



CASE REPORT

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Management of Unilateral Auricular Haematoma in an 8-Month-Old New Zealand-White Rabbit Buck

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ABSTRACT

Auricular haematoma, or aural haematoma or othematoma, is the accumulation of serosanguineous fluid (blood) between the ear cartilage and the skin of the pinnae, thereby presenting a fluctuating, fluid-filled swelling(s) on the concave surface of one or both pinnae. If left untreated, the haematoma may fibrose and scar, leading to deformation of the pinnae. An eight-month-old New Zealand-white rabbit buck weighing 2kg was presented to the University of Jos Veterinary Teaching Hospital (UJ-VTH), with the history of unilateral swelling of the right ear that developed two weeks after engaging in a fight with another male rabbit. On physical examination, a firm, ovoid, fluctuating subcutaneous mass on the concave surface of the rabbit's right pinna was noticed. Upon aspiration, the swelling was engorged with blood, which caused the pinna to weigh down and pull the ear downward, and the head of the rabbit tilted to the affected side. It was diagnosed as an aural haematoma and was treated by surgical drainage of the haematoma under general anaesthesia. This report underscores the importance of surgical decision-making in the management of this condition in rabbits, because the draining of the swellings via incision alone without surgical intervention often results in recurrence. This report also advises against pairing adult rabbits of the same sex and age together to avoid fighting for territory, which may result in trauma of the pinnae, predisposing to auricular haematoma. A 4-month follow-up revealed total recovery and no recurrence.

Keywords: Auricular haematoma, Rabbit, Othematoma, Surgical drainage

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Data Availability

Data supporting the findings are available from the corresponding author on reasonable request.

Introduction

Auricular haematoma (AH), also known as othematoma, is common amongst different species of animals, including humans; it is reported to be the most prevalent surgical condition in small animal practice and commonly reported in companion pets (Itoh *et al.*, 2022). Aural haematomas are noticed on the inner concave part

of the pinnae of animals as soft to firm swellings which may be painful as well as pulling the ear downward due to added weight (Cosmos *et al.*, 2016). It has been reported that the condition occurs more commonly in dogs, especially large breed dogs, with floppy pendulous ears (Judith, 2000; Hassan *et al.*, 2002; Andras & Attila, 2014). However, its occurrence has also been reported in

humans (Okolugbo, 2013), ruminants (Katsoulos & Dedousi, 2021; Yasin *et al.*, 2023; Camara *et al.*, 2023), pigs (Drolet *et al.*, 2016), and rabbits (Aher *et al.*, 2002). It results from the collection of blood within the cartilage plate of the pinnae, which manifests as a fluid-filled swelling(s) on the concave surface of one or both pinnae (Okolugbo, 2013; Harvey, 2022; Vigneswari *et al.*, 2023;). It is characterized by a purplish, rounded, hard swelling of the external ear due to blood accumulation in the interstitial space (Lanz and Wood, 2004; Brown, 2010).

According to reports by Cordero *et al.* (2020) and Teruo *et al.* (2022), auricular haematomas may occur unilaterally and less commonly present bilaterally and generally occur on the concave surface of the pinnae. The potential predisposing factors of the disease leading to such trauma are otitis externa or media, inflammatory or neoplastic diseases of the ear canal, ectoparasites, allergic diseases, long floppy and pendulous ears, V-shaped ears, endocrinopathies, autoimmune and immune-mediated disease (Ahiwar *et al.*, 2007).

Rabbits are mostly affected by *Sarcoptes cuniculi*; it affects the ear, resulting in ear canker, and sometimes ear canker may predispose to aural haematoma (Manjunatha *et al.*, 2014). Auricular haematomas, when left untreated, undergo fibrosis, which contracts, causing malformation and leaving the pinna with a deformed cauliflower-like appearance (Hewitt and Bajwa, 2020).

Conservative treatment involves drainage and flushing of the haematoma, either through a small incision or with a large needle, and administration of corticosteroids systemically or into the haematoma cavity. This may work best for small, acute haematomas. Two different protocols for steroid instillation have been used. It is important to keep in mind that recurrence of aural haematomas following drainage, with or without local infusion of corticosteroids, is common, and surgical intervention may be necessary for successful management of recurrent cases (Hall *et al.*, 2016). The present study reports a case of auricular haematoma and its management in a rabbit.

Case History and Case Management

An 8-month-old New Zealand white rabbit buck weighing 2kg was presented to the Large Animal Clinic unit of Veterinary Teaching Hospital, University of Jos (UJ-VTH), with the history of unilateral swelling of the right ear. This swelling was noticed two weeks before presentation to the clinic (Fig. 1 (A)). History further revealed that the buck (male rabbit) fought with another buck because the owner mistakenly put two bucks in the same hutch.

Clinical findings

Clinical findings revealed roughened and starry hair coats, ear scratches sustained during the fight, with the ocular mucous membrane appearing normal. Also, temperature, pulse rate, and other vital parameters were within normal reference range limits (Table 1). The complete blood cell count was within reference values (Table 2). Further physical examination revealed a firm, ovoid, fluctuating subcutaneous mass on the concave

surface of the rabbit's right pinna. Upon aspiration, the swelling was engorged with blood, which caused the pinna to be responsible for pulling the ear downward, and the head tilted to the affected side. Palpation of the ear elicited a painful response. The left ear had normal upright carriage. It was differentiated from a tumour since the swelling was not hard; also, abscess as pus was not seen when aspirated with a 21-gauge needle. It was diagnosed as an auricular hematoma, for which surgical drainage and repair were chosen for the management of this case.

Management

The case was surgically managed. Firstly, the affected ear was aseptically prepared by application of an antiseptic agent (75% povidone-iodine solution), followed by clipping the hair on both the convex and concave sides of the affected ear. The animal was then anaesthetized with Xylazine Hydrochloride @ 5 mg/kg and Ketamine Hydrochloride @ 35 mg/kg body weight intramuscularly before commencement of the surgery (White & Holmes, 1976; Lipman *et al.*, 1990). During the surgery, 0.5 mL of xylazine and 1.4mL of ketamine were combined for induction and maintenance of anaesthesia. The affected pinna was draped and the animal restrained in lateral recumbency with the affected ear uppermost. A sterile gauze sponge was then placed in the external orifice of the ear to prevent overflow of ear hematoma contents into the ear canal. A linear incision (1 cm) was made on the hematoma starting from the base of the ear and going to the top of the ear, by application of moderate incisional pressure to avoid sectioning the skin on the convex side (external) of the pinna. The haematoma was drained, and the inner lining of the skin and fibrin deposits on the cartilage were removed. A 1-2 mm thickened skin flap was excised to create a gap between the edges of the skin. After removal of the ear hematoma contents (debris, clots, and tissue fluids), some samples were collected using a sterile swab stick for microbial culture and sensitivity. The site was then lavaged with saline and povidone-iodine before placement of interrupted mattress sutures using number 2/0 silk in a parallel fashion to the incision, with knots placed on the convex surface of the ear.

Postoperatively, Ceftriaxone (a broad-spectrum antibiotic) and piroxicam (analgesic) were injected intramuscularly for 3 days. The pinna of the rabbit was evaluated on every alternate day, i.e., 2nd, 4th, 6th, 8th, and 10th postoperative days for inflammation, oedema, discharges, redness, and other postoperative complications. The pinna was also evaluated for cosmetic outcome. Dressing with povidone-iodine was done thrice a day till the 10th day, when the suture was removed. One percent (1%) Ivermectin (Interchemie®, Waalre and Venray, The Netherlands) at the standard dose rate was also administered. The swab collected from the drained fluid from the pinna during the surgery was taken to the UJ-VTH diagnostic laboratory for microbial culture and sensitivity. Colonies subjected to Gram staining were identified as *Staphylococcus sp.*, which was sensitive to Ceftriaxone and Enrofloxacin but resistant to Penstrep and Oxytetracyclines. After the postoperative care and

removal of the stitches, the rabbit was later re-presented after 4 months to the clinic for re-evaluation, and it was noticed that the animal recovered with no recurrence (Fig. 2).

Table 1: Vital parameters of the affected rabbit with auricular haematoma that was presented to the Clinic

Parameters	Patient value	Ref. value	Interpretation
Temperature (°C)	38.7	38 – 40.0	Within normal limit
Pulse rate (bpm)	180	150 - 300	Within normal limit
Respiratory rate (cpm)	52	30 - 60	Within normal limit

Table 2: Hematological parameters of the affected rabbit

Parameters	Patient value	Reference value
PCV (%)	40	33 - 50
RBC ($\times 10^6 / \mu\text{L}$)	6.12	5.46 - 7.94
Hb (g/dL)	13.62	10.4 - 17.4
MCV (fL)	60.1	58.5 – 66.5
MCH (pg)	19.7	18.7 – 22.7
MCHC (%)	42	33 - 50
Platelets ($\times 10^3 / \mu\text{L}$)	200	304 - 656
WBC ($\times 10^3 / \mu\text{L}$)	5.6	5.5 – 12.5
Lymphocytes (%)	29	28 - 50
Neutrophils (%)	40	38 - 54
Monocytes (%)	6	4 - 12
Eosinophils (%)	0	0.5 – 3.5
Basophils (%)	3	2.5 – 7.5



Fig 2: The affected rabbit with auricular haematoma, 4 months after treatment

Discussion

Ears of rabbits have a large surface area that is highly vascularized with large arteriovenous shunts and play important roles in thermoregulation (Rafee *et al.*, 2017). Hence, any traumatic injury or faulty restraint on the pinna of this animal can result in an auricular haematoma. Although ear mites were not found in the present study, it has been reported that ear mites such as *Sarcoptes cuniculi* and *Psoroptes cuniculi* are also implicated as one of the major parasites that can predispose rabbits to having auricular haematoma; they may cause irritation, inflammation, and crusting in the external ear canal, and the crusts can become very thick, leading to the condition. Affected rabbits often scratch their ears and shake their heads, causing trauma to the microvasculature of the pinna, leading to haematoma (Wissman, 2006).

The major clinical signs and findings in this case are similar to those described in the study conducted by Aher *et al.* (2002); Srivastava (2007); Saibaba *et al.* (2016); and Rafee *et al.* (2017). In this report, the history presented was that of two bucks fighting each other for control of territory, which led to traumatic injury on the ears of the rabbit before the development of the swelling, which aided us in presumptively diagnosing the condition as auricular haematoma caused by trauma, and this corroborates the report of Coleman (2024) that direct trauma, such as animal bites and repeated trauma by scratching, can result in AH. Therefore, rabbit owners must avoid adult rabbits of the same sex or age sharing the same hutches or cages to prevent fighting, which can cause trauma to the ears and rupture of the blood vessels and capillaries in the pinna (Henderson & Horne, 2003). It has been reported by Sasikala *et al.* (2020) that the most effective way to manage advanced auricular haematoma is surgical drainage under general anaesthesia. A similar technique was followed during the management of this case. Also, treating rabbits against mange and avoiding grabbing the ears for restraint can be the utmost criteria to avoid recurrence of the condition.



Figure 1: The affected rabbit with swollen right ear (blue arrow) (A), downward pulling of the affected ear on the day of presentation to the clinic (B), draining and surgical management of AH on the rabbit (C), the rabbit on day 12th after suture removal (D).

It is therefore concluded that auricular haematoma occurs in rabbits and surgical drainage with general anaesthesia is the best method of treating the condition. Therefore, educating clients about the causes of aural haematomas and the importance of prompt presentation of the affected animals to clinics for management is necessary to avoid complications. Clients should be advised that high rearing density and poor hygienic conditions in rabbits' hutches and cages can lead to cases of *Sarcoptes* and *Demodex* infestations, which can predispose the animals to auricular haematoma; hence, clients should be guided on the use of effective acaricides on rabbits. Finally, clients should avoid pairing adult rabbits of the same sex or age together, because they tend to be aggressive towards each other, resulting in fighting, which can cause trauma to the animals' ears, predisposing them to auricular haematoma.

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Conflict of Interest

The authors declare no competing interests.

Authors' Contributions

All authors participated in the management of this case.

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