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Management of Cystitis and Urinary Sediment Accumulation in an 8-Year-Old Rabbit: A Case Report

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Abstract: Cystitis with urinary sediment accumulation is a relatively common condition in rabbits, often associated with dietary and hydration factors. This case report describes an 8-year-old female rabbit (Oryctolagus cuniculus) presented with dysuria, hematuria, and signs of discomfort. Clinical examination, urinalysis, and ultrasonographic evaluation confirmed the presence of cystitis with significant sediment accumulation in the urinary bladder. The treatment approach included enrofloxacin (10 mg/kg SC, once daily) for antimicrobial therapy, meloxicam (0.2 mg/kg, once daily) for analgesia and anti-inflammatory effects, and fluid therapy to promote diuresis and sediment elimination. Additionally, dietary adjustments were implemented, emphasizing increased water intake and a diet rich in fiber with reduced calcium content to prevent further sediment formation. The patient showed a favorable response to treatment, with clinical signs resolving within two weeks and no recurrence observed at follow-up. This case highlights the importance of a multimodal therapeutic approach, including antimicrobial therapy, pain management, hydration support, and dietary modifications, in managing urinary tract disorders in rabbits.

• Introduction

Urolithiasis is a clinically significant condition in domestic rabbits (Oryctolagus cuniculus), stemming from their unique calcium metabolism. Unlike most mammals, rabbits absorb calcium passively in the intestines, resulting in high renal excretion of calcium, up to 60% of intake, producing naturally turbid, alkaline urine rich in calcium carbonate. While physiologically normal, this predisposes rabbits to urinary sediment and stone formation, particularly under suboptimal dietary and environmental conditions. High-calcium diets, dehydration, obesity, and chronic urinary inflammation are key contributing factors. Bladder sludge, a common clinical manifestation, presents with non-specific signs such as dysuria, hematuria, and lethargy, and may lead to obstruction or bladder rupture in severe cases. Diagnosis relies on clinical history, physical examination, urinalysis, and imaging, with radiographs and ultrasound aiding in the detection of mineral deposits and bladder pathology. Recent studies highlight the preventive role of low-calcium diets, proper hydration, and environmental enrichment. This poster presents a clinical case of bladder sludge and cystitis in an elderly rabbit, illustrating current diagnostic and therapeutic approaches aligned with evidence-based practices.

• Case study

An 8-year-old, intact female mixed-breed rabbit *(Oryctolagus cuniculus)* was presented to the Emergency Service of the Faculty of Veterinary Medicine in Timișoara with a two-day history of dysuria, hematuria, and abdominal discomfort. Following stabilization, the case was referred to the Internal Medicine Clinic for diagnostic work-up. Clinical examination revealed moderate bladder distension and caudal abdominal pain, while vital parameters and hydration status were within normal limits.

Urine was obtained via gentle manual expression and appeared turbid and orange. Urinalysis showed alkaline pH (8.2), abundant amorphous calcium carbonate crystals, moderate leukocyturia and microscopic hematuria, and the presence of rod-shaped bacteria. Abdominal ultrasonography confirmed hyperechoic sediment in the bladder and mild bladder wall thickening, with no evidence of calculi or urethral obstruction. A diagnosis of cystitis associated with urinary sediment accumulation was established.

• Results and discussions

Two weeks after initiating treatment, the rabbit showed complete clinical recovery. Ultrasonographic follow-up revealed that the bladder wall, previously thickened, had returned to normal dimensions—**1.0-2.0 mm** in a non-distended state. Additionally, the previously observed hyperechoic, gravity-dependent sediment was no longer present.



Treatment included subcutaneous enrofloxacin (10 mg/kg SID), oral meloxicam (0.2 mg/kg SID), and subcutaneous Ringer's lactate (50 mL/kg/day). The diet was adjusted to reduce calcium intake by replacing commercial pellets and high-calcium vegetables with ad libitum timothy hay and low-calcium leafy greens. Hydration was supported by offering fresh water in bowls and water-rich vegetables.

Clinical signs improved significantly within one week, with complete resolution by the end of the second week. Follow-up ultrasound and urinalysis confirmed normalization. At one month, the rabbit remained asymptomatic. This case highlights the effectiveness of integrated medical management and husbandry correction in treating and preventing lower urinary tract disease in rabbits.

Conclusions

Rabbit urolithiasis is influenced by calcium metabolism, diet, and husbandry. Early signs such as dysuria, hematuria, sludge, require prompt diagnosis by imaging and urinalysis. Individualized treatment including fluids, analgesia, bladder flushing, diet was successful in the presented case. Prevention includes a high-fiber, low-calcium diet,

hydration, and owner education. More research is needed on

pathophysiology and long-term outcomes.