Surgical Management of Aural Hematoma in a Dog

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Abbreviations	Elaboration
SAQTVH	Shahedul Alam Quaderi Teaching Veterinary Hospital
HCl	Hydrochloride
NSAID	Non-steroidal anti-inflammatory drug
BW	Body weight

Abstract

Aural hematoma, a common condition in dogs, results from the rupture of blood vessels between the skin and cartilage of the ear, leading to swelling of the ear flap. This report presents a case of an eight-year-old male dog with a swollen left ear, diagnosed as an aural hematoma. The surgical management technique employed combined the auricular pillow method with a modified button compression technique. The dog underwent anaesthesia and surgery involving the drainage of the hematoma, cleaning of the affected area, and the placement of multiple modified plastic coat pins to prevent re-accumulation of blood. Post-operative care included antibiotics, non-steroidal anti-inflammatory drugs, antihistamines, and wound site ointment. The pinna was healed within two weeks without further complications and with an appreciable cosmetic outcome. This surgical approach resulted in a satisfactory cosmetic outcome, demonstrating an effective method for aural hematoma management.

Keywords: Dog, Aural hematoma, Surgical management

Chapter 1

Introduction

Aural hematoma refers to a collection of blood outside of blood vessels between the skin and cartilage of the ear characterized by swelling of the ear flap. It is the most frequent physical injury of a dog's ear pinna, seen on the concave surface of the pinna. The blood arteries and capillaries in the pinna rupture when dog abruptly shake their heads or scratch their ears (Henderson et al., 2003). This condition is usually unilateral, but it can be bilateral. Delay in treating aural hematoma may lead to fibrosis, contraction, and thickening, resulting in the ear resembling a deformed cauliflower (Medleau and Hnilica, 2006).

The underlying cause of aural hematoma can be many. Otitis externa is a common aetiology. Irritation due to inflammation, immune-mediated diseases, allergies, parasites, trauma, and foreign bodies can lead to otitis externa, which can cause the dog to shake its head vigorously, resulting in damaging auricular cartilage and rupturing the branches of the caudal auricular artery and pooling of blood in space between skin and cartilage that called hematoma (Brown, 2010).

There are both surgical and non-surgical methods for the management of aural hematoma. The non-surgical method includes needle aspiration and flushing of the hematoma cavity. There are possibilities of recurrence in a simple needle aspiration technique, even if a bandage is applied (Seibert and Tobias, 2013).

In the case of surgical management, several surgical methods have been established. These methods have been designed with the objectives of diagnosing and treating aetiology of hematoma, proper drainage facility establishment, maintaining tissue apposition and recurrence prevention (Eyarefe et al., 2013).

Surgical techniques include placing an active or passive drain or openings on the concave skin of the pinna to empty the pocket by using either a single long straight or "S" shaped incision or multiple tiny incisions on the concave surface of the pinna to drainage the pocket

and prevent further accumulation of fluid. A suture between skin and cartilage or, a pressure bandage or both can be used for apposition of skin to cartilage (Seibert and Tobias, 2013).

In this case report, a simple surgical management technique for aural hematoma with a satisfactory cosmetic outcome has been described. The surgery on a local pet dog breed was performed at S.A.Quaderi Teaching Veterinary Hospital.

Chapter 2

Case Presentation

2.1 Clinical history and observation

An eight-year-old male dog was brought to SAQTVH with a problem of a swollen left ear for the last two weeks. There was no history of head shaking or ear scratching but external trauma of the left ear. The dog had a regular feeding habit, and it was vaccinated. Physical examinations revealed normal oral and conjunctival mucosa; the rectal temperature was 101 ^{0}F. The swollen ear felt warm, and the dog felt pain on palpation. Mite infestation in the ear may be a possible cause of hematoma. A test was done to check for mites in the ear, but the result was negative. Based on the above history, it was diagnosed as an aural hematoma and referred to surgery. The auricular pillow method combined with the modified button compression technique was set as the surgical procedure.

2.2 Surgical procedure

2.2.1 Presurgical approach

The operative site was shaved with an aseptic blade. After pre-medication, the surgical site was prepared by standard methods using Savlon followed by povidone and alcohol and an aperture drape used to expose only the surgical site, covering other parts of the head to avoid contamination. Normal Saline was set intravenously at 10 ml/kg/hour.

2.2.2 Anaesthesia

The dog was pre-medicated with Xylazine HCl @ 1mg/kg body weight. For induction of general anaesthesia, a combination of ketamine hydrochloride at 5 mg/kg body weight and xylazine HCl at 0.5 mg/kg body weight was used, and for maintenance, ketamine HCl was used at a dose of 4 mg/kg body weight.

2.2.3 Surgical management

The dog was restrained at lateral recumbency, keeping the affected ear upward. An “S” shaped incision was placed on the concave surface of the pinna over the hematoma (Fig 1). The hematoma content was drained out carefully, preventing fluid entrance into the aural

canal. The incision lines were cut with scissors to make the opening somewhat wider, which would help drainage further accumulated fluid, preventing the formation of hematoma again (Fig 2). The space between the skin and cartilage of the ear was cleaned with sterile gauze. In this surgical procedure, a plastic saline bottle was cut and shaped as a coat pin, which was sterilized and sutured by a button suture using nylon to compress the pinna to prevent re-accumulation of blood (Fig 3). A total of sixteen modified plastic coat pins were used on both the dorsal and ventral surfaces of the pinna (Fig 4, 5). The incision was left open to allow drainage of fluid. A part of the sterile cotton roll was wrapped with a gauze bandage to make an auricular pillow near the size of the hematoma. The pillow was placed at the convex side to pack the pinna and supported over the head with micropore tape. A compression bandage was applied over the ear (Fig 6).

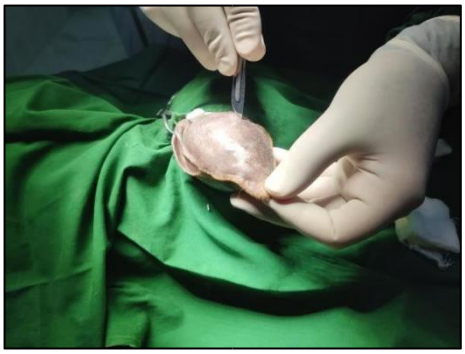

Fig 1: Skin incision

Fig 2: “S” shaped incision

Fig 3: Suturing plastic button

Fig 4: Concave side of pinna after completing suture

Fig 5: Convex side of pinna after completing suture

Fig 6: After bandage

2.2.4 Post-operative care

The dog was prescribed with an antibiotic injection Ceftriaxone Sodium @ 50mg/kg body weight twice daily for 10 days, an NSAID meloxicam @ 0.3 mg/kg BW for 5 days, an antihistaminic injection @ 1.4 mg/kg BW for 10 days and a povidone iodine ointment to apply on wound site for 14 days.

The bandage was told to remove after 3-4 days. The dog was advised to fed after two hours of anaesthesia recovery. Normal food could be given to the dog and advised to keep in clean dry place to avoid infection. The suture would be removed after 14 days (Fig 7). So, the dog's owner was instructed to come to hospital then.

Fig 7: Recovered pinna after two weeks

Fig 8: Recovered pinna after six months

Chapter 3

Results and Discussion

3.1 Result

After the surgery, the dog recovered from anaesthesia within half an hour without complications. The dog was handed over to the owner and advised to take proper care. Within 14 days, the surgical wound was healed without further complications. The plastic button was cut out after two weeks of surgery, and the cosmetic outcome was satisfying. The ear was correctly healed. No deformity was seen, and the ear was erected generally like the other one. No recurrence happened in the six-month follow-up period.

3.2 Discussion

Aural hematoma is a frequently occurring disorder in dogs, cats, and pigs. In case of dogs, breed, sex, and age can be the factors of aural hematoma occurrence. According to Kagan (1983), male animals are more vulnerable to this disease, and this occurs more commonly in animals four years of age or above. The dog in this study was a male of eight years old, which agrees with the findings of previous research. Also, Kagan (1983) says that local dogs are more affected by this disease condition. In this study, the dog was a local pet dog which concurs with findings of Kagan (1983).

There are several surgical and non-surgical methods of hematoma correction. Non-surgically, there are needle drainage systems, closed-suction drainage, and continuous suction drainage. These all do not give any satisfactory solution to hematoma and seem troublesome (Seibert and Tobias, 2013). The surgical management of aural hematoma has a better prognosis and swift healing than in non-surgical or untreated cases (Blattler et al., 2007).

In the case of surgical management, several methods have been described in the literature. Teat cannula and drain methods were recommended for hematoma management. Minimal fibrin deposition, lack of compression of dead space and trauma to auricular cartilage due to head shaking that leads to poor cosmetic outcomes make these techniques unsatisfactory (Eyarefe et al., 2013).

The present study describes a technique that modifies the surgical incision and compression approach. This method fulfils the three primary objectives of aural hematoma surgery: drainage, compression, and auricular cartilage healing, with a satisfactory aesthetic outcome. "S" shaped broad incision ensures the complete removal of hematoma content. Non-closure of the incision assures the drainage facility. The plastic buttons sutured to the pinna, the auricular pillow placed at the convex side of the pinna, and the compression bandage produce a force which prevents re-accumulation of blood. Proper bandaging, drainage, and compression cause immobility of the auricular cartilage and prevent head shaking, promoting cartilage healing, and restoring the pinna's normal shape. Pebbles are used as a core in some studies to make auricular pillows, which is hard and not acceptable in some modern settings (Eyarefe et al., 2013). Instead of pebbles, the cotton roll used as the core for auricular pillow-making may be comfortable and acceptable for the dog.

This improved technique may be a superior way to manage aural hematomas since it has better drainage compression, less expense, less expertise, and a pleasing cosmetic result.

Chapter 4
Conclusion

Aural hematoma is a disease condition that commonly occurs in dogs, cats, and pigs. Many aetiologies may play a role in the occurrence of this disease, including parasites, trauma, inflammation, immune-mediated disease, foreign bodies, etc. The surgical methods of correcting hematoma were found to be more effective than non-surgical methods. Among different surgical techniques, the method described in this report seems to be better because of its lower expense, appreciable cosmetic outcome, and minimal chances of recurrence. However, more research about it will help to find out advanced techniques of aural hematoma correction.

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Biography

This is **Sumaiya Meherin**, daughter of Jalal Ahmed and Masuma Parvin. She completed her Secondary School Certificate examination from Shaheed LT. G.M. Mushfique Bir Uttam High School, Chattogram in 2014 and Higher Secondary School Certificate from Chattogram Cantonment Public School and College, Chattogram in 2016. I am an intern veterinarian at Chattogram Veterinary and Animal Sciences University, Bangladesh under the Faculty of Veterinary Medicine. I have a strong interest in veterinary medical research and wish to use my skills and imagination to benefit the country. So that we can overcome the difficulties we currently face in this subject.