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## Prostatic abscess and feminization associated with bilateral seminoma in a cryptorchid dog

**S Leka Devi, R Ravi, D Gopikrishnan, D Sumathi, S Meharaj, M Palanisamy and M Selvaraju**

### Abstract

A ten years old bilateral cryptorchid male German shepherd dog was presented to Small Animal Gynaecology and Obstetrics Unit, Veterinary College and Research Institute, Namakkal with the history of reduced appetite, stranguria, weight bearing lameness, staggering gait and pyuria for past five days. On physical examination, the dog was emaciated with bilateral alopecia and enlargement of udder and teats and digital rectal palpation revealed enlarged prostate. Ultrasonography revealed sediments in the bladder, enlarged prostate with hypoechoic contents inside prostate and undifferentiated mass in the both side of abdominal cavity caudal to the kidney. The case was tentatively diagnosed as bilateral testicular tumour with prostate abscess. Haematology revealed thrombocytopenia, leucocytosis with neutrophilia and serum biochemistry revealed no pathological changes except hypoglycaemia. Serum hormonal evaluation revealed elevated estrogen and reduced testosterone concentration suggesting testicular tumour. Coeliotomy was performed and removed the two enlarged polymorphic retained testicles. Prostate was exteriorized and 20 ml of pus was aspirated from the prostate and flushed with metronidazole.

Animal was treated post-operatively with Ringer's lactate (10 ml/kg) Amoxicillin and sulbactam (15 mg/kg), pantaprazole (1 mg/kg), metronidazole (15 mg/kg) twice daily and Tramadol (2 mg/kg) for 3 days. Advised the owner to give tablet Augmentin (625mg) for 5 days and tablet Finasteride (10mg) for 30 days. Animal recovered uneventfully. Based on the histopathology of the testicles, the case was diagnosed as bilateral seminoma associated with prostatic abscess.

**Keywords:** Prostatic abscess, seminoma, cryptorchid, German shepherd

### Introduction

Testicular tumors are one of the common neoplasms in the male reproductive system of intact male dogs with cryptorchidism and age being the major predisposing factors for the development of canine testicular tumors (Canadas *et al.*, 2016) [2]. Three common types of testicular tumours reported were seminoma and Sertolioma and leydigoma and other tumours being haemangioma, fibroma, lipoma occurs rarely in canines. Cryptorchidism (bilateral/unilateral) and testicular tumours are the most common causes apart from age for the occurrence of prostrate disorders. The present paper deals with the successful surgical and medical management of seminoma and prostatic abscess in a cryptorchid dog.

### Case history and clinical observation

A case of 10 years old male cryptorchid German Shepherd dog was presented with the history of anorexia for past 3 days, staggering gait, weight bearing lameness and straining while urination with pyuria noticed. On general clinical examination the dog was emaciated and on physical examination the dog had bilateral alopecia, gynaecomastia and bilaterally cryptorchid. The other physiological parameters were within normal range except tachycardia on auscultation (178 bpm). Digital rectal palpation revealed enlarged mass obliterating the rectum. Ultrasonographic examination revealed sediments in the bladder, enlarged prostate with hypoechoic content and the volume of the prostate based on the USG prostate volume was around 92.72 cm<sup>3</sup> against 61.107 cm<sup>3</sup> based on the body weight and age suggesting the condition as prostatic hyperplasia (Kamolpatana *et al.*, 2000) [7].

The prostate had multiple anechoic fluid filled structures suggesting the condition as prostatic hyperplasia with prostatic abscess. On abdominal ultrasonographic examination undifferentiated masses in both side of abdominal cavity caudal to the kidney.

On Radiographic examination, no pulmonary and mesenteric metastases were visualized. Haematology and serum biochemistry revealed, neutrophilia with leucocytosis, thrombocytopenia and animal was hypoglycaemic. Hormonal estimation revealed reduced testosterone and elevated estrogen levels, these results were agreed with Doo-Won Song *et al.* (2021) [4]. Based on history, clinical examination, ultrasonography, radiography and serum hormonal assay the case was tentatively diagnosed as prostatic abscess associated bilateral testicular tumour.

### Treatment

Hence surgical removal of the cryptorchid testicles was done under general anaesthesia. The anaesthesia was induced with propofol (4mg/kg), diazepam (0.5 mg/kg) and maintained under propofol (2 mg/kg) in intravenously. By mid ventral coeliotomy caudal to the umbilicus, both right and left retained testicles were exteriorized and ligation was made at the spermatic cord and both the testicles were removed. The linea alba was closed with PGA size 1 by cruciate pattern. The subcutaneous and subcuticular layers were closed with catgut size 1 by continuous pattern. The skin incision was closed with polyamide size 1-0 by cross mattress pattern. Another incision was made on the left inguinal region the prostate was located, but could not be exteriorized because of adhesions and hence the contents were aspirated (20ml) and flushed with metronidazole. On gross examination of retained testicles showed, weight of the right and left was 50 g and 300 g, respectively and it looks creamy grey yellowish parenchyma. The prostatic transudate was sent for microbiological examination and testicles were sent for histopathology. Post operatively the animal treated with inj. Ringer's lactate (10 ml/kg) inj. Metronidazole (15 mg/kg), inj. Amoxicillin and sulbactam (15 mg/kg), Inj. Pantoprazole (1 mg/kg), administered intravenously twice daily for 3 days and inj. Tramadol (2 mg/kg) was administered subcutaneously for 3 days. The owner was advised to give Tab. Augmentin (625mg) twice daily for 5 days and Tab. Finasteride (0.5mg/kg) for 30 days. The animal showed the uneventful recovery.

Histopathology of right testis showed spermatocytic /diffuse seminoma and histopathology of left testis showed classical / intra-tubular seminoma. Microbiological examination of prostatic abscess showed bacterial morphology of straight, rounded/truncated ends with sub-terminal oval spores suggesting *Clostridium perfringens*. Based on exploratory coeliotomy, histopathology and microbiological examination of prostatic transudate, the case was confirmed as prostatic abscess associated with bilateral cryptorchidism and bilateral seminoma.

### Case discussion

The most common types of testicular tumours encountered in dogs were tumour of interstitial cells (Leydigoma), tumours of supportive cells (Sertolioma) and tumours of the germ cells (seminoma) (Ciaputa *et al.*, 2012) [3] with higher manifestation of seminomas (Maiolino *et al.*, 2004) [9]. A higher incidence of testicular tumors was observed in mixed-breed dogs followed by Yorkshire Terriers, Labradors, Golden Retrievers and Fox Terriers (Gazin *et al.*, 2022) [6]. Seminoma is an

embryonal tumour arising from the primitive germ cells particularly in older dogs with a mean age of 10 years. Seminoma are two types, spermatocytic/diffuse, Classical/ intratubular and can occur unilaterally or bilaterally. In classical or intratubular seminoma, the spermatogenic epithelium is replaced by neoplastic cells, without altering the seminiferous tubules with no leucocyte infiltration. In spermatocytic or diffuse seminoma, the entire spermatogenic epithelium was replaced by neoplastic cell with no visualization of seminiferous tubules and numerous leucocyte infiltrations. One of the common predisposing factors for the occurrence of seminoma is cryptorchidism. Sertoli cell tumors were the most common type followed by seminoma in dogs with cryptorchid testicles (Liao *et al.*, 2009) [8], however the occurrence of interstitial cell tumors were rare in dogs with cryptorchid testicles.

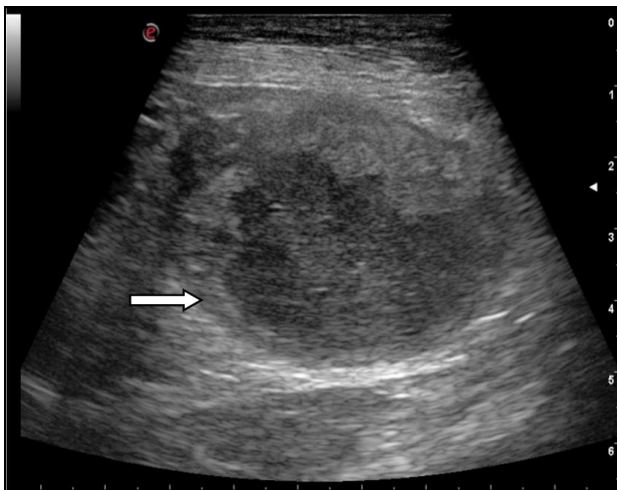
Benign prostate hyperplasia (BPH) is the commonly occurring spontaneous, age-related disorders of prostate in intact male dogs; however abscesses, cysts and neoplasia of the prostate were the uncommon prostatic conditions in dogs. According to Nanaboina *et al.* (2018) [12] BPH might predispose intact male dogs for the development of prostatic abscesses and cysts. Prostate abscess was most frequently seen in dogs over six years old (Bussadori *et al.*, 1999) [1]. The most common clinical signs seen due to prostate disorders were urinary tract conditions such as haematuria, urethral discharge, dysuria, stranguria and urinary incontinence, gastro-intestinal tract illness such as tenesmus, constipation, ribbon-shaped stool and systemic illness such as inappetence, lethargy and weight loss (Freitag *et al.*, 2007) [5]. Cryptorchidism, alopecia and gynaecomastia were observed during physical examination were associated with sertoli cell tumour (Post and Kilborn, 1987) [15]. Sertoli cell tumour was often associated with feminization due to excessive oestrogen production by tumour (Peters and Sluijs, 1996) [14]. Occurrence of prostatic abscess due to testicular seminoma has not been widely established. However, the change in the echogenicity of the prostate in the dog with seminoma has been reported by Ciaputa *et al.* (2012) [3].

Various treatment options have been followed previously by various authors such as medical management, percutaneous drainage of abscess, marsupialization, prostatectomy, ventral drainage and omentalisation. Medical management of the prostate abscess depends mainly on the chronicity of the condition. The blood prostate barrier in chronic conditions prevents the entry of drugs which needs culture sensitivity tests for the selection of antibiotics. Further the recurrence of the condition is high and hence drainage of the pus with castration is the more acceptable option in dogs with prostate disorders which are not intended for breeding. According to White and Williams (1995) [16], antibiotic therapy along with castration was ineffective in the treatment of prostatic abscessation because of failure to achieve adequate therapeutic concentrations throughout the prostate. Percutaneous ultrasound-guided drainage is considered as efficient tool for diagnosis and treatment of prostate abscess in dogs (Paclikova *et al.*, 2006) [13]. Long-term complications associated with these procedures were abscess recurrence, chronic drainage after marsupialization, urinary incontinence and urethra-cutaneous fistulation (White and Williams, 1995) [16]. Recurrence might be due to inadequate drainage of the prostatic tissue, a consequence of failure to break down all abscess loculations during placement of drain or premature removal of drain (Mullen *et al.*, 1990) [11].

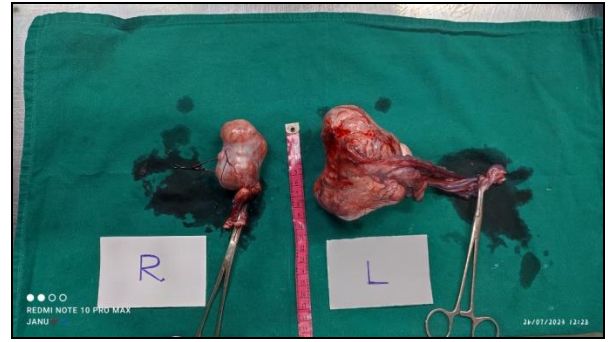
The drawbacks could be overcome by intracapsular omentalisation of the prostate after surgical removal of the pus. Omentum was considered as an alternate source for inducing vascularization and lymphatic supply, thereby supporting the reconstruction of body wall deficits, filling of dead space and support for grafted tissue (White and Williams, 1995) [16]. Matthiesen and Marretta (1989) [10] reported that omentum was capable of resolving large infected foci due its phagocytic, angiogenic, and enhanced healing properties. Likewise in the present case, surgical drainage of the prostate abscess followed by intracapsular omentalisation was performed with few modifications followed by removal of intra-abdominal testicles.



**Fig 1:** General clinical examination showed gynaecomastia and bilateral cryptorchid



**Fig 2:** Ultrasonography showed presence of retroperitoneal testicular mass



**Fig 3:** Depicted surgically removed retained testicles from both the right and left sides.



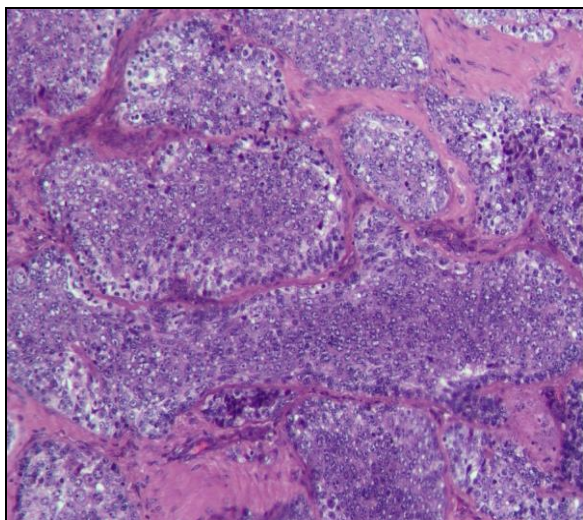
**Fig 4:** Cross section of both the retained testicles showed grey, yellowish and creamy parenchyma



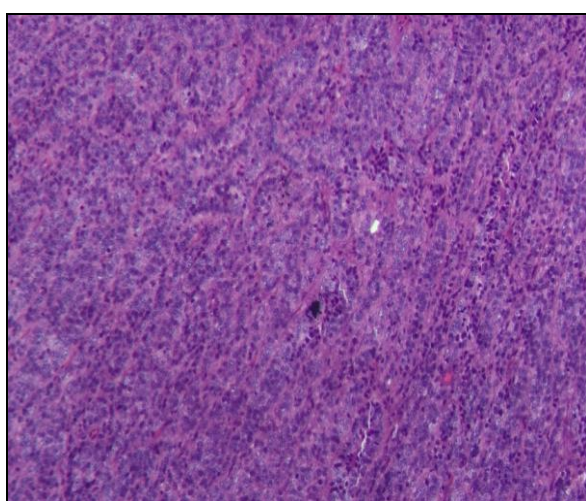
**Fig 5:** Aspiration of pus from the prostate abscess



**Fig 6:** Ultrasonography of prostate showed anechoic fluid filled structure



**Fig 7:** Left testis showing intratubular / classical seminoma (H&Ex100)



**Fig 8:** Right testis showing spermatocytic / diffuse seminoma (H&Ex100)

### Conclusion

Thus concluded that testicular tumours associated prostate abscess could be treated effectively by surgical removal of testicles combined with omentalisation of prostate in dogs. The dogs with cryptorchidism should be diagnosed and treated surgically to remove the undescended testicles early in the life to prevent prostate disorders in dogs.

### Acknowledgements

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**Conflict of interest:** No conflict of interest relevant to this study was reported.

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