**INTRODUCTION**

Aural hematoma is a common condition of the dog’s ear and in puppies (7), especially in long eared varieties which is the most common physical injury of the pinna. It is usually self-inflicted by scratching and head shaking (12). The cause of hematoma is not completely understood but in most animal are thought to be result from excessive head shaking (secondary to ear irritation from otitis externals, otitic foreign bodies, flies etc.) causing capillary disruption (7). The blood is accumulated between the perichondrium and the cartilage (11). Fibrin is deposited on the wall of the hematoma, leaving a sero-sanguineous seroma. With chronicity, fibrosis and contraction thicken and deform the ear. Fibrous reorganization of the ear and secondary “cauliflower” contracture can result. The therapeutic objectives for an auricular hematoma are to identify the source of irritation, evacuate the hematoma, maintain tissue apposition, reduce fibrin deposition and prevent recurrence (12). Many authors reported different techniques of correction of ear hematoma. The objective of this study was to observe the efficacy of the pressure bandage for the management of aural hematoma in dog.

**CASE REPORT**

A one year old male Spitz dog named ‘Ribo’ of 10 kg body weight was brought to the Small Animal Clinics (Surgery unit) in Madras Veterinary College with a complain of soft swelling at the inner surface of the pinna of right ear with a history of violent head shaking and frequent scratching of the ear. It was a swelling at the concave surface of the pinna. Mild pain was showed by the dog during palpation. Finally, fluid aspirates from the swelling through a sterile needle which revealed somewhat dark-red colored, clotted and that’s how, it diagnosed as a case of aural hematoma. This case was treated by incisional drainage followed by application of pressure pad bandages. Firstly, the animal was restrained by tying its mouth with a mouth-gag then the dog was placed in lateral recumbencey with the affected ear upwards position. The ear was shaved both sides i.e. convex and concave surface by shaving razor. After that the animal was pre-anesthetized with atropine sulphate @ 0.04mg/kg BW {Tropine® (1mg/ampule), Neon Laboratories Ltd, India} and general anesthesia was performed by Xylazine hydrochloride @ 1 mg/kg BW {Xylaxine® (23.22mg/ml), Indian Immunologicals Ltd, India} followed 10 minutes later by Ketamine hydrochloride @15 mg/kg BW {Ketalar® (50mg/ml), Parke-Davis (India) Ltd, India} intramuscularly. When the animal anesthetized, a cotton plug was placed at the external ear canal to prevent the entrance of fluid contents into the ear canal. Then the operation side was preparing aseptically by povidone-iodine thoroughly. Finally the animal was ready for the operation. During the operation, the animal was provided by 5% dextrose solution intravenously and anesthesia was maintained with the previous agents as half dosage. A triangular incision was given at the middle of the haematomal swelling with the scalpel. The cavity was opened by Alli’s tissue forceps and haematomal content drained out aseptically by digital pressure. The cavity was flushed with povidone-iodine. The area was dried by mobbing with dry gauges and the cotton plug was removed from the ear canal. Finally roll of gauges was adjusted at the concave surface of the pinna from the ear canal to the tip of the pinna in such a manner that it fixed the pinna. The ear then bandaged with gauges including the roll of gauges with mild pressure in such a way that it could not damage the blood vessels of the pinna. After bandaging, an Elizabethan collar was placed at the neck which was kept the ear in fixed position, so that the animal cannot shake its ear. The entire operation required approximately 55 minutes. The wound healing was first noticed at day 9 with a little oozing for first 6 days. Suturing materials was kept on the operation table to avoid the unwanted bleeding. The animal was prescribed a combined antibiotic Amoxicillin and Dicloxacillin (Intamox®, Intas Pharmaceuticals Ltd, India) @ 240 mg daily for 5 days to prevent secondary bacterial infection and Meloxicam @ 0.3 mg/kg (Melonex®, Intas Pharmaceuticals Ltd, India) @ 0.7 ml daily for 5 days for pain management postoperatively. Both the injection was prescribed by intramuscularly. Complete recovery from anesthesia was observed 3 hours after the operation without any anesthetic complication. Bandage was changed regularly and the area was cleaned with povidone-iodine. The animal was kept in a clean hygienic condition under close supervision. After operation, there was oozing of bloody exudates up to 6 days without noticing any sign of secondary infection. Oozing seems to be absent at day 7 and the wound become somewhat dry. At day 9 there was noticed formation of granulation tissue. The wound completely heal at day 16, as there was observed a dry and scar tissue formation. The animal looks somewhat disturbed due to the Elizabethan collar and it was tried to remove the collar at first and second day. Normal diet was provided by the owner. The collar and the bandages then removed at 19th day. The animal was prescribed an ivermectin @ 0.2mg/kg BW S/C injection (Mectin® Inj, Alembic limited, India) @ 0.15 ml, a single dose at day 7 after considering the owners complain that the animal scratch its ear and violent head shaking with a foul smell comes from the ear canal. A complete healing was recorded about 28 days after the operation without any deformity of the ear pinna.

**DISCUSSION**

An aural hematoma is clinically defined as the collection of clotted blood within cartilage plate of the ear with a history of violent head shaking and acute or chronic otitis externa, that are initially soft and fluctuating, but later due to resorption and fibrosis become more firm and reduce it size and volume (1,6).The importance of treating aural hematoma in dog just because of the associated swelling may damages the surrounding ear tissues. As a result, the shape of the ear may be distorted and appeared cauliflower like. On the other hand, aural hematoma seems to be painful which leads the pet a continuous disturbed condition. In addition, if infection is present in the ear, it will not resolve on its own (14). After examining the ear physically, it was found a soft, fluctuant and fluid filled swelling at the concave surface of the pinna. Mild pain was showed by the dog during palpation. Finally, fluid aspirates from the swelling through a sterile needle which revealed somewhat dark-red color and clotted (6, 7, 11, 13).At the operation table, firstly the animal was pre-anesthetized with Atropine sulphate @ 0.02-0.04 mg/kg body weight followed by general anesthesia with Ketamine hydrochloride @15 mg/kg BW after 10 minutes of pre-anesthesia intramuscularly (4, 6). When the animal becomes anesthetized, a sterile cotton plug was inserted to the external orifice of the ear to prevent the overflow of fluid during patient preparation and operation. Then the pinna of the affected ear was placed upwardly and prepared aseptically at both side (convex and concave) followed by clipping, shaving and washing the area with soap. Then the area was wiped out with a dry sterile swab and finally the operation site was dressed with povidone-iodine thoroughly and wiped again to get dried (1, 3). Incisional drainage followed by pressure pad bandage was used due to its less invasiveness and sutureless principles, which minimizes the secondary infections and easy to perform.After aseptical preparation of the operation site, an S- shaped incision was performed with a scalpel to open the cavity and then haematomal content was drained out with manual pressure. After that, the cavity was thoroughly flushed with povidone-iodine and a pressure bandage was applied to provide skin-cartilage apposition but no sutures were used. The bandage was placed for 19 days until the discharge had resolved and granulation tissue was formed. The main advantage of this method that there was less risk of pinnal distortion (2). After operation, there was oozing of bloody exudates up to 6 days without noticing any sign of secondary infection. Oozing seems to be absent at day 7 and the wound become somewhat dry. At day 9 there was noticed formation of granulation tissue. The wound completely heal at day 16, as there was observed a dry and scar tissue formation. The Elizabethan collar and bandages was completely removed at day 19. Post-operatively, the dog was treated with an antibiotic to prevent the secondary infection and analgesic for pain management for 5 days parenterally (2, 6). Incisional drainage followed by pressure pad bandage was thought to be appropriate because of its principle and several authors also reported satisfied result of the less invasive methods of correcting the aural hematoma in dogs. Such as correction of aural hematoma by placing a self-retaining disposable teat cannula via a small stab incision in case of minimal fibrin deposition (7, 12). A complete regression was recorded during treating some patient with serratiopeptidase tablets 5 mg/animal, thrice daily for two weeks together with treatment for the primary causesin early diagnosed patient. But this treatment was performed only for experimental purpose (8).Incisional drainage followed by pressure pad bandage was successfully correct the aural hematoma in dog as there was no major post-operative complication as well as the patient recover satisfactorily. There are many other methods of correcting aural hematoma in dogs, which also revealed a satisfied result.The aural hematoma in dog can also be managed by manual expression through a stab incision and placing an indwelling silicone rubber drains but there was a chance of seroma formation if the drains were removed at 7 to 10 days (9).Treatment of aural hematoma in dog with CO2 laser is completely a new technique in which laser is used to make an incision into the hematoma to allow for evacuation of the blood, and then multiple, small incisions are made over the surface of the hematoma to stimulate adhesions between the tissue layers. But the development of serosanguinious fluid accumulation was recorded in some patient (5). Besides these techniques, surgical correction of large, severe, or chronic (thick-walled) hematomas with numerous suture techniques have been reported, in which the cavity is opened by S-shaped, cruciate or straight incision and after evacuation of the cavity a varying number of sutures are used (12). Although suture techniques repair the aural hematoma completely but different types of secondary infection as well as cosmetic alteration of the pinna has been reported in which edema, necrosis, pain and deformity of the ear pinna are most commonly observed (2, 7, 12).

**CONCLUSION**

In the treatment of aural hematoma, pressure bandage helps to reduce peripheral tension and hence continuous oozing. Pressure bandage creates tension and pressure that distort the shape of ear. However, the proper drainage is the major short fall of this treatment. Moreover, pressure bandage can distort the shape of the ear. Continuous effort requires solving the problem in future. In this case, ear cropping may helps to reduce the possibility of aural hematoma.

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