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Successful management of bladder leiomyoma through partial cystectomy in a non-descript dog

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Abstract

Leiomyoma along with leiomyosarcoma is the most common mesenchymal tumor of the bladder of the dogs. Together they account for 12 % of all primary bladder tumors. Often located in the trigone of the bladder, leiomyoma is still rarely diagnosed in domestic dogs. Most patients present with a history of hematuria, dysuria, and incontinence. A 10-year-old non-descriptive dog presented with the clinical signs of inappetence, abdominal distension, dysuria and constipation was brought to Madras Veterinary College. Hematobiochemical analysis revealed neutrophilia, increased alanine phosphatase, BUN, creatinine values, altered calcium phosphorous ratio and marginal thrombocytopenia. Survey and contrast radiography of the abdomen and thorax were revealed an intraluminal radiolucent mass in the bladder. Ultrasonography was performed to ascertain the location of mass and absence of any other deformities. An exploratory laparotomy followed by partial cystectomy was performed following excision of the mass. Histopathology revealed leiomyoma of the bladder. The dog had an uneventful recovery following periodic post operative management.

Keywords: Leiomyoma, dysuria, incontinence, partial cystectomy, post operative care

Introduction

Bladder leiomyomas are benign neoplasms that arise from the muscular layer of the urinary bladder to form a growth of undifferentiated mesenchymal tissue. They can be differentiated from leiomyoma by the lack of giant tumor cells and the absence of pleomorphism. An uncommon finding in dogs such tumors present a challenge for veterinary diagnosticians and surgeons.

Case History

A 10-year-old intact, male, non-descriptive dog was brought to the small animal surgery outpatient ward unit of madras veterinary college teaching hospital with a history of inappetence, dysuria, and constipation for the past three days. On presentation, the dog was found to be dehydrated with abdominal distension which raised the suspicion of an abdominal mass. Lateral thorax and abdominal radiographs were taken which revealed an intrabdominal mass in the cranial ventral abdomen suggestive of a splenic mass. A contrast cystography was done which disclosed the presence of a soft tissue mass with a poorly defined margin in the caudal mid-abdomen. In the same examination contours of the bladder were unclear however a radiolucent opacity was observed intraluminal. An ultrasound examination was consistent with the probability of a diffuse liver tumor that was ruled out, a small tumor in bladder and confirmed mild splenomegaly with hydroureter of the right kidney. A routine hematological profile was carried out to ascertain the general health of the animal which showed significant elevation in creatinine and BUN accompanied by hypochromasia. An ECG was commissioned the same day which demonstrated ST-segment depression and peaked T waves suggestive of hyperkalemia, a conclusion drawn from the results of the hematological analysis. The dog was treated with ringers lactate, Tribvet and a urinary catheter was placed. Urine analysis depicted proteinuria with a specific gravity of 1.015. After evaluation of the ultrasound report, an exploratory laparotomy was scheduled.

Treatment And Discussion

The dog was premedicated with butorphanol and diazepam at the dose rate of. Anesthesia was induced with propofol @ 2mg/kg intravenous. Following induction, intubation with ID cuffed endotracheal tube was performed and the animal was placed in dorsal recumbency and

anesthesia was maintained under isoflurane in closed circuit. Upon surgical draping, a caudal midline incision was made and the bladder was exteriorized. The inner mucosa of the bladder was examined for any deformities. An irregular hemorrhagic mass of 3x2 cm was observed (Fig. 1) since the mass was involving all the layers of the bladder and partial resection would facilitate recurrence a partial cystectomy was performed. Minor hemorrhage observed were arrested and major vessels were ligated with 2-0 PGA. Following partial cystectomy, the ends of the bladder were sutured with PGA2-0 swaged round bodied needle in two layered suture patterns with simple continuous for the mucous and simple interrupted pattern for the muscularis and the serosa. The abdomen was lavaged with normal saline and the laparotomy site was sutured as per standard protocols. And urinary catheter was left insitu to confirm patency. Post-operative antibiotics, analgesic and periodic dressing and flushing of urinary catheter and replacement of the catheter every 48 hours was performed. Post-operative radiography (Fig. 2) and ultrasound were carried out to ascertain bladder health and to evaluate bladder filling defects and stranguria, if any. The pet had an uneventful recovery with absence of any post-operative complication.



Fig 1: Mass inside the bladder

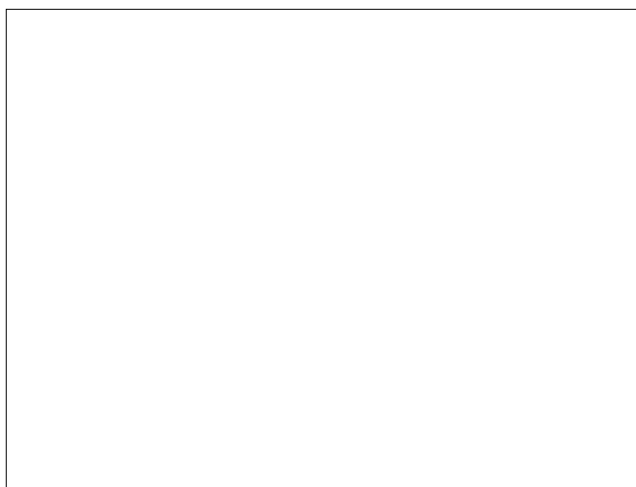


Fig 2: Post- operative radiography of abdomen

Discussion

Bladder leiomyomas only account for 0.5 to 1 % of all neoplasms in domestic dogs. The literature describes these

rare cases with clinical presentation of dysuria, incontinence, hematuria, abdominal distension, and fecal tenesmus. The breeds most susceptible to such kinds of tumors are Labrador retrievers, foxhounds, and mongrels with the median age of diagnosis being between 7.6 years to 12.5 years. Smooth muscle origin neoplasia of the urinary bladder wall is rare in dogs. The present case had a single, smoothly marginated, round, hypo to mixed echogenicity intraluminal mass in the urinary bladder. Ultrasonography, contrast cystography, radiographs and histopathology of tumor obtained via post-op biopsy helps reach the conclusive diagnosis of a bladder leiomyoma.

Leiomyoma is an uncommon benign mesenchymal neoplasm originating from the smooth muscle. It commonly presents as a slow-growing tumor, being an expansive disease with a low or nil metastatic rate. It can affect the intestinal and reproductive tracts, being more common in the urinary bladder in comparison with the other parts of the urogenital system. Macroscopically, the neoplasm does not have a capsule, and usually, areas of necrosis are observed. Metastases are not common, but when present, can affect the spleen, duodenum, mesentery, and mesenteric lymph nodes but the present case did not represent any metastasis. Bladder neoplasms can block or invade the ureters, which obstruct the urinary flow and increase ureteral pressure, causing hydronephrosis as observed in the present case with mild hydronephrosis of the right kidney adjoined with hydroureter. This neoplasm is rare in dogs, accounting for less than 1% of malignant neoplasms associated with the species and being less common in cats. It has no racial predisposition, being common in animals aged six and 11 years old. A higher occurrence was observed in females. Obesity, insecticides, herbicides, use of cyclophosphamide, and urine retention are considered predisposing factors. The clinical signs include hematuria, dysuria, pollakiuria, urinary incontinence, and a mass in the urinary vesicle on rectal examination as observed in the present case. The blood count and biochemical tests can be normal or can present with azotemia.

Ultrasound is the most used diagnostic imaging method for the identification of neoplastic alterations in animals with clinical signs such as hematuria; however, cytological or histopathological evaluation is necessary for the definitive diagnosis. Intraluminal masses of the bladder can originate in the bladder trigone, urethra, or prostate, and these structures must be carefully evaluated as done in the present case. The animal presented with hydronephrosis and due to its irreversible nature, associated without any ureteral obstruction, we did not opt for the surgical removal of the kidney. Based on the macroscopic and histopathological findings, a bladder leiomyoma of the urinary vesicle was diagnosed. The leiomyoma was expansive with mild ureteral obstruction with absence of metastasis and non infiltration and consequent hydronephrosis. In this report, we observed an expansive tumor growth, with a large intraabdominal mass, and we believe the tumor appeared several months ago. Even as a chronic lesion, the dog did not show any evidence of metastasis, corroborating with the literature indicating that leiomyomas is a tumor with a low metastatic rate.

Regarding the surgical procedure, cystectomy was successfully performed since the tumor did not involve the trigone and was invasive with all the layers of the bladder at that foci. A catheter was placed insitu periodic dressing postoperative reviews, antibiotic and analgesic coverage eventually resulted in a good recovery.

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