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Peritoneal dialysis for management of meloxicam induced acute kidney injury in dog

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Abstract
Acute kidney injury (AKI) is marked by sudden damage to the renal parenchyma, leading to impairment of the kidney's excretory, metabolic, and endocrine functions. In small animal practice, dialysis therapy is employed to eliminate metabolic waste products and restore electrolyte balance disrupted by renal dysfunction. Peritoneal dialysis utilizes the peritoneum as a natural semipermeable membrane, allowing the exchange of solutes and fluids between the blood in the peritoneal capillaries and the dialysis solution. The present clinical case deals with an 11-years old, female Labrador retriever presented with past history of difficulty in walking associated with chronic pain in hind limbs for last 3 months. However, the current condition of dog for referral to our TVCC was related to anorexia, melena and hematemesis for last 3 days. History taking revealed that dog was being administered with oral meloxicam tablets for 90 days. Clinical examination revealed dog with dull appearance, poor functional limb mobility and pain on hip palpation. Laboratory findings revealed findings of acute kidney injury with elevated BUN and creatinine values along with normal hemogram. Three cycles of peritoneal dialysis were administered. During the second cycle, the patient's anuria resolved, and by the end of the third cycle, there was a marked decrease in azotaemia. Overall, peritoneal dialysis achieved favorable clinical outcomes by restoring urine output, reducing azotemia and electrolyte imbalances, and promoting significant clinical recovery.

Keywords: Meloxicam, acute kidney injury, peritoneal dialysis

Introduction
Kidneys are the major organs for maintaining metabolic balance of the body. Acute kidney injury (AKI) acts as a complex syndrome that seldom arises from a single, isolated pathophysiologic process. Timely and accurate identification of AKI, along with a deeper understanding of the diverse pathophysiologic mechanisms underlying its clinical phenotypes, is essential for developing effective therapeutic strategies [1]. Non-steroidal anti-inflammatory drugs (NSAIDs) are widely used in veterinary medicine to manage both acute and chronic pain, as well as certain oncologic and neurologic conditions. Their therapeutic and toxic effects stem primarily from inhibition of cyclooxygenase (COX), which reduces the synthesis of prostaglandins which are key mediators of inflammation and pain [2]. The excessive use of non-steroidal anti-inflammatory drugs induce kidney damage and also with other complications like gastrointestinal ailments, allergic reactions etc. [3]. Peritoneal dialysis, while being primarily employed for managing chronic kidney disease, has also been reported as a therapeutic option for acute kidney injury. Beyond kidney-related disorders, it has been utilized for the removal of dialyzable toxins, management of pancreatitis, correction of electrolyte and acid-base imbalances, treatment of refractory congestive heart failure, and certain inborn errors of metabolism. In veterinary medicine, its most frequent application is for acute kidney injury, although it can be indicated for any of these other conditions as well [4].

History and Clinical Signs
A 11-year-old, Female Labrador Retriever weighing about 20 kg was presented to TVCC, College of Veterinary Science and A.H, Anjora with a history of anorexia, bloody diarrhea and

vomiting for last 3 days. Detailed anamnesis revealed that the dog was continuously fed with oral meloxicam tablets for past three months. Clinical examination recorded rectal temperature to be 103°F, congested conjunctiva along with dull and depressed condition. Heart rate (96 beats per min) and respiration rate (26 per min) were slightly elevated. The laboratory findings showcased slight anaemia (Hb = 8.9g/dl), packed cell volume (39.82%), total leucocyte count (18450), Neutrophils (75.24%), Lymphocytes (20.45%) and platelet Count (1.25 lakhs). Biochemical profile revealed severe uraemia with blood urea nitrogen values at 180.26 mg/dl and creatinine 10.24 mg/dl. However, liver values revealed nearly normal values of SGPT- 37 U/L, ALP- 96 U/L, total protein-6.45 g/dl and albumin-2.80 g/dl. Based on history, clinical findings and hematobiochemical findings, the patient was tentatively diagnosed as acute kidney failure and peritoneal dialysis was planned on emergency basis to save life of the patient.

Treatment and Discussion

The dog was placed in right lateral recumbency and site of catheter insertion was prepared aseptically by clipping the hairs from xiphoid to pubic region. After local infiltration of 2% lignocaine, peritoneal dialysis catheter was placed just behind the level of umbilicus via paramedian approach after making a small skin incision followed by stabbing the abdominal muscles with gentle pressure [4].

Three cycles of peritoneal dialysis were carried out using a commercial dialysate solution containing 1.5% glucose. Prior to administration, the solution was warmed to 38°C and maintained at this temperature throughout the procedure. In each cycle, 30 ml/kg of dialysate was infused into the peritoneal cavity, where it was retained for 40 minutes before being drained into a collection bag. The procedure was carried out daily for 5 days which led to uneventful recovery. Supportive therapy was initiated using RL @ 500 ml IV bid, broad spectrum antibiotics enrofloxacin @ 5mg per kg body wt. IV OD, pantoprazole @ 1 mg per kg body wt. IV BID, ondansetron @ 0.5mg per kg body wt. IV BID and vitamin B complex @ 3ml IV BID [5]. Post dialysis, the laboratory findings revealed a significant restoration in the values of haemoglobin, packed cell volume, total leucocyte count, platelets, total protein, albumin, blood urea nitrogen and creatinine values (Table 1).

Acute kidney injury (AKI) is a clinical syndrome marked by a rapid rise in serum urea and creatinine levels, accompanied by acid-base disturbances and fluid-electrolyte imbalances resulting from kidney damage of varying severity [6]. In this case, the diagnosis was based on the patient's history, clinical signs, hematological findings, and urine output measurement.

The clinical relevance of adverse effects associated with meloxicam administration in small animal clinical practice is of utmost importance because of their high level of usage, and the growing interest in pain management in veterinary medicine [7]. However, meloxicam may cause adverse effects even at therapeutic doses, as well as in cases of overdose, although the exact frequency of such reactions in companion animals is unknown. With prolonged use, meloxicam also has the potential to contribute to the development of proteinuria [8]. Though, meloxicam has wide margin of therapeutic efficacy, over usage of the drug as seen in present case can lead to adverse conditions like acute kidney damage assisted with shock, haemodynamic alterations and hypertension [9].

In Veterinary medicine, peritoneal dialysis (PD) remains the primary treatment for AKI because of its accessibility, simplicity, good cardiovascular tolerance, and lower likelihood of causing the electrolyte imbalances often associated with haemodialysis [10]. Nevertheless, PD has certain limitations, including the requirement for an intact peritoneal cavity, the risk of peritonitis, and protein losses. Additionally, toxin clearance with PD is slower compared to haemodialysis [11].

Table 1: Haematobiochemical parameters before and after peritoneal dialysis

Parameters	DAY 0	DAY 1st	DAY 3rd	DAY 5th
BUN	180.26	100.62	68.27	35.65
Creatinine	10.24	8.25	3.41	1.72
Hb	8.91	9.24	9.45	9.86
PCV	39.82	29.81	27.34	26.02
WBC	18.45	14.22	15.60	12.59
Platelets	125	158	204	292
Total Proteins	6.45	6.52	6.69	6.90
Albumin	2.80	2.84	2.91	3.08

Fig 1: Insertion of peritoneal dialysis catheter

Fig 2: Dialysate being administered intraperitoneally

Conclusion

A 9-year-old female Labrador retriever was presented with acute kidney damage induced by over usage of meloxicam tablets. The dog was presented with severely uraemic condition, after which, peritoneal dialysis was performed. Post dialysis, patient made an uneventful recovery and restoration of normal hematobiochemical parameters. The condition of AKI in present clinical case depicts the importance of intoxication of meloxicam leading to multiple detrimental effects in dogs.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Markis K, Sponou L. Acute kidney damage: definition, pathophysiology and clinical phenotypes. Clin Biochem Rev. 2016;37(2):85-98.
2. Bergh MS, Budsberg SC. The coxib NSAIDs: potential clinical and pharmacologic importance in veterinary medicine. J Vet Intern Med. 2005;19(5):633-643.
3. Singh R, Sachin, Singh R. Treatment of *meloxicam* induced acute kidney injury by intermittent hemodialysis. Int J Vet Sci Anim Husb. 2024;9(4):90-92.
4. Bhatt RH, Suthar DN, Ukani JR. Peritoneal dialysis in acute renal failure in canines: A review. Vet World. 2011;4(11):517-521.
5. Guimaraes-Okamoto PTC, Geraldes SS, Ribeiro JFA, Vieira ANLS, Porto LP, Barretti P, *et al*. Reversal of acute kidney injury after peritoneal dialysis in a dog: a case report. Vet Med (Praha). 2016;61(7):399-403.
6. Cowgill LD. Application of peritoneal dialysis and haemodialysis in the management of renal failure. In: Osborne CA, Finco DR, editors. Canine and Feline Nephrology and Urology. Baltimore: Lee and Febiger; 1995. p. 453-489.
7. Monteiro-Steagall BP, Steagall PV, Lascelles BD. Systematic review of nonsteroidal anti-inflammatory drug-induced adverse effects in dogs. J Vet Intern Med. 2013;27(5):1011-1019.
8. De Santis F, Boari A, Dondi F, Crisi PE. Drug-dosing adjustment in dogs and cats with chronic kidney disease. Animals (Basel). 2022;12(3):262-276.
9. Lucas GNC, Leittao ACC, Alencar RL, Xavier RMF, Daher EF, Silva GBD. Pathophysiological aspects of nephropathy caused by non-steroidal anti-inflammatory drugs. Braz J Nephrol. 2019;41(1):124-130.
10. Dorval P, Boysen SR. Management of acute renal failure in cats using peritoneal dialysis: a retrospective study of six cases (2003-2007). J Feline Med Surg. 2009;11(2):107-115.
11. Cooper RL, Labato MA. Peritoneal dialysis in veterinary medicine. Vet Clin North Am Small Anim Pract. 2011;41(1):91-113.

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