

International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; 10(6): 887-889
www.biochemjournal.com
Received: 08-04-2026
Accepted: 13-05-2026

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Rare case of Sertoli cell Tumor in German Shepherd dog and its surgical management: A case report

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DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i6k.8786>

Abstract

A seven-year-old German Shepherd Dog was presented with complaint of bilateral alopecia and skin lesions for six months, reduced appetite and swelling at left inguinal region. On clinico-andrological examination, only one descended testis in the scrotum and large hard mass was palpated on left inguinal region. The condition was tentatively diagnosed as Sertoli cell tumour of undescended testis based on ultrasonography, feminising paraneoplastic syndrome such as gynaecomastia, pendulous prepuce. Later it was confirmed by histopathology and hormonal assay. Under general anaesthesia with 1% propofol, the descended testis was surgically removed through pre scrotal approach and laparotomy was performed to remove retained abdominal testis by mid ventral approach. After post operative management for 10 days, the signs were gradually reversed and animal recovered completely within two months post surgery.

Keywords: Sertoli cell tumor, feminising paraneoplastic syndrome, gynaecomastia

Introduction

Sertoli cell tumor (SCT) is a neoplasm originating from Sertoli cell or nurse cell of the testis. Occurrence of this tumor is more in intact cryptorchid aged dogs (Ciaputa *et al.*, 2012) [2]. Johnston *et al.* (2001) [6] reported that mean age at the time of diagnosis of Sertoli cell tumors is 7 years. Boxers and Weimeraners are more prone for Sertoli cell tumors (Johnston *et al.*, 2001) [6]. Dogs with cryptorchid testes, causes 26-fold increase risk for SCT and 15-fold increase risk for seminomas (Hong *et al.*, 2011) [5]. Malignancy of the SCTs is low (2-6%) but increases greatly in case of retained abdominal testis (Hohsteter *et al.*, 2014) [4]. About 70% of SCT's of abdominal testes origin are functional and exhibit Feminizing Paraneoplastic Syndrome (FPS) (Quartuccio *et al.*, 2011) [8] such as non-pruritic bilateral symmetrical alopecia, hyperpigmentation, gynaecomastia, pendulous penile sheath, attraction to other males, attaining squat posture while urinating. Bilateral orchiectomy is the treatment of choice for Sertoli cell tumors (Kisani *et al.*, 2017) [7]. In malignancy cases chemotherapy is advised as an adjuvant therapy with tumor excision. Through this communication, we put forth a case of successful surgical management of Sertoli cell tumor in German Shepherd Dog.

Case History and Observations

A seven-year-old male German Shepherd dog presented to the clinics of department of gynaecology with a complaint of bilateral alopecia, skin lesions for 6 months, loss of appetite, and swelling at left inguinal region. Clinico-andrological examination revealed symmetrical bilateral alopecia on the croup regions, hyperpigmentation on the peri-anal and inguinal regions, gynaecomastia, oedematous and pendulous prepuce (Fig.1). The animal was dull, weak and dehydrated. Only one testis was descended into scrotum with swelling on left inguinal region. On abdominal palpation, intra-abdominal hard mass could be palpated.

Diagnosis and Treatment

Ultrasonography of the left inguinal region and abdomen revealed Presence of large hypoechoic mass of cryptorchid testis (Fig.2). Ultrasonography of the prostate did not show any significant change in the size of prostate except slight change in the echogenicity.

Hematobiochemical studies revealed anaemia, thrombocytopenia, marginal leukopenia with normal level of creatinine and BUN. Serum estrogen estimation by ELISA method was found to be 110 pg/mL. Stained smear from preputial washings showed large number of cornified cells (Fig. 3). Based on above findings, case was tentatively diagnosed as Sertoli cell tumor and decided to go for surgical excision. The animal was stabilized preoperatively for three days with supportive therapy.

The dog was Premedicated with Diazepam and butorphanol @ 0.5 mg/kg BW and 0.2 mg/kg i/v respectively, followed by induction of anaesthesia with 1% Propofol. The descended testis was surgically removed by pre scrotal approach and then laparotomy was performed by mid ventral approach to remove retained abdominal testis after ligating the spermatic cord. Cephalixin oral medication was administered for 7 days with alternate day wound dressing. Surgical wound healed completely and skin sutures removed on 12th day. The gradual reversal of the recorded signs such as improvement in appetite, regrowth of hairs on the alopecic area, decrease in pigmentation over peri-anal region was noticed. The animal recovered uneventfully within two months post-surgery (Fig .7).

Weight of the excised testicular mass was about two kgs with engorged veins on mass. Grossly the mass was hard, multinodular with diffuse grey appearance (Fig.4). Based On histopathological findings, the mass was confirmed to be Sertoli cell tumor.

Discussion and Conclusion

Among the testicular tumors, the Sertoli cell tumor has the potential to produce clinical effects due to hormonal changes (Suresh Kumar, 2012) [9]. Based on clinical signs and Ultrasonography, initial diagnosis of the tumor condition can be done. Squamous metaplasia of the prostate and abscessation in SCT has been reported by Borbill and Cătoi (2007) [1]. This could be due to excessive androgen secretions, whereas in the reported case no much significant changes in the size of prostate was noticed. Normal level of serum estrogen in intact male dogs is 35-50 pg/ml by Frank *et al.*, 2003) [3]. But Serum estrogen level of 2-to-3-fold increase is evident in dogs with SCT which was recorded in this case.

Preputial cytology is one of the diagnostic aids where we can expect large number of cornified cells in the dogs exposed to hyperestrogenemia (Jhonston *et al.*, 2001) [6] which was evidenced in this case. Estrogen myelotoxicity causing bone marrow hypoplasia is common in SCT (Jhonston *et al.*, 2001) [6] which can be evidenced in this case through its blood report. Spermiogram, usually reveals oligospermia and teratozoospermia in case of unilateral cryptorchid and azoospermia in bilateral cryptorchid cases. Borbill and Cătoi (2007) [1] have reported that Grossly Sertoli cell tumours are Multinodular, firm white or grey appearance having tan or yellow areas of hemorrhage or fluid-filled cysts. These lesions are correlated with the appearance of mass excised in this case. Histopathology is the best method to confirm the type of tumor. The HP of the excised mass in this case revealed compactly arranged neoplastic cells with mitotic figure and vacuolations suggestive of Sertoli cells (Fig 5, 6). Sertoli cell tumors are to be differentiated from Seminoma and Leydig cell tumors through HP and from Hypothyroidism and Hyperadrenocorticism through hormonal assay. Bilateral

orchietomy is the treatment of choice for Sertoli cell tumors (Kisani *et al.*, 2017) [7]. In malignancy cases, Chemotherapy is suggested using Cisplatin at dose rate of 60mg/m², 2-5 doses in every 3 weeks once (Jhonston *et al.*, 2001) [6]. Combination of drugs like Vinblastine cyclophosphamide, and methotrexate have also been described (Jhonston *et al.*, 2001) [6]. Blood transfusion and supportive treatment can be done in severe estrogen induced anemia cases.



Fig 1: Hyper pigmentation of perianal region



Fig 2: Hypoechoic cryptorchid testicular mass



Fig 3: Preputial smear showing cornified cells

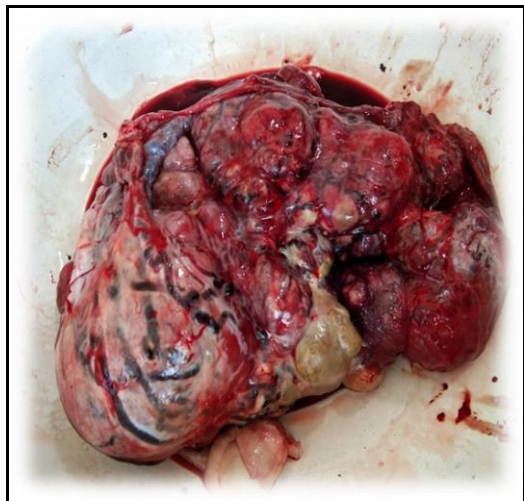


Fig 4: Excised mass with engorged vein and with, white or grey multimodules.

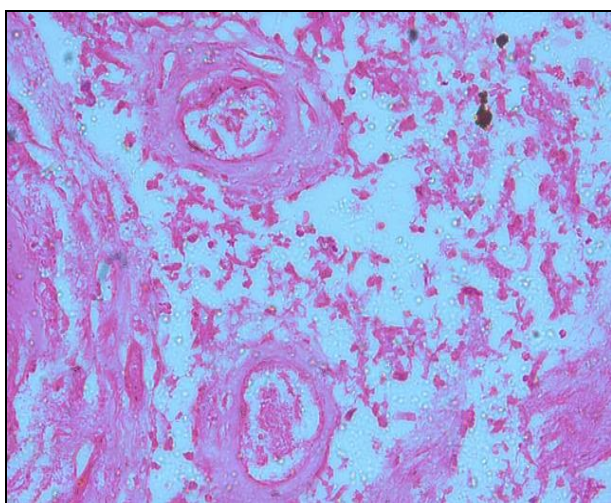


Fig 5: Islets of cells separated by fibro-vascular connective tissue

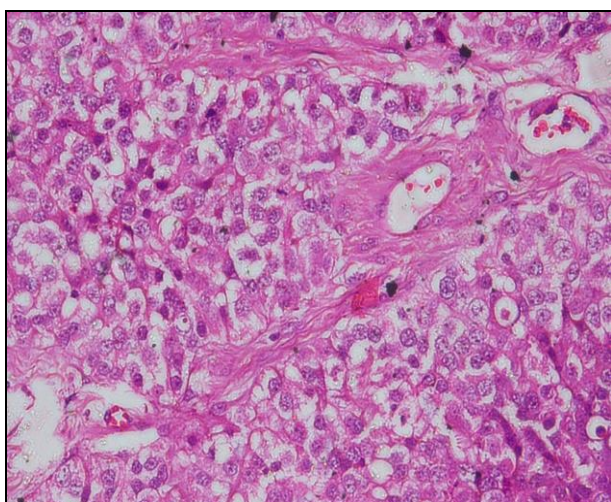


Fig 6: Compactly arranged neoplastic cells with mitotic figure and vacuolation



Fig 7: Recovered animal after two months post surgery

Conclusion

Surgical excision or bilateral orchiectomy is the best treatment for Sertoli cell tumor. Malignancy cases should be maintained with chemotherapeutic agents. Early diagnosis and removal of undescended testis at younger age of life would prevent complications caused by undescended testis.

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