v. 2, n. 13, 2022

Journal of Agricultural Sciences Research

NEPHRECTOMY IN A YOUNG FEMALE DOG: CASE REPORT

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Abstract: Nephrectomy, also known as ureteronephrectomy, is the surgical removal of one of the kidneys, and can be classified as total or partial nephrectomy. Total nephrectomy is indicated in cases of renal neoplasms, severe renal and ureteral trauma, uncontrollable bleeding, severe pyelonephritis resistant to medical therapy and advanced stage of hydronephrosis. Pyelonephritis is understood as a kidney infection usually caused by the presence of bacteria that ascend to the upper urinary tract, from the urinary bladder or as a result of ureteral obstruction. The diagnosis is made with clinical and complementary tests, such as laboratory and imaging. The objective of this study was to report the case of a young mongrel female dog (SRD) with pyelonephritis, with the outcome of performing the left unilateral nephrectomy procedure, something uncommon for a young animal. The dog was apathetic, with dysuria, bulging abdomen, rigid and painful to the touch. The patient's blood count was suggestive of infection, in the biochemical examination, creatinine was within the normal parameter and the ultrasound was suggestive of hydronephrosis of the left kidney. This report describes the evolution of the case, from the initial evaluation to the postoperative period.
Keywords: Pyelonephritis. Kidney. Surgery.

INTRODUCTION

The urinary system of dogs has two kidneys in its composition, located in the retroperitoneal region, with the right kidney being more cranial in relation to the left; two ureters; a urinary bladder (bladder) and a urethra. The kidneys have the main functions of blood filtration, absorption and reabsorption of electrolytes, secretion of hormones, being fundamental organs for the maintenance of homeostasis, eliminating metabolite waste (DOS SANTOS, 2014).

Surgical procedures related to the kidney include total or partial nephrectomy, nephrotomy, nephrostomy and pyelolithotomy. Total nephrectomy, also called ureteronephrectomy, is the excision of one of the kidneys, being indicated in cases of renal neoplasia, unresolved hemorrhage, pyelonephritis resistant to medical therapy, advanced stage of hydronephrosis, severe renal and ureteral trauma, 2018, 2022).

The aim of the present study is to report a case of total nephrectomy involving a young mixed breed (SRD) female dog with pyelonephritis.

CASE REPORT

Mixed-breed female dog (SRD), approximately 2 years old, neutered, weighing approximately 10 kg, adopted ninety days before the surgical procedure, emphasizing that the female dog was stray before adoption.

The tutor took him to the veterinary clinic because the animal had been apathetic for some time. In the anamnesis, it was found that the dog had been hyporexia, apathetic and had dysuria for two months. During the clinical examination, the abdomen was found to be bulging, rigid and painful to the touch.

In view of the situation, complementary exams were requested to better target the animal's situation, as well as to seek data to reconcile with the clinical exam, in an attempt to reach a definitive diagnosis.

Laboratory tests were requested, including blood count and biochemicals (kidney and liver enzymes), as well as imaging tests (total abdominal ultrasound).

The blood count showed a hematocrit within the normal range (43%), the white series was suggestive of infection, the biochemical tests (liver and kidney enzymes) were within the normal parameter, particularly the renal ones (creatinine 0.9

mg/dL and urea 39 mg/dL) and ultrasound was suggestive of hydronephrosis of the left kidney (longitudinal axis measuring 9.88 cm), and the right kidney, despite having a suggestion of nephropathy, was clinically functional.

Given the seriousness of the situation, the surgical procedure was chosen, with the prescription of antibiotic therapy and fluid therapy, in order to prepare the patient for the procedure. On the day of surgery, the dog was fasting for eight hours. After performing the preparation and wide shaving of the abdominal region, the animal was taken to the operating room, where anesthetic induction, intubation took place, and then the dog was placed on the surgical table, in dorsal decubitus.

After antisepsis and placement of surgical drapes, the procedure began with an exploratory celiotomy, where a significant increase in the left kidney (approximately 14 cm) was observed, as well as dilation of the left ureter.

Total nephrectomy was performed, with dissection and release of the affected kidney from the retroperitoneal region, followed by identification and double ligation of the renal hilum (renal artery and vein), using absorbable polyglactin 910 2-0 thread (figure 1).

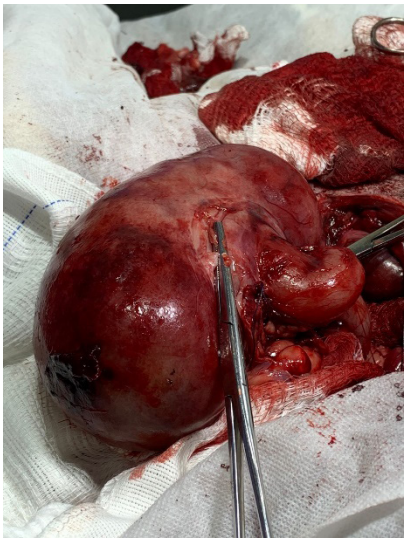

Figure 1. Patient's left kidney and ureter (at the time of surgery)

After that, the compromised ureter was ligated in its final third (close to the vesical trigone), using absorbable suture polygalactin 910 2-0 and the removal of the left kidney/ureter set. Finally, the abdominal cavity was sutured in 3 layers (muscular, subcutaneous and skin).

When evaluating the compromised kidney, pyelonephritis and its lack of function were confirmed, since there was no functional structure (cortex and medulla), containing only the renal capsule (figure 2).

Figure 2. Patient's left kidney after removal (only renal capsule is found).

The patient's postoperative period was satisfactory, with antibiotic therapy, fluid therapy with urinary output checking, use of low-dose anti-inflammatory drugs (since hydration was normalized) and analgesics.

Two days after the surgical procedure, complementary exams, blood count and biochemical tests (kidney and liver enzymes) were performed, all within normal limits (hematocrit 53%, creatinine 1.1 mg/dL and urea 41 mg/dL).

The female dog will need periodic evaluations, especially regarding renal function, preferably with a specialist (nephrologist).

DISCUSSION

Nephrectomy is the removal of one of the kidneys, which can be total or partial. Such a procedure, which is uncommon in young animals, requires caution, especially regarding the follow-up of the contralateral kidney, since it must maintain adequate function, in addition to making up for the absence of the removed kidney. Total kidney excision may be indicated in specific cases such as renal neoplasia, organ severely affected by Dioctophyma renale, hemorrhagic renal or ureteral trauma, kidney compromised by hydronephrosis or pyelonephritis resistant to medical therapy (DE NARDI et al., 2019; FOSSUM, 2014). ; OLIVEIRA, 2018)

Pyelonephritis is an infection of the kidneys, usually caused by bacteria in the urinary tract. It must be noted that any obstruction of normal urinary flow can increase the risk of pyelonephritis, such as kidney or ureteral stones. The diagnosis can be confirmed by imaging tests, ultrasonography being the choice, with visualization of the renal architecture and organ involvement, without, however, differentiating between hydronephrosis and pyelonephritis. It is ideal whenever possible to also perform urinalysis, in order to associate the clinical examination with complementary exams. Conservative treatment can be adopted in most cases, however, in cases where there are no responses to therapy, surgical procedure must be an option (DE NARDI et al., 2019; KAHN, 2011).

For the surgical procedure, it is extremely important to try to monitor the functionality of the contralateral kidney, before the procedure, through hematological exams, images and urinalysis. The evaluation of the patient by the surgical team, especially from the point of view of anesthesia, regarding the surgical risk, will allow a safer surgery and with greater planning (DE NARDI et al., 2019; OLIVEIRA, 2022).

Surgically, the patient is prepared by performing a wide shaving of the region, gluing the surgical field cloth and performing antisepsis, thus reducing contamination and infection. Then, an incision must be made in the abdominal midline, pre-umbilical, which may be pre-retroumbilical, depending on the situation, offering greater safety to the procedure (DE NARDI et al., 2019; FOSSUM, 2014; OLIVEIRA, 2022).

Upon accessing the abdominal cavity, the kidney to be removed must be identified, as well as its renal hilum. The kidney must be freed of the fat it is protecting and double ligation, using absorbable thread, of the renal artery and renal vein separately, thus avoiding arteriovenous fistula. After that, ligate the corresponding ureter in the final third, using absorbable thread, and then remove the entire kidney/ureter assembly from the abdominal cavity. Finally, proceeding with the suture of the abdominal cavity, subcutaneous tissue and skin (DE NARDI et al., 2019; FOSSUM, 2014; OLIVEIRA, 2018).

The postoperative period must be carried out with monitoring of the patient's renal function, checking cardiac output, vital parameters, hydration and analgesia control, antibiotic therapy and, if properly hydrated and with the contralateral kidney functional and, if necessary, one can use low dose anti-inflammatory. The importance of patient follow-up is emphasized, especially regarding the functioning of the contralateral kidney. The prognosis is good if proper patient preparation is observed, particularly with regard to renal function of the contralateral kidney (DE NARDI et al., 2019; FOSSUM, 2014).

FINAL CONSIDERATIONS

Unilateral total nephrectomy is an uncommon procedure in young animals and, in principle, must be performed after careful evaluation of the contralateral kidney, preparing the patient for surgery, especially with regard to the contralateral kidney. In the case of removal caused by severe pyelonephritis, the diagnosis must include, in addition to the anamnesis and clinical examination, additional tests, such as blood count and biochemical profiles, urinalysis and imaging, in order to be more precise, emphasizing the importance of verifying the situation of functionality of the contralateral kidney, as it will assume all the functions that were performed by the removed kidney.

It must be noted that monitoring the patient is of fundamental importance, preferably by a specialist (nephrologist), performing periodic examinations and advising the tutor regarding water and nutritional management, as well as warning about the implications of the implications and consequences in the medium and long term. of the surgical procedure.

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