

# DIAGNOSIS AND SURGICAL RETRIEVAL OF TWO LARGE SIZED URINARY CALCULI IN A DOG

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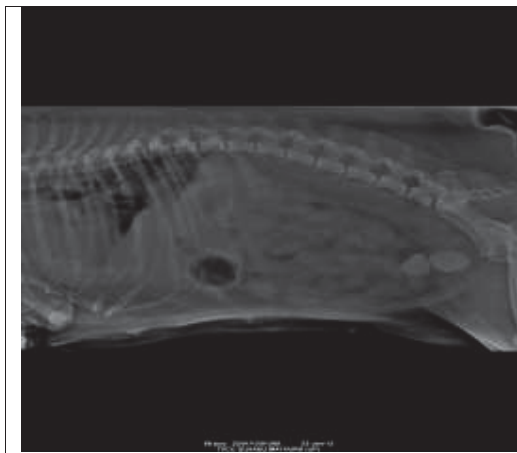
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Urolithiasis refers to the condition of having urinary calculi or uroliths in kidney, ureter, bladder or urethra. Uroliths composed of calcium oxalate monohydrate and calcium oxalate dihydrate form as a result of the interaction of several environmental and demographic factors, and metabolic disturbances. These stones and crystals can form anywhere in the urinary tract of the dog, including the kidney, urethra, or most commonly, the bladder. In dogs, a predisposition for the increased incidence in small breeds has been reported (Osborne *et al.*, 1999). Lower urine volume and fewer numbers of micturation resulting in increased mineral concentrations in smaller breed dogs

compared with larger breed dogs may cause the predisposition (Stevenson *et al.*, 2001).

A pug dog aged 4 years and weighing 10 kg was presented with the history of haematuria, painful urination and dribbling of urine since last 10 days. On abdominal palpation, a large hard structure was palpated. An abdominal radiograph revealed two large calculi inside the bladder (Fig.1). The complete blood count revealed little neutrophilia. General condition, appetite, capillary refill time and other physiological parameters were within normal physiological limit. It was decided to perform laparocystotomy to retrieve the uroliths.



**Fig.1 Radiograph showing two large sized calculi in urinary bladder**



**Fig.2. Retrieval of calculi from the bladder**

The dog was prepared for surgery following aseptic preparation of ventral abdomen. The animal was premedicated with

atropine sulphate (0.03mg/kg, im) and after 10 min, xylazine (1 mg/kg, im) was administered. Induction and maintenance of

anaesthesia was achieved with a mixture of diazepam (0.25mg/kg, iv) and ketamine (5 mg/kg, iv). The animal was restrained in dorsal recumbency. Laparotomy was performed via caudal midline incision of about 6 cm length. An incision was made on the dorsal wall of the bladder and two large calculi were removed (Fig.2). The exposed mucosa appeared to be slightly thickened and hyperemic. A urinary catheter was introduced from surgical site into urethra for confirmation of urethral patency and removal of calculi in urethra if any. Sterile saline solution was vigorously flushed through the urethral catheter. Fluid was suctioned as it entered the bladder, and any calculi that may have been forced into the proximal urethra were identified and removed. The bladder wall was closed with polyglactin 910 no. 2/0 in two layers inverting pattern (Radasch *et al.*, 1988). Peritoneum, muscles and subcutaneous tissue were sutured with simple continuous pattern using 1-0 Vicryl (polyglactin 910) suture material and skin was sutured with nylon. Dog was postoperatively administered tab. norfloxacin (22 mg/kg OD) for 7 days and tab. cystone (½ tab OD) for 10 days. After three days of surgery, urinary catheter was removed and wound dressing was advised with povidone iodine solution till complete healing. Skin sutures were removed on 12<sup>th</sup> day, postoperatively and the animal made an uneventful recovery.

A high protein diet increases hepatic production of urea thereby increasing urea

concentration in urine and renal medulla which is the well documented fact that dogs passing concentrated urine are more prone to developing urethral obstructions (Hand *et al.*, 2000). The recurrence rate of uroliths after one year was about 36% (Lulich and Osborne, 1995). With such a high recurrence rate, medical management, dietary modification and constant monitoring which are the necessary objectives regarding postoperative care and management.

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