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**A CASE OF RECURRENT AURAL HAEMATOMA IN A FOUR-YEAR OLD ALSATIAN DOG AND A REVIEW OF TREATMENT OPTIONS**

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**ABSTRACT**

*This was a case of aural haematoma in a 4-year old Alsatian dog complicated with babesiosis. The dog was said to have had the left ear previously swollen although the owner failed to present the case for examination and treatment. On clinical examination, the rectal temperature was high (40.2°C) which elicited more questions among the clinicians but while the examination was going on, the dog passed out dark-yellow urine. The animal was diagnosed to have re-occurring aural haematoma and was recommended for surgery. However, the surgery was postponed to enable blood examination for haemoparasites which confirmed the dog to be infected with Babesia organism. The dog was thereafter treated for babesiosis while the haematoma was drained. On second presentation, two weeks later, the haematoma was surgically managed by making a linear incision on the concave part of the ear to drain the contained fluid and suture the incision line in a through-through manner using quill suture pattern. The prognosis was good.*

**Keywords:** Aural Haematoma, Surgical treatment, Alsatian dog

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**INTRODUCTION**

Aural (ear) haematoma is the collection of blood or serum, and sometimes a blood clot between the skin and the cartilage of the ear flap [1]. It is typically caused by overly aggressive ear scratching or head shaking due to local irritation to a part of the ear. This excessive shaking of the head causes the flap to slap against the head thereby causing blood vessels to break such that blood leaves the vessels to pool in the pocket between the skin and cartilaginous component that make up the outer part of the ear flap (pinna). This blood collects under the skin and causes the ear flap to become swollen. The swelling may involve the entire ear flap or only a small area [2].

The ear flap is composed of a layer of skin on each side of a layer of cartilage. The cartilage gives the ear flap its shape. Blood vessels go from side-to side by passing through the cartilage [3]. Violent shaking of the head causes the vessels to break as the skin slides across the cartilage. Any reason for

the dog to shake its head can result in the formation of an aural haematoma [4]. Factors that may predispose to this condition include the lodgment of grass seed or other foreign body within the ear canal, bacteria and/or yeast infections of the ear canal, ear mites, allergies resulting in itchy ear, scratching and shaking of the head and fly bites to the tips of the ears [5].

Dogs and cats can suffer aural haematoma but dogs (particularly those prone to skin allergies and ear infections) are more predisposed to this condition [4]. The condition develops easier in dogs with more pendulous ears, because heavy ear flaps easily slap against the side of the head during head shaking [4].

#### **SYMPTOMS AND IDENTIFICATION**

A pet with an ear hematoma will have a fluid-filled swelling on all or just part of the ear flap (pinna). Sometimes the swelling may seem warm, tensed and painful, other times, soft and fluctuating [6]. It may occlude the ear canal or simply involve the very tip of the ear [2]. If the lesion is chronic, the seroma will slowly resorb and chronic scarring fibrosis which distorts the contour of the pinna may develop resulting in a 'cauliflower ear' appearance [7].

This condition is easily diagnosed during a physical examination of the animal. However, it is also important to investigate the underlying conditions that may lead to excessive ear scratching or head shaking. The clinician will most likely inspect the ear canal and swab for sample collection and microscopic examination for presence of parasites or infections.

#### **TREATMENT OPTIONS FOR AURAL HAEMATOMA**

Treatment aims include addressing the underlying source of irritation, incising and evacuating the haematoma and preventing recurrence [8].

Surgical repair is often considered the most effective treatment for ear hematomas [7]. In such cases, a vertical or s-shaped incision is made over the length of the hematoma on the inner surface of the ear while the animal is under anaesthesia. Thereafter, the fluid and blood clots are removed, the loose skin of the pocket is tacked down to the outer surface of the ear with sutures or staple through both layers so that when scar tissue forms, the two surfaces would be smooth and not lumpy with no place for blood to accumulate again. The sutures generally stay in place for about two weeks while the incision is left open so that fluid will continue to drain as the ear wound heals.

For a dog with droopy/pendulous ears, the treated ear is often flipped up and bandaged against the head to prevent head shaking during recovery. An Elizabethan collar is often recommended to prevent the pet from scratching at the ears. Pain relief is necessary for the first 2 days while sutures are removed after 2-3 weeks. As an alternative, several small incisions may be made on the inside surface of the ear with a carbon dioxide laser. In this case, sutures are not needed. This may be expensive, but reports indicate a high success rate at stimulating resolution of the haematoma [9].

Another possible treatment option involves the placement of a small drain, or rubber tube, in the external portion of the ear. The drain stays in place for several weeks as the fluid resolves and the ear heals. Sutures or staples might be placed to reduce dead space. Some pets may not tolerate this, and the cats' ears are usually too small for this technique [10].

In some cases, veterinarians may draw out the fluid with a needle and syringe. Medication may also be injected into the space to reduce swelling and inflammation [9]. However, it is very common for such haematoma to re-occur with this procedure.

When there is an underlying ear infection or ear mites, the pet will most likely need to have the ear canals cleaned and treated with appropriate ointments or solutions. Resolution of the underlying problem will help prevent re-occurrence of the hematoma. Allergic skin disease, however, has a way of leading to chronically affected ears that may suffer recurrent ear haematomas unless the problem is adequately addressed [9]. Definitively diagnosing this possibility, however, is not as easy as identifying organisms under a microscope. Food trials (to investigate food allergies) and other kinds of allergy testing may be in order.

In the absence of treatment, an ear haematoma will eventually heal on its own, but the pet often experiences weeks of discomfort [10]. In addition, the two sides of the ear often become thickened with wrinkled scar tissue such that the ear won't look or feel natural. Prognosis may be good if the underlying cause can be identified and the aural haematoma cured. Chronic and allergic causes for the haematoma are harder to control and it may recur [9].

## **PREVENTION**

Aural haematomas may not be easily preventable. However, prevention or successful treatment of the underlying cause of the head shaking will certainly reduce the risk of this complication.

## **CASE REPORT**

A four-year old male tan and black Alsatian dog was presented to the Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike (VTH/CVM/MOUAU/SA/827) on the 26<sup>th</sup> of August, 2021 with a complaint of a swollen right ear. The history revealed that there had been previous incidences of such condition on the opposite ear due to frequent ear shaking. The vaccination history was up-to-date.

### **Parameters on presentation of the dog**

The basic body parameters on first presentation were: the heart rate (beats per minute; BPM) 110 (70 - 120), temperature (°C) 40.2 (37.9 - 39.9), pulse rate (BPM) 116 (70 - 120), respiratory rate (breath per minute) 44 (18 - 34) and colour of visible mucous membrane, slightly pale (pink).

On physical examination, the dog was alert but slightly emaciated with no visible ecto-parasites. The dog passed out dark-yellowish urine and this, coupled with the increased rectal temperature caught the attention of the clinician. Based on these clinical observations, the tentative diagnosis of auricular haematoma complicated with babesiosis was made and the animal recommended for surgery. The surgery was then postponed for blood sample collection and examination for haemoparasites.

The laboratory examination of the blood sample confirmed the presence of Babesia organisms. The dog was then treated with single intramuscular injections of Piroxicam (0.3 mg/kg; Aden Healthcare, Chandigarh) and Berenil (5 mg/kg) for the haemoparasite. The surgery was postponed and the ear drained of serosanguinous fluid measuring about 100.5 ml.

Two weeks post initial presentation, the dog was represented to the clinic for re-assessment. The results of the physical examination revealed that the dog was healthy, strong and alert, and the vital parameters were as follows: temperature 38.2 °C (37.9 – 39.9°C); heart rate 105 (70 - 120 BPM); pulse rate 109 (70 - 120 BPM); respiratory rate (breath per cycle) 27 (18 - 34 BPC) and the colour of visible mucous membrane was pink.

It was further observed that there was a re-occurrence of the haematoma with the ear refilled with serosanguinous fluid and swollen again. It was then decided to manage the haematoma surgically.

### **SURGICAL PROCEDURE**

Sedation was achieved using Xylazine HCl (VMD, Livestock Pharma, Belgium) at 2 mg/kg after Atropine Sulphate (Elaborate Ltd, LAHORE, India) premedication at 0.2 mg/kg, while Ketamine (Swiss Parenteral Ltd, Bavaria India) at 15 mg/kg was given to induce anaesthesia.

**Patient preparation:** The site (right ear) was clipped, disinfected with 0.5% solution of chlorhexidine (Saro Lifecare Ltd., Ibadan, Nigeria) and properly draped.

**Surgical technique:** A linear incision of about 3 cm was made along the length of the ear on the inner (concave) surface of the pinna. Thereafter, the serosanguinous fluid and blood clots were removed and the cavity cleaned with sterile dry gauze. Quill sutures were randomly placed, passing through both the concave and the convex surfaces of the pinna to close the cavity. The incision line was left open for continuous drainage.

**Post-operative care:** Penicillin (Hebei Kexing, China) at 10,000 IU and Streptomycin (Hebei Kexing, China) at 10 mg/kg were administered intramuscularly for five days. Diclofenac sodium (Biotech Co Ltd, China) injection was also administered intramuscularly at 1 mg/kg for three days, while an improvised Elizabethan collar was placed on the neck of the dog.



**Plate 1. The dog on first presentation.**



**Plate 2. Expression of sanguineous fluid from the affected ear.**



**Plate 3. Asepticly draped ear before surgery.**



**Plate 4. The ear after surgery**



**Plate 5. Improved Elizabethan collar**



**Plate 6. Dog after full recovery**

## **DISCUSSION**

This was a case of aural haematoma in a dog caused by aggressive shaking of head (making the ear flap to slap against the skull) and or scratching their ears, causing trauma to the auricular blood vessels with a subsequent extravasation of blood into the cavity between the skin and cartilage.

The surgical procedure and the type of incision on the inner surface of the ear agree with Krogmann and King [5] but disagree with North [11], who removed a square area of the skin by making two 1cm long incisions and joining the edges. Leaving the incision open for drainage also agrees with Colitz [12].

Closing the cavity dead spaces so as to prevent re-accumulation of blood and enhance healing agrees with Brown [13] and Greywoode *et al.* [14]. The surgery was postponed the first day due to the abnormally high temperature and the dark-yellowish colour of the urine both of which were suggestive of an underlying anomaly that could possibly pose a surgical risk to the dog.

The method of treatment adopted in this procedure was chosen based on the surgeon's experience. The broad spectrum antibiotics therapy was administered to combat secondly bacterial infection

while Diclofenac sodium was administered to reduce pain [15]. The improvised Elizabethan collar was placed to prevent self-mutilation of the wound.

The client was advised to keep the dog in close watch, drain the ear daily, give balanced diet, and to immediately report to the clinic any changes noticed. He was also advised to fumigate the surroundings periodically to discourage both ticks and flies breeding in the compound. The case was followed up for a period of two months post operatively through phone calls and the client reported progressive healing with no evidence of recurrence.

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