TESTICULAR EVISCERATION SEQUEL TO TRAUMA AND ITS SURGICAL MANAGEMENT IN A RABBIT

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ABSTRACT. The characteristic thin skin of the scrotal sac in a rabbit was torn resulting in traumatic exposure of the right testicle. Bilateral orchiectomy through an open scrotal approach was performed under general anaesthesia. The rabbit was pre-medicated with Acepromazine (0.5 mg/kg, 0.15 ml) and Flunixin meglumine (1 mg/kg, 0.03 ml,) intra-muscularly. Isoflurane was used for induction at 5% with O_2 flow rate at 0.7 L/min and maintenance Isoflurane, 1.5% - 3%, O_2 flow rate = 0.7 L/min) of general anaesthesia. Both right and left testicles were removed and the hemiscrotal incision was closed with 4-0 Vicryl, horizontal mattress suture pattern. Post-operative treatments with antibiotic and anti-inflammatory agents were instituted and the client was advised about how to safely manage aggressive behaviour of rabbits towards each other. The surgical site healed without complication and the neutered rabbit recovered fully within 14 days.

Keywords: rabbit, exposed testicle, traumatic injury, aggression, orchiectomy

INTRODUCTION

Territorial aggression in order to maintain dominance among intact males occurs frequently (Bays *et al.*, 2006). According to Harcourt-Brown (2002), male rabbits often attack another male's scrotum during fights and results in removal of one or both testicles of the other rabbit. This behaviour is an attempt by the dominant buck to sterilise another potential male rival to maintain hierarchical dominance.

Rabbits do not have a scrotum *per se* but have two hairless scrotal sacs (hemiscrotal sacs). The hemiscrotal sacs are separated and located in the inguinal area, ventral to the anus and cranial to the prepuce. A very important anatomical peculiarity of rabbit is that its inguinal canal remains open throughout life, and the elongated testicles move freely from the hemiscrotal sacs to the abdominal cavity (Lennox, 2008; Vella & Donelly, 2012). However, the skin of the scrotal sac is thin compared with other exotic pet species such as dogs and cats, and therefore, it can be easily torn or ripped off (Lennox, 2008).

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Case Report

An 8-month-old, intact male rabbit was presented to University Veterinary Hospital (UVH), Universiti Putra Malaysia on 6th March 2014 with the complaint that one (right side) of the rabbit's testicles was exposed, hanging out and bleeding. Upon physical examination, rabbit appeared bright and alert, with pink mucous membrane and capillary refill time (CRT) was less than two seconds. There were some necrotic tissues on the exposed testicle and hemiscrotum. The left testicle was still intact.

Management history

The rabbit was caged together with another male rabbit. Both rabbits were fed with commercially available pellets, vegetables and hay. On attainment of sexual maturity, the owner decided to breed the rabbits by introducing a female rabbit. The owner mistakenly let all the three rabbits out of their cages overnight, and the two male rabbits apparently fought and the traumatic injury on the affected rabbit was noticed the following morning.

Case diagnosis and management

Based on the physical examination findings and the history, the case was diagnosed as traumatic evisceration of right testicle. After getting consent from the owner to neuter the rabbit, a surgical procedure of bilateral orchidectomy under general anaesthesia was then performed for management. Another male rabbit at home kept for breeding.

Surgical Procedure

The wound on the eviscerated right testicle was cleaned with antiseptics, debrided and prepared for aseptic surgery. The patient was positioned on dorsal recumbency and a surgical drape was applied with both testicles and prepuce exposed in the surgical field. A small incision was made on the scrotal sac of the right testicle to exteriorise further the vaginal process for open castration. The exposed vaginal process was then clamped with a haemostatic forceps, and the testicle was removed by excising the vaginal process with a scalpel blade (Figure 1A). The stump of the vaginal process was then sutured with 4-0 Vicryl, using horizontal mattress suture pattern that also closed the inguinal ring. The ligated stump was checked for bleeding and inserted back into the scrotal sac. The incision on scrotal sac was also sutured with 4-0 Vicryl, horizontal mattress suture pattern.

Similarly, about 2-cm long incision was made on the left hemiscrotum and the vaginal process was exteriorised. A 1-cm incision was done on the *Tunica vaginalis* and the left testicle exteriorised (Figure 1B). The spermatic fascia was broken and the spermatic cord was ligated and resected (Figure 1C), before the left testicle was removed. The vaginal tunic was then sutured with 4-0 Vicryl, using horizontal mattress suture pattern to ensure that the inguinal ring was closed to prevent post-operative herniation, followed by closure of the hemiscrotal incision with 4-0 Vicryl using the same suture pattern.

Post-operative Treatment

A Ilium Benacillin™ (long acting penicillin), was administered once intramuscularly at a dose of 1 mg/kg as prophylactic antibiotics. In addition, 1 tablet of anti-inflammatory drug, Beazyme™ (Carica papaya proteolytic enzyme) was administered per-os twice daily for three consecutive days. The rabbit recovered well from the anaesthesia and was discharged a few hours after the surgery.

The client was instructed to monitor and report if the rabbit attempts to chew or gnaw at the incision site or bleeding and swelling occurs at the site. The client was also advised to keep the cage clean and return the rabbit to the hospital for re-examination if it did not eat for more than 24 hours. However, no complication occurred and complete recovery was reported by the client.

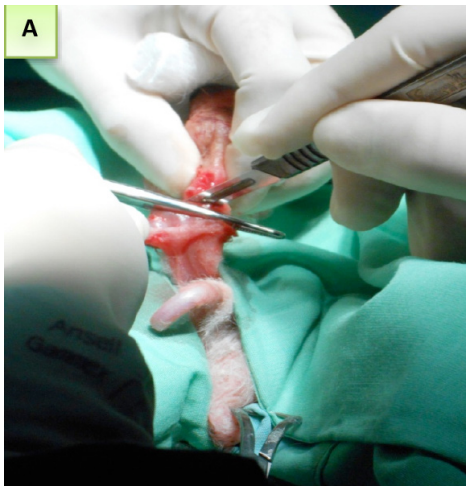

Figure 1a. closed orchiectomy on the right testicle of a rabbit showing clamping and excision of the vaginal process

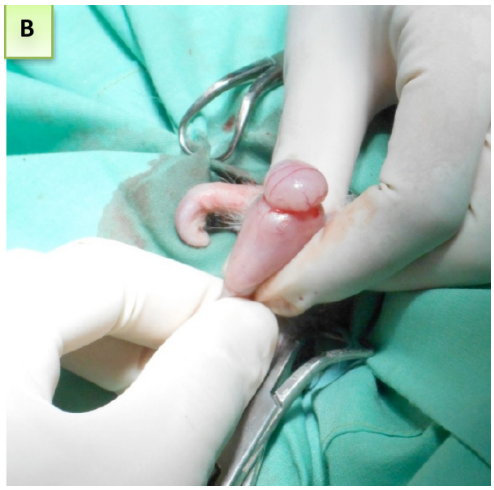

Figure 1b. open orchiectomy on the left testicle of a rabbit showing exteriorisation of left testicle through incision of vaginal tunic

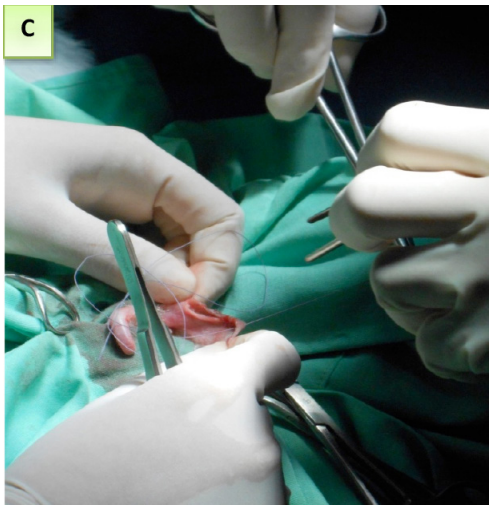

Figure 1c. closure of the left vaginal tunic with 4-0 vicryl, using horizontal mattress suture pattern and closure of the inguinal ring.

DISCUSSION

Some of the causes of aggression in rabbits include sexual maturity, dominance, pain and territorial behaviour. Rabbits reach

sexual maturity at the age of four to six months (Bays *et al.,* 2006; Vella & Donnelly, 2012). It is not advisable to keep two intact males together, because rabbits are known to fight for territory frequently, thus resulting in injuries (Land, 2004; Bays *et al.,* 2006). Thus, the injuries described in this case report could have occurred as a result of attempts by both the intact male rabbits to fight for dominance and territory as the presence of other rabbit could have been considered as a threat.

Orchiectomy, or castration, is the removal of the testicle, epididymis, and a portion of the vas deferens (Murray, 2006). Orchiectomy is an appropriate procedure for cases as described in this report and as a method to reduce inappropriate behaviours (Olson & Bruce, 1986; Harcourt-Brown, 2002; Vella & Donnelly, 2012). Rabbit testicles begin to descend into the scrotal sacs at 10 to 12 weeks of age, hence, castration can be performed from 4 to 5 months old (Vella & Donnelly, 2012).

There are two techniques of castration available for rabbits; open and closed castration. In closed castration, the *Tunica vaginalis* is not incised and both spermatic cord and testicle are removed while they are still in the tunic. Whereas, in open castration, the vaginal tunic is incised, the spermatic cord ligated and the testicle removed (Murray, 2006). However, since rabbits often sit directly on the inguinal area, it is important to close the incision on the scrotal sac.

CONCLUSION

Severe injuries to the genitalia may result from aggressive behaviour among rabbits. Such injuries in male rabbits could require orchiectomy, both as an immediate treatment as well as prevention in future behavioural problems and territorial aggression. A good understanding of the anatomy and physiology of rabbits will assist in prevention of these injuries and in giving the proper treatment if necessary.

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