

SURGICAL MANAGEMENT OF URINARY BLADDER DIVERTICULUM IN A DOG

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SUMMARY

Pomeranian male dog of one year age, weighing approximately 12 kg was presented by an owner at Bhopal Pet Care and Research Center with complaints of stranguria, dysuria and anorexia. Physical examination revealed severe abdominal distension and dehydration. On abdominal ultrasonography a slight pneumo-peritoneum with mild ascites was noticed. The urinary bladder was moderately filled with irregular and thickened sub mucosal and mucosal wall. No sediments or uroliths were seen. Urinary bladder was visualized as divided into two pouches forming a diverticulum in diagnostic imaging. Surgery was planned under general anaesthesia. Adhesions of urinary bladder diverticulum were removed. Dog recovered uneventfully. Present case reported successful surgical management of urinary bladder diverticulum in a dog.

Keywords: Diverticulum, Dog, Urinary bladder

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Bladder diverticulum is pouch-like inversions or invaginations of the bladder wall that arise as congenital defects or from acquired lesions. Acquired diverticulum are uncommon in dogs and have been associated with traumatic injury to the urinary bladder and outflow obstructions, diverticulum can result in obstructive outflow problems due to urolith formation, chronic bladder infection or malignant transformation. Laparotomy and diverticulectomy was performed under general anesthesia using diazepam @ 0.5 mg/kg I/V and ketamine @ 5 mg/kg I/V premedicated with atropine sulphate @ 0.045 mg/kg b.wt and xylazine HCl @ 1 mg/kg b.wt. Laparotomy incision showed no changes in the abdomen other than grossly abnormal urinary bladder adhesions. The urinary bladder was severely distended and seemed atonic when palpated. On cystotomy a large diverticulum consisting of mucosal fibrosis and adhesions in the bladder approximately half as thick as the normal urinary bladder wall was observed. The diverticulum was incised, revealed button like structure in inner mucosal and sub mucosal wall of bladder. A sterile urinary catheter no. 7 was inserted in the urethra in normograde manner and pulled out while the urethra was flushed with isotonic solution (Ringer's lactate). This ensured a patent urethral lumen. The partial diverticulectomy with removal of fibrosis and adhesions in the bladder was done. The incision was closed in two layers: first, the mucosa was closed using appositional suture pattern as simple continuous sutures of 2/0 vicryl then the submucosa, muscular and serosal layers were closed with the same suture material in a continuous Lambert suture pattern. Laparotomy wound was closed routinely. Post-operatively, the animal was given inj. ceftriaxone @ 25 mg/kg body

weight I/M at every 12-hour interval for 5 days and injection meloxicam @ 0.5 mg/kg body weight I/M for 3 days and the wound was sprayed with povidone iodine regularly. Follow up in the present case did not show any complication, the skin sutures were removed after 10 days and the animal showed remarkable recovery. Tissue samples from both the urinary bladder and diverticulum were taken and sent for histopathological examination. The histopathological slide was prepared which showed that the submucosa of the diverticulum wall was thickened and showed signs of congestion, fibroplasia, strands of collagen matrix and increased numbers of blood vessels. No signs of malignancy were observed in histopathology examinations. Urinary bladder diverticulum has been identified in dogs with chronic or recurrent bacterial cystitis, suggested that there may be an association between diverticulum and urinary tract disease. In the veterinary literature, this specific bladder condition includes mainly reports of congenital bladder diverticulum and congenital bladder trigonum diverticulum (Scheepens and L'eplattenier 2005). Ultrasonography is a more sensitive technique for detection the conditions of urinary bladder especially infection of the urinary tract and cystoliths (Dehmiwal *et al.*, 2015). Abdominal ultrasound with injected 0.9% NS by a catheter revealed urinary bladder diverticulum (Fig. 2).

Bladder diverticulum may be undetectable in a healthy bladder, but it can become more obvious in association with bladder disease, such as urolithiasis or infection. Study indicates in dogs and cat's bladder diverticulum can be acquired following severe urethral obstruction and in some cases it is a component of non-obstructive sterile idiopathic cystitis (Grosslinger *et al.*,

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Fig. 1. Radiographic picture of urinary bladder showing diverticulum.



Fig. 2. Ultrasonographic picture showing a diverticulum in the urinary bladder and mild ascites.



Fig. 3. Urinary Bladder picture showing diverticulum.



Fig. 4. Button like structure in the inner wall of bladder presenting as pedunculated polypoid lesion.

2005). Karin *et al.* (2005) suggested chronic inflammatory disease of urinary tracts in dogs and cats leading to diverticulum formation have been associated with chronic inflammatory diseases of the urinary tract in dogs and cats the concomitant presence of urinary bladder diverticulum and chronic inflammatory disorders of the lower urinary tract. In present case report, the dog recovered uneventfully.

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