

## Suppurative prostatitis in a German shepherd dog – a case report

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**Abstract:** The Suppurative prostatitis can arise at any age, but is more common in older dogs with benign prostatic hyperplasia, and uncommon in castrated dogs due to prostatic atrophy. The present case was Suppurative prostatitis in a German shepherd. A detailed clinical examination including per rectal digital examination of prostate, prostatic fluid cytology, clinic- haemato - biochemical evaluation and ultrasonography were carried out. Prostatic fluid cytology revealed presence of toxic neutrophils. Ultrasonographic examination of prostate revealed multifocal anechoic and hyperechoic areas in the prostatic parenchyma and both the kidneys were small, irregular with indistinct corticomedullary junction. Based on the above diagnostic techniques the condition was diagnosed as suppurative prostatitis. The increased serum creatinine value and ultrasonographic evaluation of kidneys revealed the presence of secondary renal failure. The case was not responded to the treatment and succumbed due to advanced renal failure.

**Keywords:** suppurative prostatitis, *E. coli*, toxic neutrophils, irregular prostatic capsule, renal failure

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### I. Introduction

Inflammation of the prostate gland is the second most common prostatic disorder in dogs. More than 38 per cent of the dogs identified with prostatic disease is because of bacterial prostatitis and the mean age of affected dog was 8.2 years [1]. *Escherichia coli* had been the most frequently found pathogen so far, but *Staphylococcus aureus*, *Klebsiella* spp., *Proteus mirabilis*, *Mycoplasma canis*, *Pseudomonas aeruginosa*, *Enterobacter* spp., *Streptococcus* spp., *Pasteurella* spp., and/or *Haemophilus* spp. could also be found [2]. The prevalence rate of suppurative prostatitis is 5% [3]. The most frequent etiological factor of prostatitis is ascending infection of an aerobic microflora from the urethra [2]. Renal failure develops secondary to severe prostatitis which may complicate the condition further.

Clinical signs in dogs with acute prostatitis includes depression, pain on rectal palpation of the prostate, fever, straining to urinate or defecate, a “stiff-legged” gait, hematuria, edema of the scrotum, prepuce or hindlimb, and pollakiuria [4,5,6]. Diagnosis of prostatic diseases, prostatitis can be made from clinical signs, trans rectal digital palpation, clinic biochemical findings, prostatic fluid cytology, ultrasonography and fine needle aspiration biopsy. The present case was a suppurative prostatitis in German shepherd dog.

### II. Case Report

An Eight year old male German shepherd dog was presented with inappetence, vomiting, dyschezia, ribbon like stools, dribbling of urine and foul odour from mouth for 6 days. Animal was less active. Uremic smell from mouth and purulent urethral discharge [Fig. 1] were present. Caudal abdominal palpation elicited pain. The temperature, pulse and respiration were 104 °F, 80/min, 23/ min respectively and visible mucous membranes were pale roseate. Warmness could be felt on per rectal examination of the prostate gland, which was located in pelvic cavity. The gland was enlarged, smooth and firm in consistency and movable on rectal examination. Rectal palpation of prostate elicited pain. Ultrasonographic examination of prostate revealed multifocal anechoic and hyperechoic areas in the prostatic parenchyma. Prostatic capsule was irregular. The measured prostatic length, depth, width and prostatic volume were 6.14 cm, 4.30 cm, 2.30 cm and 31.76 cm<sup>3</sup> respectively [Fig. 3]. Splenomegaly was observed and both the kidneys were small, irregular with indistinct corticomedullary junction.

The prostatic fluid collected by prostatic massage combined with urethral catheterization was purulent in nature. The cytological examination revealed large number of toxic neutrophils [Fig. 3] and few squamous cells. The cultural examination revealed the presence of *E.coli* which was sensitive to enrofloxacin only. The values of hemoglobin, erythrocyte count, PCV were 12.7 g /dl, 5.85 millions/cu mm and 32 % respectively. Total leucocyte count was 26900/cu.mm with differential count of neutrophils 79 %, lymphocytes 13 % and band forms 8 %. The platelet count was 1,35,000/ cu mm. The serum total protein, albumin, globulin and AG ratio were 7.9 g/dl, 2.3 g/dl, 5.6 g/dl and 0.41 respectively. The serum creatinine was 8.5 mg/dl. It was increased to 15.5 mg/dl on 18<sup>th</sup> day. Blood urea nitrogen was 78 mg/dl. The serum values of glucose and calcium were 72 mg/dl and 6.5 mg/dl respectively. Serum total acid phosphatase was 9.8 U/L with the prostatic fraction as 4.5 U/L. Serum testosterone level was 1 ng/ml. The urine sample had pH of 6.5, specific gravity 1.002, protein 2+

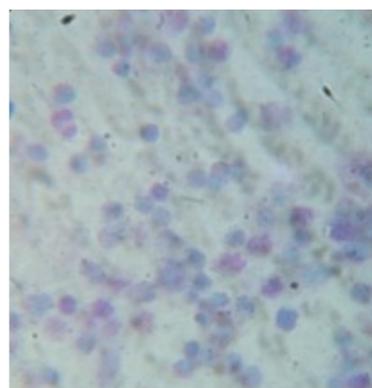
and pus cells of 2+. Blood pigment was absent in the urine sample. On cultural examination, urine was negative for bacterial growth.

The dog was treated with enrofloxacin @ 10 mg/kg IV, fluids, antiemetics (Inj Metoclopramide @ 0.2 mg/kg BW SC), proton pump inhibitors (Inj Pantoprazole @ 1 mg/kg BW IV) and intravenous fluid therapy with normal saline for 20 days. Slight improvement was noted within 4 days of treatment. But later the condition worsened. The dog succumbed after 20 days. On autopsy, both the prostate lobes were enlarged and purulent fluid oozed out on sectioning. Both the kidneys were smaller and irregular with necrotic areas. Histopathology of prostate revealed that, almost all acini were filled with neutrophils and some cystic with accumulated secretion. Lining cells of glandular acini were not clearly visible and moderate interstitial fibrosis was also observed [Fig.4].

### III. Figures



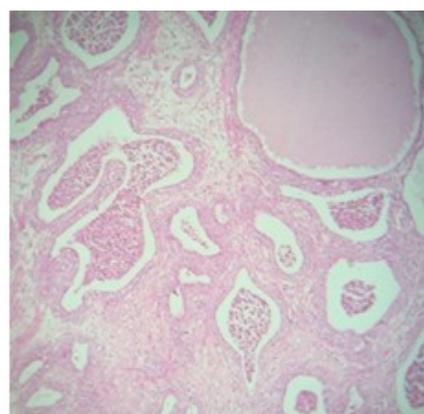
**Fig. 1.** Purulent urethral discharge



**Fig. 2.** Prostatic fluid cytology – toxic neutrophils



**Fig. 3.** Multifocal anechoic and hyperechoic areas in prostate



Histopathology of prostate (H&E- 10x)  
Acini filled with neutrophils and accumulated secretion

### IV. Discussion

Anorexia, vomiting, dyschezia, ribbon like stools, dribbling of urine, prostatic shuffle, pyrexia, uremic smell from mouth, purulent urethral discharge and pain on caudal abdominal palpation were the major clinical signs. As reported earlier that, some dogs with prostatic disease might exhibit a wide-based gait in the hind limbs, called the 'prostatic shuffle', which is an attempt to ease discomfort while walking was also observed in the present case [7]. The prostate would be uniformly enlarged when the inflammatory response is suppurative [6]. Dogs with an enlarged prostate usually pass ribbon or tapered stools due to compression of the rectum by the enlarged prostate [8]. Vomiting, inappetance, constipation and pyrexia in a dog with prostatitis might be due to secondary acute renal failure as reported earlier [9]. The pain on caudal abdominal palpation and warm painful prostate gland on per rectal examination might be due to suppurative process of the prostate.

The ultrasonographic picture of the prostate gland revealed multifocal anechoic and hyperechoic areas. The change in sonogram of kidney could be due to secondary renal failure developed from prostatitis either by post urethral obstruction or ascending grade of infection. The prostatic diseases enlisted as a cause of glomerular

disease [10]. The enlarged prostate may result in obstructive nephropathy, which causes the functional changes in kidney that resulted from obstruction to the flow of urine [11]

Toxic neutrophils in prostatic fluid cytology indicated suppuration of prostate gland. Similar changes were also reported previously in suppurative prostatitis [3]. Leucocytosis of 26900/cu.mm and neutrophilia with shift to left observed in this case was similar to the observation made by earlier workers [12]. The hyperglobulinemia and azotemia observed in the present case was also reported by pioneer workers [13]. The elevated level of serum acid phosphatase is in agreement with the report previously published [14]. Serum sample was negative for brucella antibody test. Low specific gravity and proteinuria identified in the present case correlated with the elevated serum creatinine level and renal ultrasonography.

Even though the dog was treated with enrofloxacin and treatment for renal failure was done, the condition was not cured as the dog was in advanced renal failure stage and the dog succumbed after 20 days. The histopathological findings observed in this case were similar to the observations made earlier [3]. The lumen of the ducts and acini, as well as the stroma contained infiltrations of polymorphonuclear leukocytes, occasional lymphocytes and histiocytes in suppurative prostatitis [15].

## V. Conclusion

The literature regarding the suppurative prostatitis in dogs is scarce. With the reporting of this case, it is attempted to expand the clinical knowledge of suppurative prostatitis in dogs for a better understanding and reference.

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