

SLUDGY BLADDER DISEASE AND CYSTOTOMY IN THE HOLLAND LOP RABBIT

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Abstract

A 5 years old female Holland lop rabbit was presented with a complaint of lethargy, lack of appetite, straining to urinate, urination out of litter box and blood in urine. On abdominal radiographs, bladder seen like full with radiopaque material. Cystotomy was performed and sludge removed from urinary bladder. Cystotomy is suggestable to evacuate sludge in urinary bladder when it is too intense and no response to medical treatment.

Keywords: Rabbit, Sludgy bladder

Bladder sludge (also called hypercalcinuria or hypercalciuria) is a thickening of the urine that can have the consistency of toothpaste so it does not flow as normal urine. Sludge may be comprised of any number of calcium salts that never form into stones (Brown, 2011). Unlike other mammals, rabbits have an unusual calcium metabolism. Intestinal absorption of calcium is independent of vitamin D3 levels and rabbits can be absorb digestible calcium in excess of the amount their body might need. Rabbits then excrete the excess calcium they don't need primarily through the kidneys in the form of calcium carbonate. Although the fractional urinary excretion of calcium is less than 2% in most mammals, the range is increase for rabbits 45% to 60%. Increases in dietary calcium directly increase its urinary excretion (Cheeke and Amberg, 1973; Buss and Bourdeau, 1984; Quesenberry and Carpenter, 2012).

Potential risk factors for development of sludges in rabbits are genetic predisposition, insufficient water intake, inactivity and feeding a free-choice diet of pellets or alfalfa hay, tend to be obesity. Affected rabbits may have a history of vitamin or mineral dietary supplementation. Clinical signs of urolithiasis include depression, anorexia, weight loss, lethargy, hematuria, anuria, stranguria, a hunched posture, grinding of teeth, and urine scald of the perineum (Quesenberry and Carpenter, 2012). For treatment of urinary sludge in rabbits, dietary changes are important. Any vitamin or mineral supplementations are not recommended in rabbits at any time. Rabbit urine has an alkaline pH and the high concentration of calcium in the urine increase the risk of precipitation of solutes (Kamphues e al., 1986). Therefore, decreasing dietary calcium levels directly lowers serum calcium concentration and the amount of calcium excreted in the urine (Kamphues, 1991).

A 5 years old female Holland lop rabbit was presented Department of Surgery, Faculty of Veterinary Medicine, Ankara University with a complaint of lethargy, lack of appetite, straining to urinate, urination out of litter box and blood in urine (Figure 1).

Figure 1. Physical appearance and posture of the rabbit



On physical examination there was wetness around the genital area and chronic skin

irritation from urine contact. Blood samples were collected from a marginal ear vein for hematologic and biochemical analyses. Cell blood count revealed high WBC, monocyte, MCH, basophile levels. Serum biochemistry was unremarkable but plasma total calcium concentration was 15.0 mg/dL (5,6- 12.5 mg /dl reference range).

Examination of abdominal radiographs revealed a mineralized opacity in the bladder (Figure 2 a,b).

Figure 2 a, b. Abdominal radiograph, mineralized opacity in the bladder



Urine bladder catheterized and flushed with isotonic saline to diluate and remove sludge. Systemic antibiotic (Enrofloxacin, Baytril-K[®]) and nonsteroidal anti-inflammatory medication (Meloxicam, Maxicam[®]) and vitamin C (VitC[®]) used at medical therapy for one week. To provide diuresis, iv fluids given and tried to increase water intake orally. Animals condition didnt improved and sludge didnt removed by medical therapy so decided to surgical operation.

The rabbit was premedicated with butorphanol (0.5 mg/kg, SC) and diazepam (1 mg/kg mg/kg, SC). Anesthesia was induced by ketamine (2.0 mg/kg, IV) administration. Anesthesia was maintained with 2% to 2.5% isoflurane in oxygen during the surgery. Lactated Ringer's solution was administered at a rate of 10.0 mL/kg/h. The respiratory and cardiovascular systems were monitored with ECG. The rabbit was placed in dorsal recumbency, and the surgical site was aseptically prepared. Median laparotomy was performed for cystotomy. The bladder carefully lavaged with warm sterile saline with the use of suction and sludge removed from urinary bladder (Figure 3 a, b).

Figure 3 a,b. Removing sludge material from bladder.



Than a final inspection done to ensure that no sludge's remained. The bladder was closed with 4/0 PDS in two layers. The abdominal cavity lavaged with warm saline, and the body wall and skin closed by known techniques.

Sludge material was analyzed, and mostly composed calcium carbonate detected. It was

diagnosed 'sludy bladder' and diet of the animal changed. Medical therapy continued for 1 week and animal recovered to normal health. Although the mechanism of calcium absorption in rabbits is not totally understood, owners can be advised to excessive calcium intake should be avoided. Cystotomy is suggestable to evacuate sludge in urinary bladder when it is too intense and no response to medical treatment.

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