

Aural haematoma in dogs: a review of 55 cases

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ABSTRACT

Background: Untreated aural haematoma may result in deformity of the pinna.

Methods: Retrospective study of 55 cases of aural haematoma (AH) managed in 18 years.

Results: AH was categorized based on the severity of the condition and the management protocol employed. AH fluid aspiration, AH fluid aspiration and dexamethasone infusion, AH incision plus bandaging, AH incision plus ablation suturing and AH stab incision plus placement of measured indwelling polyethylene infusion tubes were employed in the management of this disorder.

Conclusion: AH stab incision plus placement of measured indwelling polyethylene infusion tubes proved to be the most successful of these protocols.

Keywords: Aural, Haematoma Dogs

Introduction

Aural haematoma (AH) manifests as an accumulation of haematoma fluid on the concave inner surface of the ears of dogs and cats.¹ Several aetiologies have been postulated for AHs, including self inflicted trauma resulting from violent head shaking, blunt trauma or excessive scratching secondary to otitis externa or ectoparasitism² as well as immune mediated disorders.^{3,4} Irrespective of the aetiology, blood and tissue fluid

gradually accumulate resulting in the swollen ear that can be of any circumference.⁵ The diagnosis is based on examination of the swelling coupled with aspiration and examination of the haematoma fluid. Though the signs are fairly consistent, various management options based on the severity of the condition and suspected aetiology have been undertaken.^{1,2,6-9} Regression of AHs may be spontaneous or they may result in severe morphological distortions of the pinna if untreated.

Materials and Methods

Cases of AH presented to the Small Animal Clinic of A. B. U. Veterinary Teaching Hospital from January 1983 to December 2000 were reviewed. AHs were clinically staged into 3 based on the duration of the haematoma, size as well as the extent and level of morphological changes of the ear on presentation. In addition, the following designations were used in qualifying the clinical features of the AHs: 1) Moderate swelling. 2) Marked swelling. 3) Injury to pinna. 4) Pinna thickening + moderate morphological changes. 5) Pinna thickening + marked morphological changes. 6) Head tilting + shaking. vii, Otitis externa.

In the management of these cases, restraint was achieved by the intravenous administration of atropine (0.02mg/kg) and chlorpromazine (4mg/kg) as premedication while thiopentone sodium at 10mg/kg was administered to induce anesthesia. The management options employed is detailed below;

a. Hematoma fluid aspiration

An area of about 4cm² over the AH was prepared and disinfected with Chlorhexidine (Purit® CAPL), a 10ml syringe fitted with a 2.5" 19G needle was introduced into the hematoma through the prepared site and the fluid aspirated.

b. Fluid aspiration and dexamethasone infusion

AH fluid aspiration was as described earlier and this was followed by the infusion of 1-2 mls of 0.4% dexamethasone into the evacuated. Haematoma space depending on the size of the haematoma.

c. Haematoma incision and bandaging

The site was routinely prepared. 4 - 6

vertical incisions of about 3cm each were made over the haematoma. The evacuated haematoma space was flushed with normal saline to remove blood clots. The ear was then padded and bandaged over the animal's head.

d. Haematoma incision plus ablation suturing

Following drainage of the fluid, 4-6 through and through sutures was placed over the drained haematoma. Non-absorbable nylon or silk sutures were employed for these. The sutures were removed when adhesions of the skin to the cartilage have been achieved.

e. Haematoma incision and placement of indwelling polyethylene infusion tubes.

The pinna was routinely prepared and 2 stab incisions were made on the apical and basal margins of the haematoma. A polyethylene tube adapted from an infusion tube and fenestrated at 8-10 positions was introduced and anchored at the 2 exits. A centimetre of the tube was left at both exits (Fig. 4). The tubes were flushed daily to dislodge blockages.

All the cases were observed for 3-4 hours prior to being discharged and represented daily for 7 days and subsequently twice weekly until complete healing was achieved. Oxytetracycline L/A® (Pfizer Inc. Nigeria.) was administered intramuscularly at 20mg/kg whenever indicated. Gentamycin at 4mg/kg and tetracycline aural infusions were used in cases with accompanying otitis externa. The time taken for the wound to heal was noted and deformations were noted and the outcome of management were analysed.

Results

A total of 27,868 dogs were attended to in our clinic over the period of study, only 55(0.2%) had AH. No feline specie was however presented with AH. Twenty-five (45.5%) cases were in exotic breeds with their various crosses while 30(54.5%) were in Nigerian indigenous dogs (NIDS). Furthermore 30(54.5%) cases were males while 25(45.5%) were females. Table 1 summarizes the findings and staging of the cases presented. Nine (16.4%) cases were

staged as 1, 19(34.5%) as 2, and 27(49.1%) as Stage 3. Furthermore 23(41.8%) of the cases presented had moderately sized haematomas with no morphological pinna change, 14(25.5%) cases had marked pinna swelling, 15(27.3%) had thickened and wrinkled pinna while marked morphological changes in the pinna were evident in 13(23.6%) other cases. Ten (18.2%) dogs exhibited head tilting and shaking and aural purulent discharges were noticed in 10(18.2%) other cases.

Table 1: Clinical staging of AH cases presented to the Ahmadu Bello University Veterinary Teaching Hospital (ABUVTH) Zaria.

Clinical Stage	Duration (days)	Haematoma dimension (cm ²)	Clinical features cases (%)
1.	<7	a. ≤5 b. >5	i(3) ii(3)
2.	7-14	a. ≤10 b. >10	ii(2), iv(3), v(2), vii(2) ii(2), iv(5), v(4), vi(4)
3.	>14	a. ≤20 b. >20	ii(4), iv(4), v(2), vii(3) ii(3), iv(3), v(5), vi(6), vii(5)

Table 2 summarizes the responses of the various cases to our management protocols. Aspiration of the haematoma fluid with or without dexamethasone infusion was only undertaken in a few cases. Of the 4 protocols employed for cases in Stage 2, the response was poor in 5(26.3%) cases, fair in 5(26.3%) cases (some level of pinna deformity evident) while 12(63.2%) other cases responded

satisfactorily. Twenty-seven (49%) cases were judged to be in Stage 3. Response to management was good in 13(48.1%) cases, fair in 8(29.6%) and poor in 6(22.2%) others (marked pinna deformity visible). Out of the 13 cases that responded well, 10(76.9%) underwent AH incision plus placement of drains. In the 6(22.2%) cases where ablation sutures were applied, morphological pinna

changes occurred and sutures here were removed 25-30 days post application, infection of the suture points was also noticed which was managed by topical dressing with chlorhexidine (Purit® CAPL) over a 5 day period. Removal of bandages and persistent scratching of the

affected ear in a case resulted in severe infection of the site. In all cases, which had post surgical infections *Staphylococcus aureus* was isolated on presentation and this was considered the primary source of infection.

Table 2: Responses of AH cases to management protocols at the Ahmadu Bello University Veterinary Teaching Hospital (ABUVTH) Zaria.

Clinical Stage	Mmanagement employed (No. Of cases)	Outcome of management (%)		
		poor	fair	good
1.a.	Haematoma fluid aspiration (3)	1(33.3)	1(33.3)	1(33.3)
b.	Haematoma fluid aspiration + dexamethasone infusion (3)	0(0)	2(66.6)	1(33.3)
c.	Haematoma incision + placement of indwelling polyethylene tubes(3)	0(0)	0(0)	3(100)
2.a.	Haematoma fluid aspiration + dexamethasone infusion (6)	3(50)	1(16.6)	2(33.3)
b.	Haematoma incision + bandaging (2)	0(0)	2(100)	0(0)
c.	Haematoma incision + ablation suturing (4)	0(0)	1(25)	3(75)
d.	Haematoma incision + placement of indwelling polyethylene tubes(7)	0(0)	1(20)	5(80)
3.a.	Haematoma incision + placement of indwelling polyethylene tubes (16)	3(23.5)	3(23.5)	10(63)
b.	Haematoma incision + ablation suturing (6)	1(16.6)	3(50)	2(33.3)
c.	Haematoma incision + bandaging (5)	2(40)	2(40)	1(20)

It was further noticed that there were variations in the successes achieved with the various breeds (table 3). Thirty NIDS were presented with this disorder out of which 3(10%) were classified in stage 1, 9(30%) in stage 2 and 18(60%) in stage 3. Following management 8(26.7%) responded poorly, 12(40%) responded

fairly well while 10(33.33%) responded well.

Three (30%) of the exotic breeds presented were clinically staged as 1, 5(50%) as 2 and 2(20%) as Stage 3. Upon management, the response in 6(60%) cases was good, fair in 2(20%) cases and poor in another 2(20%). Of the 15

crossbreeds presented with AH, 3(20%) were staged as 1, 5(33.3%) as 2 and 7(46.6%) as Stage 3. The response of the crosses was judged good in 7(46.6%) cases, fair in 4(26.6%) and poor in 4(26.6%) others.

Table 3: Breed responses to aural haematoma management at the Ahmadu Bello University Veterinary Teaching Hospital Zaria.

Breed	Cases (%)	Clinical staging (%)			Outcome of management (%)		
		1	2	3	poor	fair	good
NID	30(54.5)	3(10)	9(30)	18(60)	8(26.6)	12(40)	10(33.3)
Exotic breeds	10(18.2)	3(30)	5(50)	2(20)	2(20)	2(20)	6(60)
Cross breeds	15(27.3)	3(20)	5(33.3)	7(46.7)	4(26.6)	4(26.6)	7(46.6)

Discussion

Though immunologic disorders have been postulated to cause AHs⁴ our experiences and histories obtained suggest trauma as being the primary cause as cases encountered followed violent head shaking or pawing due to otitis externa, ectoparasitism or fly bite ear dermatitis. It was evident from the study that cases presented early in the course of AH (17%) resolved faster with minimal if any complication. This we attributed to the relatively smaller swelling and absence of irreversible morphological pinna changes. Cases presented after these changes have occurred or where a large clot has been formed presented less satisfactory results. It was also observed that most cases presented in Stage 1(16.4%) were in exotic breeds where the pet-owner

relationship may have facilitated early detection of this condition. Where this relationship is deficient, cases are often presented in Stage 3(49.1%) or at best Stage 2(34.5%).

Cases presented with concurrent otitis externa (18.2%) also exhibited delayed healing times which was attributed to the persistent pawing of the ear, violent head shaking and in a case, rubbing the ear on objects and the ground resulting in severer injuries. Furthermore morphological changes of the pinna following management were more pronounced in erect eared dogs (Alsations and Dobermans) as compared with droopy-eared dogs where it was only obvious on palpation of the pinna. In an Alsatian with marked pinna deformation, ear cropping was undertaken to improve the features of the dog. The infliction of dogs with AH does not seem to have any

breed predisposition, however earlier presentation of most exotics prevented further deterioration in their condition and a more favourable surgical response.

Though several management options have been described for AHs there was the need to evaluate the successes and frustrations encountered in our clinic, which has served as the basis for standardizing our management of AHs. As opposed to other reports where lancing of the AH were undertaken using local anaesthetics alone² our cases generally resented touching their ears and were hence very uncooperative thus the need for an ultrashort aesthetic administration since the duration of surgery hardly exceed 20 minutes. Our earlier practice of simply aspirating the haematoma fluid with or without steroid infusion (10.9%) often resulted in recurrence within 24 hours. AH in stage 2 and 3 were less responsive or completely non-responsive to this protocol necessitating an alternative management. This finding however disagrees with an earlier comparative⁴ where corticosteroid infusion was reported to be very effective in the management of AHs. The need for repeat treatments (fluid aspiration) resulted in more defaults than compliance among the clients. In addition, this frustration has in some instances led to clients lancing the AH themselves resulting in severe bleeding and infection of the site. Aspiration of the haematoma fluid with or without steroid infusion produced desirable results only in small haematomas (< 3cm²). The benefit of steroid infusion in managing AH was not obvious in our study.

Application of bandages following lancing of the AH (12.7%) promotes both haemostasis and obliteration of the haematoma space⁵ and protects the

wound. The unsutured incisions allowed continued drainage. It was however noticed that such sites must be observed daily to ensure clearing of blockages. Healing using this protocol occurred over a longer period of time and thickening of the pinna occurred in most cases as opposed to Barnes¹ who reported that this was a satisfactory protocol, but in agreement with others.^{2, 4} Despite the shortcomings, the protocol was judged fair in droopy-eared dogs but we do not recommend it for erect eared dogs as unilateral drooping of the pinna invariably occurred.

Application of ablation (through and through) sutures following lancing of the AH (18.2%) also produced a fair response. This finding was opposed to that of Kuwahara,⁴ who found this method the least satisfactory in a comparative study. Sutures were removed within 7 days to minimize thickening of the pinna. The protocol had a fair response even in erect eared dogs as unilateral ear drooping was only noticed in 2 cases, some thickening of the pinna was however noticed in all the cases subjected to this protocol. Delay in the removal of the sutures in 2 cases due to default by clients resulted in infection and purulent discharge at the point of suture application. This finding agrees with that of Kegan² who reported that both infection and focal necrosis are other complications of this protocol.

The creation of 2 stab incisions, placement of drains^{10, 11} and taping/bandaging the affected ear over the animal's head offered the most satisfactory and cosmetically acceptable result (69%). The choice of fenestrated polyethylene drains was to overcome the inherent weakness and collapse of penrose drains whenever they were

employed. The sizes of the stab incision were such that healing occurred after drain removal with a minimal scar formation, likewise the frequent flushing of these tubes prevented their blockage with blood clots or fibrous material. Drains were removed whenever fluid discharge ceases which in our experience ranges from 3-14 days.

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