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Surgical management of cystorrhexis in a male Rottweiler Dog

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Abstract

A 3-year-old male Rottweiler dog with the complaint of not passed urine for 5 days was presented to the Department of Surgery and Radiology, Veterinary College, Bangalore. On physical examination, distended abdomen and fluid thrill was noticed on succession. Pet was dull, dehydrated, and free passage of urinary catheter was noticed. On skiagram of the lateral abdomen, lack of bladder silhouette with absence of retroperitoneal details. Ultrasonography demonstrates fluid in the abdominal cavity with a defect in the dome of urinary bladder. Blood evaluation revealed increase in the total leucocyte count, with values of serum glutamic pyruvic transaminase and serum creatinine values at higher margin. The case was suspected of urinary bladder rupture. An emergency exploratory laparotomy was performed and confirmed the case as cystorrhexis. Cystorrhexis was corrected by Cystorrhaphy. Postoperatively fluid therapy, antibiotic, analgesics were given and with the regular wound dressing, the pet showed uneventful recovery.

Keywords: Rotweiler, cystorrhexis, cystorrhaphy

Introduction

Urinary bladder rupture was considered to be of great importance, as it can lead to morbidity and subsequent mortality when diagnosed late or left untreated (Tanko *et al.*, 2015) ^[10]. Ruptures of urinary bladder were commonly associated with blunt abdominal trauma, but can also occur spontaneously (Palthe *et al.*, 2018) ^[6]. Uroabdomen occurs mainly due to the rupture of urinary bladder. Mostly, cause of uroperitoneum is trauma; however, it can also occur due to neoplasia, prolonged urinary tract obstruction, and overzealous urinary catheter placement. Abdominocentesis can be used to detect uroperitoneum, while the condition of bladder can be diagnosed by radiography and Ultrasonography (Sura, 2011) ^[9]. The present case report deals with a successful surgical management of cystorrhexis by cystorrhaphy in a male Rottweiler dog.

Case History and Observations

A 3-year-old male Rottweiler dog was presented to the Department of Surgery and Radiology, Veterinary College, Hebbal with the history of not passed urine since 5 days. On physical examination, distended abdomen and fluid thrill was noticed on succession of abdomen. Pet was dull, dehydrated and free passage of urinary catheter was noticed throughout the urethra. On skiagram of abdomen, lack of bladder silhouette with absence of abdomen or retroperitoneal details. Ultrasonography demonstrates fluid in the abdominal cavity with a defect in the dome of urinary bladder (Fig. 1). Blood evaluation revealed increase in the total leucocyte count, with values of serum glutamic pyruvic transaminase and serum creatinine values at higher margin (Table. 1). The case was suspected for bladder rupture and decided for emergency exploratory laparotomy.

Treatment and Discussion

After stabilizing with fluid therapy, pet was anaesthetized with xylazine @ 1 mg/kg BW I/M and thiopentone sodium 2.5% @ 12.5 mg/kg BW I/V till the effect. The anaesthesia was maintained by 2% isoflurane. Animal was placed on dorsal recumbency and surgical site (parapreputial region) prepared aseptically. A linear incision was made over the skin, subcutis bluntly separated, muscles and peritoneum were incised. Straw colored fluid started gushing out from the surgical wound on entering the abdominal cavity (Fig. 2). On exteriorization, ruptured bladder with thickened bladder wall was noticed (Fig. 3). Freshening of wound lips of bladder was made by trimming the edges (Fig. 4).

Bladder was closed with cushings followed by lamberts sutures using chromic catgut No 2-0 after freshening the wound lips. Abdominal cavity was lavaged with warm normal saline. Muscles and peritoneum opposed by simple interrupted sutures using vicryl No 1. Subcutis closed by running sutures using chromic catgut No 0 and skin opposed by horizontal mattress using linex No 1 (Fig. 5). Surgical wound was dressed and bandaged. Postoperatively, Cephalexin @ 20 mg/kg body weight and meloxicam @ 0.2 mg/kg body weight was administered orally for 7 days and 3 days respectively. Surgical wound was dressed regularly with povidone iodine and sutures were removed on 10th postoperative day. The dog recovered uneventfully.

Urinary bladder injuries are rare in small animals as the bladder is anatomically located within the bony pelvis, but injuries can occur when the bladder gets distended and enters the abdomen (Fletcher and Clarkson, 2011) [2]. Urinary bladder rupture is the most common traumatic urinary injury in dogs and cats. Bladder rupture is most common in males than the females, because of their less urethral compliance and dilation in response to increased intra vesicular pressure (Thornhill and Cechner, 1981) [11]. Cystorrhexis can occur due to the dog bite (Raghunath *et al*, 2016) [7], accident (Bhuvaneshwari and Begum, 2018) [1], transitional cell carcinoma (Gronet, 1983) [4], fall from height (Jhambh *et al.*, 2014) [5] and urinary retention due to urethral stenosis (Palthe *et al.*, 2018) [6]. In the present case, it was due to the idiopathic cause. Haematuria and abdominal tenderness were the most common clinical signs of bladder rupture in animals, despite of all other non-specific signs (Tanko *et al.*, 2015) [10]. The resulting uroabdomen may leads to life threatening complications like dehydration, metabolic acidosis and electrolyte imbalance (Gannon and Moses, 2002) [3]. The diagnosis of uroperitoneum is made by comparison of abdominal fluid creatinine and potassium with that of serum creatinine and potassium. In dogs, a ratio of abdominal fluid creatinine to serum creatinine of 2:1 and a ratio of abdominal fluid potassium to serum potassium of 1.4:1 are considered diagnostic for uroperitoneum (Schmeidt *et al.*, 2011) [8]. Thus, this clinical article reports cystorrhexis due to iatrogenic cause and its surgical management in a Rottweiler dog.

Table 1: Pre-surgical blood report of the patient

Blood parameter	Values
TLC	33.1×10 ³ /μL
TEC	7.26×10 ⁶ /μL
Hb	16.4 g%
PLT	279×10 ³ /μL
SGPT	100.38 U/L
sCr	1.5 mg/dL



Fig 1: Ultrasonography demonstrates fluid in the abdominal cavity with a defect in the dome of urinary bladder



Fig 2: Straw coloured fluid gushing out from the abdominal cavity.



Fig 3: Ruptured urinary bladder with thickened bladder wall



Fig 4: Freshening the ruptured bladder wound lips by trimming



Fig 5: Skin opposed by horizontal mattress

Conclusion

The present report describes the successful surgical management of ruptured urinary bladder by cystorrhaphy in a male Rottweiler dog.

Conflict of interest

Authors have no conflict of interest with any one about this manuscript.

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