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Clinical Article

SURGICAL MANAGEMENT OF MULTIPLE CYSTIC CALCULI IN LABRADOR FEMALE DOG –A RARE CASE STUDY

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SUMMARY

A seven-year-old female Labrador was presented to the Department of Veterinary Surgery and Radiology, College of Veterinary Animal Sciences, Udgir with a history of haematuria and dysuria since three days along with anorexia and abdominal discomfort. Clinically, all physiological parameters were in normal range, however abdominal palpation revealed hard consistency at ventral abdomen. Lateral radiographic examination of abdomen showed presence of multiple urinary bladder calculi. On basis of history, physical and radiographic examination, the dog was operated for cytotomy for removal of bladder calculi. To conclude, the female Labrador dog was having multiple cystic calculi causing haematuria and abdominal discomfort and it was successfully removed via cystotomy without complications.

Keywords: Bladder, Calculi, Creatinine, Cystotomy, Labrador

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Uroliths are collections of crystalline and noncrystalline solid particles seen in the urinary tract (Koehler *et al.*, 2009) and is a common cause of disease in the lower urinary tract (urinary bladder and urethra) in dogs and cats (Slatter, 2003). Urethral blockage from stones is more common in males, and the clinical signs vary depending on the obstruction; the bladder rarely ruptures, resulting in uroabdomen (Dehmiwal *et al.*, 2016). The two most frequent canine cystolith types are struvite and oxalates (Fossum, 2013). Struvite and calcium oxalate uroliths frequently contain calcium phosphate as a small component. Phosphate has been described as the primary component of canine urolithiasis, particularly uroliths in female dogs and the bladder is where phosphate uroliths are most frequently seen (Singh *et al.*, 2001). The inorganic protein core of the urolith that facilitates initial formation, crystallisation inhibitors organic and inorganic crystallisation inhibitors may be absent or dysfunctional in animals with uroliths (Scott, 2016). The surgical choices for female dogs are cystolithectomy and cystolithoectomy over urethrotomy for male dogs (Fossum, 2013). The present case paper puts record of rare case of cystic calculi in female Labrador dog and its successful surgical management.

A seven-year-old female Labrador was presented to the Department of Veterinary Surgery and Radiology, College of Veterinary Animal Sciences, Udgir, Maharashtra, with a history of haematuria and stranguria since three days accompanied with anorexia and abdominal discomfort. The heart rate, temperature, and respiration rate were all in the normal range. The blood picture showed leukocytosis (19,000 cells/cmm), neutrophilia (94%), blood urea nitrogen (84 mg/dL) and creatinine level (2.9 mg/dL) level was in higher side indicative of compromised function of urinary system.

Thorough physical examination of abdomen revealed distention and discomfort on deep palpation. Abdominal radiography revealed multiple radio-opaque oval calculi with multiple tiny calculi in the urinary bladder (Fig. 1). Following premedication with atropine sulphate 0.04 mg/kg body weight and sedation with Xylazine @ 1 mg/kg body weight intramuscular followed by Diazepam 0.5 mg/kg body weight was given intravenously. After 10 minutes induction achieved with propofol @ 4 mg/kg body weight andsurgical anaesthesia was maintained with 2% isoflurane in 100% oxygen.

The ventral midline was aseptically prepared for surgery and celiotomy was performed via linea Alba approach. The distended urinary bladder was gently palpated (Fig. 2) and urine was evacuated with sterile 20G hypodermic needle connected to IV infusion set to relieve pressure on distended bladder. After cystostomy incision, there were several calculi along with large calculi were retrieved (Fig. 3) without damaging the bladder mucosal lining. The bladder lumen was lavaged with sterile normal saline aiming to remove all cellular debris as well as to check the urethral patency. After thorough examination of bladder lumen, the surgical incision was closed with double inversion suture pattern (Cushion followed by lambert suturing) by using PGA Suture No. 3-0. The celiotomy wound was sutured with simple interrupted

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pattern followed by subcuticular suturing by using PGA-3-0. Postoperatively, dog received Inj. Ceftriaxone at the dose rate of 20 mg/kg body weight and Inj. Meloxicam @0.2 mg/kg body weight was given subcutaneously once. Skin sutures were removed after 10th of surgery day and dog assumed normal urination.

Animal's post-operative recovery went quite well. Struvite stones, or magnesium ammonium phosphate hexahydrate, are typically white to light yellow in colour. They typically manifest in the bladder as numerous huge stones or as single, massive stones. Struvite stones are circular with a smooth surface, frequently multiple but occasionally solitary and quite large. They are radiopaque and can be seen clearly. Urolithiasis requires a survey abdominal radiography or ultrasound for confirmation. If the urolith is large enough to restrict urine flow, medical disintegration is impossible and surgical removal is required (Yadav *et al.*, 2011).

Surgical treatment is thought to be more beneficial in the treatment of canine urolithiasis (Fossum, 2013 and Saharan *et al.*, 2018). In present case, the nature and gross appearance of cystic calculi and the available literature in female dogs suggestive of struvite type of cystic calculi. However, it was quickly identified by radiography and not connected to a urinary tract infection. Dogs must consume diets that maintain acidic urine and lower urinary phosphate and magnesium levels (Uma *et al.*, 2018).

According to Osborne *et al.* (2010), female dogs (85%) are overpresented because they are more likely to get urinary tract infections. Due to the perception that surgical management of uroliths is more effective, less expensive, quicker to relieve clinical signs, and won't be associated with urethral obstruction that could occur as uroliths decrease in size with medical dissolution, some veterinarians prefer to remove uroliths surgically and surgical intervention is the best option to treat cystic calculi (Suryawanshi *et al.*, 2009). Therefore, surgical removal was performed in the present case, which resulted in effective management. To avoid a cystolith recurrence after surgical intervention, regular health check-up and nutritional care is necessary (Uma *et al.*, 2018). To conclude, a seven year old female Labrador dog was presented with history of haematuria and dysuria accompanied with anorexia and abdominal discomfort which was diagnosed as multiple cystic calculi and treated successfully via cystotomy which put a record of rare case in female dogs.

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