

SEX HORMONE DERMATOSES DUE TO SERTOLI CELL
TUMOR ASSOCIATED WITH FEMINIZING SYNDROME IN A
CRYPTORCHID DOG

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ABSTRACT

A nine year old male Golden retriever was presented to the Small Animal Dermatology outpatient unit of Madras Veterinary College Teaching Hospital with a history of symmetrical alopecia, enlarged pendulous prepuce and haematuria. Detailed clinical examination revealed cryptorchid, gynecomastia, pendulous preputial sheath and alopecia originating in the lumbar region. The entire coat was dull, dry and epilated easily. Resting telogen phase was also observed in trichogram. Trans abdominal palpation showed an enlarged solid mass in the right inguinal region. Radiography and abdominal ultrasonography revealed the presence of neoplastic retained right testicle. Haematology revealed leucocytosis, while serum biochemistry remained within the normal reference range. Histological examination confirmed the presence of sertoli cell tumors that were primarily responsible for the feminizing syndrome. Under general anaesthesia, caudal ceilotomy was done and retained testicles were identified. Testicular tumor with torsion was ligated with PGA 1-0 and excised, similarly the other normal testicle was also removed. Broad spectrum antibiotics and supportive therapy were also administered for 5 days. Complete remission of all clinical symptoms occurred within 3 months post orchiectomy.

Keywords: Dermatoses, cryptorchidism, sertoli cell tumour, dog

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INTRODUCTION

Cryptorchidism is a testicular development disorder that is common in dogs and mainly associated with genetic causes (Marco *et al.*, 2012). Sertoli cell tumor is one of the common type of tumors of the testes followed by seminomas and Leydig cell tumors (D'Angelo *et al.*, 2012; Bini *et al.*, 2015). Approximately 70 per cent of sertoli cell tumors arising in abdominal testes are associated with feminizing paraneoplastic syndrome characterized by non-pruritic, bilateral symmetrical alopecia, hyperpigmentation, gynecomastia, edematous and pendulous penile sheath, prostatic dysfunctions (Metzger *et al.*, 1993; Marco *et al.*, 2012). This report describes a case of sertoli cell induced dermatoses in a cryptorchid dog with feminization and various diagnostic protocols implemented to diagnose the condition and also the successful outcome after surgical and therapeutic management.

CASE HISTORY AND OBSERVATION

Nine year old male Golden retriever was presented to the Small Animal Dermatology outpatient unit of Madras Veterinary College Teaching Hospital with a history of non inflammatory symmetrical flank alopecia with smooth glistening skin, bilaterally symmetrical alopecia (Fig.2), enlarged pendulous prepuce (Fig.1) and haematuria. Detailed clinical examination revealed cryptorchid, enlarged mammary glands, displayed a pendulous preputial sheath and alopecia originating in the

lumber areas. The entire coat was dull, dry and epilated easily. Testes were absent in scrotal pouch and mass palpated on ventral abdomen. Other vital parameters were within the normal limits.

DIAGNOSIS AND TREATMENT

Haemato-biochemical examination revealed leukocytosis and neutrophilia while serum biochemistry and thyroid profile remained within the normal reference range. Detailed dermatological examination like skin scrapping, coat brushing, tape impression were negative for mites, *Malassezia pachydermatitis*, Dermatophytosis, *Cheyletiella sp.* Resting telogen phase (ceasing growth but remaining anchored in the follicle) was also observed in trichogram. Radiographic examination showed the prostatic enlargement (Fig.5). Trans abdominal ultrasonographic examination revealed hypoechoic prostate parenchyma and heterogenous nodular tumors in testes (6.7cm × 11.2cm) (Fig 4). Hormone analysis revealed elevated estrogen level 134.2 pg/ml and decreased testosterone level 0.21ng/ml. Based on ultrasonography, radiography and blood biochemistry the case was diagnosed as sertoli cell tumor. Histopathology of tumour mass was confirmed as sertoli cell tumor (Fig.6).

An exploratory laparotomy was performed under general inhalation anaesthesia. The dog ventral abdomen was prepared aseptically for surgery. The animal was premeditated with butorphanol 0.2mg/kg b.wt and induction with diazepam

0.5mg/kg bwt and propofol 2mg/kg bwt IV maintained with inhalation anaesthesia of isoflurane 2% in circle system with 100 per cent oxygen supplementation. Caudal celiotomy was done and retained testicles were identified. Testicular tumor (Fig-3) with torsion was ligated with PGA 1-0 and excised, similarly the other normal testicle was also removed. Prostatic abscess was also drained and omentalization also performed to prevent the reoccurrence. Post-operative management the animal was treated with oral antibiotic amoxicillin clavulanic acid @ 15mg/kg BID for 10 days, inj.vitamin ADE3 1ml IM once in a week. Animal showed clinical improvement with better hair growth and serum estrogen (9 pg/ml) and testosterone level (0.18 ng/ml) became normal within the range after 60 days. The pet recovered successfully with complete regrowth of hair within 90 days (Fig.7).

DISCUSSION

Sertoli cell tumors, interstitial cell tumors, and seminomas are the three common testicular tumor in dogs and are mostly diagnosed in adult dogs with average age of ten years (Liao *et al.*, 2009; Crivellenti *et al.*, 2013). Association between cryptorchidism and the development of Sertoli cell tumors and seminomas but not interstitial cell tumors had been reported (Liao *et al.*, 2009; Masand *et al.*, 2013). The etiology of testicular tumour is not clear but the risk factors include increasing age, breed environmental elements, and cryptorchidism (Quartuccio *et al.*, 2012).

Oestrogen secreting sertoli cell tumor was the cause of the hair loss. Hyperestrogenism due to exogenous or endogenous sources of estrogen is a known cause of inflammatory alopecia (Sanpera *et al.*, 2002; Fiona *et al* 2023). Clinical signs of alopecia associated with hyperestrogenism are derived from the binding of estrogen-to-estrogen receptor α that is involved in regulation of hair follicle cycle. This binding alters the anagen-telogen phase transition of the hair follicle cycle by inducing premature catagen and prolonging telogen phase (Hu *et al.*, 2012 and Teagan and DeForge, 2020).

Bilateral orchiectomy is the treatment of choice for sertoli cell tumors. (Prasad *et al.*, 2012; Lawrence and Saba, 2013). This might be responsible for the improvement in the clinical condition of the dog following surgery in this study. The common clinical signs associated with this condition are cryptorchidism, sertoli cell tumor, bilateral flank alopecia, prostatic abscess was also reported by Marco *et al.* (2012). The diagnostic tools like ultrasonography, hormonal analysis and histopathology were implemented in this study for diagnosis of sertoli cell tumour was in accordance with Marco *et al.* (2012).

Table.1. Haematobiochemical parameters in affected dog

Haemogram			Serum biochemistry		
Parameters	value	reference	Parameters	values	reference
Haemoglobin	14.9 g/dl	12-18 g/dl	Bun	22.12 mg/dl	10-28 mg/dl
PCV	43.8%	35-55%	Creatinine	1.21 mg/dl	0.6-1.5 mg/dl
RBC	6.89 m/cmm	4.95-7.87 m/cmm	Total Biliurubin	1.01 mg/dl	1.2-2.1 mg/dl
WBC	36500/cmm	5000 – 14000 /cmm	Direct Bilirubin	1.03 mg/dl	0.04-0.16 mg/dl
Platelets	328000/cmm	211000 – 621000 /cmm	ALP	58u/l	12-65 u/l
Neutrophils	95%	60-70%	ALT	42 u/l	8.3-53 u/l
Eosinophils	2%	20-30%	Total Protein	7.80 mg/dl	5.7-8 mg/dl
Monocytes	3%	5%	Albumin	2.60 mg/dl	2.4-3.8 mg/dl
Blood picture : Negative, neutrophilia			Thyroxine (t4)	2.4 mcg/dl	1-4 mcg/dl



Fig.1. Enlarged pendulous prepuce, cryptorchid



Fig.2. Bilateral symmetrical flank alopecia



Fig.3. Testes with nodular masses (950gms)

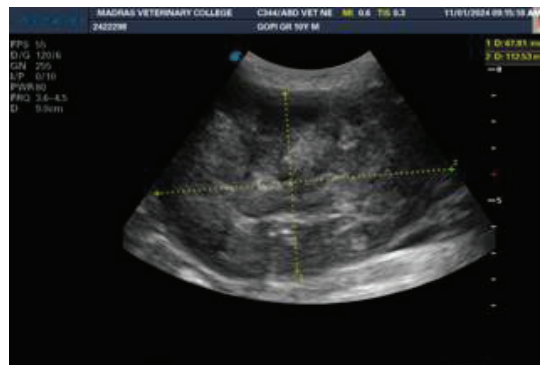


Fig.4. Ultrasonography of testicular tumour

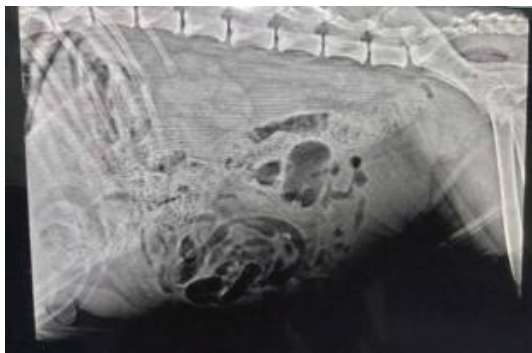


Fig.5. Prostate enlargement (arrow mark

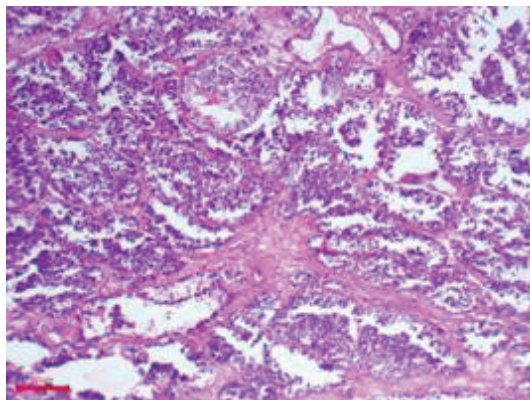


Fig.6. Sertoli cell tumour – Pseudo stratified columnar sertoli cells inside the seminiferous tubules. Scanty to thick interstitium.(H&E Bar- 50µm)



Fig.7. Day 90 - After treatment

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