloxicam 0.5mg/kg I/M was administered for 3 days and oral cystone tablets for 1 month. Antiseptic dressing of surgical wound was done by povidone iodine daily for 10 days till removal of skin sutures.

Results and Discussion

The removed big calculi were white (dehydrated) colour, pyramidal or platey mica forms (Fig.2). By estimating the mineral content of the stone was predicted as struvite. They are potentiated by alkaline urine and high magnesium excretion. Also by bacterial infection that hydrolyzes urea to ammonium and raises urine pH to neutral or alkaline. The dog showed complete recovery in a period of 15 days. Uroliths are most commonly seated in the bladder or urethra in dogs. Radiography usually makes a definitive diagnosis in cases of urolithiasis and they are best managed by surgical methods.

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