



International Journal of Veterinary Sciences and Animal Husbandry



ISSN: 2456-2912

VET 2024; 9(5): 98-100

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www.veterinarypaper.com

Received: 26-06-2024

Accepted: 30-07-2024

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Surgical management of bilateral cryptorchidism with congenital agenesis of scrotum in a mongrel breed dog: A rare case report

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DOI: <https://doi.org/10.22271/veterinary.2024.v9.i5b.1658>

Abstract

The case report discusses the surgical management of bilateral cryptorchidism with congenital agenesis of scrotum in a dog, which is a rare condition. The report details the case presentation of a nine-month-old male mongrel breed dog with no scrotal sac and the surgical procedure performed to remove both testicles. The dog underwent orchiectomy under general anesthesia, and post-operative treatment was also outlined. The report highlights the rarity of bilateral cryptorchidism with congenital agenesis of scrotum in dogs and provides valuable insights into the surgical and post-operative aspects of the condition.

Keywords: Bilateral cryptorchid, orchiectomy, mongrel breed dog

Introduction

Undescended testicles, known as cryptorchidism, are a urological condition present at birth and are characterized by the incomplete or absent descent of one or both testicles. In canines, the testicles typically descend through the inguinal canal 3–4 days after birth and settle in the scrotum by day 35 (Johnston SD *et al.*, 2001) [3]. The absence or incomplete development of the testicles may be due to abnormalities in the growth of the gubernaculum and the presence of cranial gonadal suspensory ligaments, which can hinder the migration of the testis through the inguinal canal (Johnston SD *et al.*, 2001, Kersten W *et al.*, 1996) [3, 4]. Cryptorchidism presents in different forms based on the involvement of one or both testicles and their location (Johnston SD *et al.*, 2001, Griffin B *et al.* 2020) [3, 1], which can be bilateral or unilateral depending on the side (Bhuvaneshwari V. *et al.*, 2018) [10]. The unilateral form is the most common, with the right testicle being retained twice as often (Yates D *et al.*, 2013, Tobias KM *et al.*, 2013) [11, 9]. Apart from this report, no case reports on bilateral cryptorchid condition with congenital agenesis of scrotum in a dog have been published in India. In the case report, both testicles were removed via orchiectomy, and the procedure is mentioned in details.

Case presentation

One nine months old male mongrel breed dog was presented the clinics of West Bengal University of Animal and Fishery Sciences (WBUAFS) for castration. By physical examination, it was revealed that the dog is having no scrotal sac. By digital manipulation, both the testicles are not found under the abdominal skin. Assuming the presences of testicles inside the abdominal cavity and after taking concern from the owner of the animal orchiectomy was performed under general anesthesia. During general anesthesia injection Atropine sulphate [(containing Atropine -0.6mg/ ml) (company name- Samarth Life Sciences Pvt Ltd)] was administered @0.04 mg/ kg body weight subcutaneously. After 10 minutes of 1st injection, as induction of anesthesia Injection Xylaxin [(containing Xylazine -23.32 mg/ ml) (company name- Indian Immunologicals Ltd)] was administered intramuscularly @ 1.5 mg/ kg body weight. During operation injection Ketmin [(containing Ketamine -50 mg/ ml) (company

name-Themis Medicare Ltd]] @5 mg/kg body weight and injection Calmpose [(containing Diazepam -10 mg/ ml) (company name- Sun Pharmaceutical Industries Ltd)] @ 0.50 mg/kg body weight was administered intravenously as a maintenance.

At first with the help of Bp blade a 4-centimeter-long incision was given parallel to the preputial sheath of the animal at right side. Then muscles and peritoneum were incised with mayo scissors. After that the right testicle was located inside the abdomen with the thumb and index finger and exteriorized. A stump was given with Vicryl no 1 in the spermatic cord and right testis was removed. Same procedure was performed on the left side testicle. After removal of both testicles, muscles and peritoneum were sutured with Vicryl no 1 by simple interrupted suture technique. And skin was sutured by Linex number 1 by mattress suture technique. Postoperative treatment includes 1. Intacef tazo pet (562.5 mg) [(containing Ceftriaxone 500 mg and Tazobactam 62.5) (company name- Intas)] - administered Intra muscularly @ 20mg per kg body weight for 5 days 2. Inj Rantac 2ml [(containing Ranitidine (25 mg)) (company name- J B Chemicals and Pharmaceuticals Ltd)] – administered intramuscularly @ 1mg per kg body weight for 3 days 3. Tablet Relaxyme [(containing systemic enzyme for wound healing) (company name- Vivaldis)]- given orally @ one tablet twice daily for 7 days. It was also advised for dressing on alternate days (3rd, 5th, 7th and 9th day of post operation) with Betadine solution 2ml [(containing Povidone Iodine - 10% w/v) (company name- Win-Medicare Pvt Ltd)] and T Bact ointment 2ml [(Mupirocin -2% w/w) (company name- Glaxo SmithKline Pharmaceuticals Ltd)]. The owner was told to restrict the movement of the animal for 2 weeks.



Fig 1: (Before Surgery)



Fig 2: (Surgical Site)

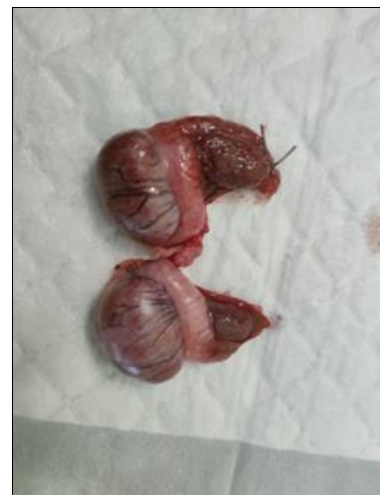


Fig 3: Two Undescended Testicles

Result and Discussion

Cryptorchid testicles can be found in high abdominal, low abdominal, or inguinal positions (Yates D *et al.*, 2013, Mattos MRF *et al.*, 2000) ^[11, 6]. It is a common condition seen in small animal veterinary clinics, with incidence rates of 1.2–12.9% in dogs (Yates D *et al.*, 2013, Tobias KM *et al.*, 2013) ^[11, 9] and 1.7–3.8% in cats (Yates D *et al.*, 2013, Tobias KM *et al.*, 2013) ^[11, 9]. In dogs, cryptorchidism is an inherited autosomal recessive trait, and it is more prevalent in small breeds compared to large breeds (Tobias KM *et al.*, 2013) ^[9]. Breeds at high risk of cryptorchidism are Chihuahuas, Boxers, and German Shepherds, with incidences of 30.4%, 20.6%, and 14.0% respectively (Moon *et al.*, 2014) ^[7]. Purebred dogs have a higher incidence of cryptorchidism compared to crossbred dogs (Khan FA *et al.*, 2018) ^[5]. Unlike unilateral cryptorchid dogs, because of high-temperature sperm production bilateral cryptorchid dogs are always sterile ((Zhao *et al.*, 2009) ^[12]. The treatment of cryptorchidism in dogs with orchiopexy is a debated topic due to its hereditary nature and the continued risk of testicular neoplasia in these animals (Higgins M *et al.*, 2020) ^[2]. For this reason, orchiopexy surgery is not entertained in veterinary clinics. Therefore, orchiectomy is the best choice instead of orchiopexy, like in our present case.

Conclusion

This rare case report details the surgical care of a nine-month-old male mongrel dog with bilateral cryptorchidism and congenital agenesis of the scrotum, including an orchiectomy under general anaesthesia. It highlights the rareness of this condition in dogs.

Acknowledgement

I would like to sincerely thank my co authors for their support and kind gesture to complete this manuscript in time.

Funding

No Funding for this paper

Conflict of interest

There is no Conflict of interest between Authors.

Authors Contribution

All Authors are contributed equally, and all authors responses are observed.

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How to Cite This Article

Saren AK, Mandal D, Sarkar P, Chakraborty D, Das S, Baidya S. Surgical management of bilateral cryptorchidism with congenital agenesis of scrotum in a mongrel breed dog: A rare case report. *International Journal of Veterinary Sciences and Animal Husbandry.* 2024;9(5):98-100.

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