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Bilateral orchiectomy: Efficient surgical technique for management of traumatic testicular evisceration in rabbits

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Abstract

Traumatic testicular evisceration is a relatively common issue in rabbits, often arising from territorial aggression among mates. This behavior, aimed at establishing dominance, can result in injuries among cage mates, including testicular trauma. Testicular evisceration can manifest as either unilateral or bilateral involvement. Surgical intervention is typically necessary to address this condition effectively. Recently, a nine month old rabbit buck weighing 1.8 kg was presented with a history of bilateral evisceration following an altercation with a cagemate. Bilateral orchiectomy through an open scrotal approach was performed under general anaesthesia. The rabbit was premedicated with xylazine (5 mg/kg) and ketamine (50 mg/ kg) intra-muscularly. Both right and left testicles were removed and the hemiscrotal incision was closed with 3-0 Vicryl, horizontal mattress suture pattern. Post-operative management included antibiotics and anti-inflammatory drugs for a period of 5 days and the owner was advised to keep the rabbit safe and separately. The surgical site healed without complication and the neutered rabbit recovered fully within 14 days.

Keywords: Orchiectomy, rabbit, testicular evisceration

Introduction

Territorial aggression aimed at asserting dominance among intact male rabbits is a common occurrence, as noted by Bays *et al.* (2006) [1]. Harcourt-Brown (2002) [4] further explains that during fights, male rabbits frequently target another male's scrotum, leading to the removal of one or both testicles. This behavior is believed to be a strategy employed by the dominant buck to sterilize a potential male rival, thereby maintaining hierarchical dominance within the group. Rabbits indeed possess two hairless scrotal sacs, known as hemiscrotal sacs, rather than a typical scrotum as seen in some other mammals. These sacs are separate from each other and are situated in the inguinal area, located ventral to the anus and cranial to the prepuce. A significant anatomical characteristic of rabbits is that their inguinal canal remains open throughout their lives, allowing the elongated testicles to move freely between the hemiscrotal sacs and the abdominal cavity (Lennox, 2008; Vella & Donnelly, 2012) [7, 10].

It's noteworthy that the skin covering the scrotal sacs in rabbits is relatively thin compared to other exotic pet species like dogs and cats. Consequently, this thin skin makes the scrotal sacs susceptible to tearing or ripping, especially during aggressive encounters or fights (Lennox, 2008) [7]

History

A 9 month, male rabbit was presented at Veterinary Clinical Complex, DUVASU, Mathura on 3 April 2024. The owner reported that their rabbits were fighting in the morning, resulting in one of the rabbits getting injured. Both the testis of the rabbit was exposed and hanging out with minute bleeding. On physical examination, Rabbit was alert, having bright pink mucous membrane, heart rate was 170 which is under the normal range and the capillary refill time was less than 2 seconds. There were some necrotic and congestive lesions present on the exposed testicles and the left hemiscrotum is totally ruptured.

Management history

As per the owner both the male rabbits were kept in deep litter together in the shed of 8 ft × 16 ft area. Both rabbits were fed on the vegetables such as carrot, pumpkin and green coriander leaves. The ad lib water is available in the shed. Upon reaching sexual maturity, both rabbits engaged in a fight, and the owner noticed an injury in the morning while feeding them.

Case diagnosis and management

On the basis of physical examination findings and history, the case was diagnosed as evisceration of both testicle as sequelae of scrotal trauma. After getting consent from the owner, bilateral orchietomy was performed under general anesthesia (xylazine @ 5 mg /kg inj i/m and ketamine @ 50 mg/kg inj

i/m) which is described.

Treatment

After cleaning the eviscerated testicles with antiseptic solution (7% Povidone iodine), prepared for aseptic surgical procedure. The rabbit was positioned on dorsal recumbency and surgical drape was applied with exposing both the testicles and prepuce in the surgical field. The exposed vaginal process of the both testicles was clamped with the help of haemostatic forcep, then the spermatic fascia was broken and the spermatic cord was ligated and resected, the both the testicles were removed one by one. The vaginal tunic was then closed to avoid herniation by applying horizontal mattress suture pattern by using vicryl 3-0, followed by closing of hemiscrotal wound by same suture pattern.



Fig 1a: Eviscerated testicles



Fig 1: Removed testicles



Fig 2a: Closure by using horizontal mattress suture



Fig 2b: Recovered rabbit

Post operative care

A doxycycline suspension @ 5 mg/kg/day PO upto 5 days, NSAID Meloxicam suspension @ 0.5 mg/kg/day PO for 3 days and multivitamin supplementation was prescribed (Hedley 2018). Owner was advised to provide probiotic tablets for a period of 5 days. The skin sutures were removed on 12th post-operative day. Now the Rabbit has recovered completely. The owner is Suggestive to keep the male rabbits separately in the breeding season.

Discussion

After reaching sexual maturity, typically around 4-6 months of age, male rabbit bucks often display dominance through aggressive behavior. Consequently, it's generally not advisable to house two male rabbits together in the same cage, as noted by Bradley *et al.* (2006)^[3]. The descent of testicles in rabbits typically begins at around 10-12 weeks of age. The preferred age for castration or orchietomy in rabbits is around 4-6 months. This timing is optimal for both behavioral

management and health reasons. In cases where traumatic evisceration of the testis occurs, the most effective method for management is orchiectomy, also known as castration, as highlighted by Vella and Donnelly (2012) [10]. This surgical procedure not only addresses the immediate injury but also helps prevent future complications and behavioral issues associated with intact male rabbits (Bishnoi *et al.* 2019) [2]. Since rabbits sit on its inguinal area, apposition of the scrotal sac is mandatory after castration (Sharun *et al.* 2019) [6]. Orchiectomy, or castration, is the removal of the testicle, epididymis, and a portion of the vas deferens. Orchiectomy is an appropriate procedure for cases as described in this report (Nurhusien *et al.* 2015) [8].

Conclusion

Aggressive behavior among rabbits can lead to severe injuries to the genitalia, particularly in male rabbits. In cases where injuries are significant, requiring immediate intervention and to prevent future behavioral problems and territorial aggression, orchiectomy (surgical removal of one or both testicles) may be necessary. A thorough understanding of rabbit anatomy and physiology is crucial for both preventing these injuries and providing appropriate treatment when needed. Awareness of the unique characteristics of rabbit genitalia, such as the presence of hemiscrotal sacs and the open inguinal canal, can help in identifying potential risks and implementing measures to mitigate them. Additionally, recognizing the signs of aggression and addressing behavioral issues promptly can contribute to preventing injuries and promoting the overall well-being of rabbits.

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