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RESEARCH ARTICLE

SURGICAL MANAGEMENT OF AURAL HEMATOMA IN DOGS

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Abstract

Aural hematoma is a common clinical condition in dogs characterized by the accumulation of blood between the auricular cartilage and the skin of the pinna. This retrospective clinical study describes twelve canine cases of aural hematoma presented to a veterinary teaching hospital. The affected dogs comprised seven German Shepherd Dogs (GSDs) and five Labrador Retrievers (LRs). Age ranged from 2 years to 11 years, body weight from 24 kg to 42 kg, and both sexes were represented. Eight dogs had unilateral aural hematoma, while four had bilateral involvement. Initial management included aspiration, corticosteroid therapy, analgesics, antibiotics when indicated, and treatment of underlying otitis externa. Recurrence was observed in five dogs following conservative management. These recurrent cases underwent surgical correction using a linear incision drainage technique with multiple mattress sutures. Surgical treatment resulted in successful resolution in all operated cases, with satisfactory cosmetic and functional outcomes. The study highlights the importance of identifying underlying ear disease and demonstrates that surgery provides a reliable option for recurrent or large aural hematomas.

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Introduction:-

Aural hematoma is one of the most frequently encountered surgical conditions affecting the canine external ear. Aural or auricular hematoma is characterized by blood and serosanguineous fluid accumulation between the pinnae's dermal surface and the underlying perichondrium (Lanz and Wood, 2004; Macphail, 2016) or within the scaphal cartilage (Pavletic, 2015). Typically, it is located at the concave surface of the pinna and is usually presented as a fluctuant swelling (Katsoulos and Dedousi 2021).

The condition develops following rupture of blood vessels within the auricular tissue, resulting in separation of the skin from the underlying cartilage and formation of a fluctuant swelling (Fossum, 2019). Although aural hematoma is not generally life-threatening, it causes considerable pain, discomfort, and irritation. If left untreated, progressive organization of the hematoma leads to fibrosis, contraction of the auricular cartilage, and permanent deformity of the pinna, commonly referred to as a "cauliflower ear" (Pavletic, 2015).

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The exact pathogenesis of aural hematoma remains incompletely understood; however, most investigators agree that the condition is secondary to self-inflicted trauma caused by vigorous head shaking or repeated scratching (Tsioliet *et al.*, 2013). These behaviors generate substantial shearing forces that rupture small auricular blood vessels, allowing blood to accumulate between the skin and cartilage. Repeated movement of the pinna prevents natural adhesion of the tissue layers and promotes continued expansion of the hematoma (Miller *et al.*, 2013; Fossum, 2019).

Several primary disorders predispose dogs to excessive head shaking and scratching. Otitis externa is considered the most common underlying cause and may result from bacterial, fungal (particularly *Malassezia pachydermatis*), parasitic (e.g., *Otodectes cynotis*), allergic, endocrine, foreign body, or keratinization disorders (Chauhan *et al.*, 2015). Allergic skin diseases, including canine atopic dermatitis (CAD) and food allergy, frequently involve the external ear canal and increase the likelihood of repeated trauma to the pinna (Paterson, 2016). Less commonly, ear mites, insect bites, penetrating wounds, bite injuries, blunt trauma, immune-mediated diseases, and systemic coagulopathies have also been implicated in the development of aural hematoma (Miller *et al.*, 2013).

Age-related degeneration of the auricular cartilage has also been proposed as a contributing factor. Degenerative changes reduce cartilage elasticity and increase the susceptibility of auricular vessels to rupture following relatively minor trauma. Consequently, middle-aged and older dogs appear to be affected more frequently than young animals (Fossum, 2019).

The epidemiology of canine aural hematoma indicates that the condition occurs worldwide and represents a common reason for presentation to small animal surgical and dermatology services. Although dogs of any breed, age, or sex may develop aural hematoma, several studies have reported a higher prevalence among medium-breed and large-breed dogs. Breeds commonly represented include Labrador Retrievers, Golden Retrievers, German Shepherd Dogs, Cocker Spaniels, Saint Bernard, Bull Terriers, and mixed-breed dogs. Breed predisposition is believed to be associated with anatomical characteristics such as large or pendulous pinnae, chronic otitis externa, and vigorous head-shaking behavior rather than hereditary factors alone (O'Neill *et al.*, 2021; Miller *et al.*, 2013).

Sex predilection has not been consistently demonstrated. Most epidemiological investigations report no significant difference between males and females, although some retrospective studies have observed a slight male predominance, likely reflecting breed distribution rather than true sex susceptibility (O'Neill *et al.*, 2021). Likewise, body weight has been identified as a potential risk factor, with dogs weighing more than 20 kg reported to have a greater incidence than smaller breeds, possibly because of increased ear mass and greater mechanical forces generated during head shaking. The study further emphasized that effective management requires not only evacuation of the hematoma but also diagnosis and treatment of the underlying ear disease to minimize recurrence (O'Neill *et al.*, 2021).

Management options include conservative techniques such as repeated needle aspiration, placement of drainage cannulas, intralesional corticosteroid administration, and compression bandaging (Fossum, 2019). However, recurrence following conservative treatment is common because the dead space between the skin and cartilage persists. Surgical drainage combined with multiple mattress sutures remains the gold standard for large, chronic, or recurrent hematomas, as it effectively eliminates dead space, preserves the normal contour of the pinna, and reduces recurrence rates (Pavletic, 2015).

Materials and Methods:-

Case population:-

Twelve dogs, of only GSD and LR breeds, presented with aural hematoma were included in this retrospective study. The case signalment and clinical details are summarized in Table 1.

Table 1. Signalment and clinical findings of dogs with aural hematoma

Case	Breed	Age (years)	Sex	Body Weight (kg)	Ear Involvement	Initial Management	Recurrence	Final Treatment
1	GSD	3	Male	32	Unilateral	Aspiration + medication	No	Medical
2	GSD	5	Female	30	Bilateral	Aspiration +	Yes	Surgery

						medication		
3	GSD	7	Male	38	Unilateral	Aspiration + medication	No	Medical
4	GSD	9	Male	40	Bilateral	Aspiration + medication	Yes	Surgery
5	GSD	4	Female	31	Unilateral	Aspiration + medication	No	Medical
6	GSD	11	Male	42	Unilateral	Aspiration + medication	Yes	Surgery
7	GSD	6	Female	34	Unilateral	Aspiration + medication	No	Medical
8	Labrador	2	Male	24	Unilateral	Aspiration + medication	No	Medical
9	Labrador	5	Female	28	Bilateral	Aspiration + medication	Yes	Surgery
10	Labrador	8	Male	36	Unilateral	Aspiration + medication	No	Medical
11	Labrador	10	Female	33	Unilateral	Aspiration + medication	Yes	Surgery
12	Labrador	4	Male	29	Bilateral	Aspiration + medication	No	Medical

Clinical examination:-

All twelve dogs presented with a fluctuant, doughy swelling involving the pinna, accompanied by varying degrees of ear pain, head shaking, scratching of the affected ear, and discomfort on palpation. Clinical examination revealed soft to firm, fluid-filled swellings located on the concave surface of the pinna in all cases (Fig. 1). Otoscopic examination identified concurrent otitis externa in nine dogs, characterized by erythema, excessive cerumen accumulation, and purulent or brownish ear discharge. Three dogs had no apparent evidence of active otitis, and their hematomas were attributed to traumatic injury following vigorous head shaking. Hematomas were unilateral in eight dogs and bilateral in four dogs (Table 1).

Medical management:-

All cases were initially managed conservatively under aseptic conditions. After surgical preparation of the affected pinna, the accumulated blood was evacuated by needle aspiration using an 18-gauge needle attached to a sterile syringe. Following aspiration, prednisolone was administered orally at a dose of 0.5–1 mg/kg once daily for 5–7 days to reduce inflammation and minimize re-accumulation of fluid. A NSAID (meloxicam) was administered orally at 0.1 mg/kg once daily for 3–5 days to provide analgesia and control postoperative inflammation.

Dogs diagnosed with secondary bacterial otitis externa received appropriate broad-spectrum systemic antibiotics together with topical otic medication based on cytological examination and ear cleaning. Owners were instructed to use an Elizabethan collar throughout the treatment period to prevent self-trauma and facilitate healing.

Seven dogs showed complete clinical resolution following conservative management, with gradual reduction of swelling and restoration of the normal contour of the pinna. However, five dogs developed recurrence of the hematoma within 2–4 weeks after initial aspiration and medical therapy. These recurrent cases, which included three bilateral and two unilateral hematomas, were subsequently scheduled for surgical correction.

Surgical management:-**Anaesthesia:-**

For surgical management, dogs were premedicated with inj. atropine sulfate (0.04 mg/kg, subcutaneously) followed by inj. xylazine (1 mg/kg, intramuscularly). General anaesthesia was induced using inj. ketamine hydrochloride (5 mg/kg, intravenously) and maintained with isoflurane delivered in oxygen through a rebreathing anaesthetic circuit.

Patient preparation:-

The patients were positioned in the lateral recumbency with the affected ear facing upwards. The ipsilateral ear canal was plugged with cotton. The affected ear was clipped, aseptically prepared with povidone-iodine solution followed by sterile saline, and draped routinely (Fig. 2).

Surgical procedure:-

A longitudinal and slightly curved skin incision was made over the concave surface of the pinna at the most dependent portion of the hematoma to facilitate complete drainage. Accumulated blood clots and fibrin deposits were carefully removed using a mosquito forceps, and the hematoma cavity was thoroughly irrigated with sterile normal saline until all debris was drained. The skin was then apposed to the auricular cartilage using multiple horizontal mattress sutures placed with 2-0 or 3-0 non-absorbable suture material (polyamide/nylon), ensuring adequate obliteration of the dead space while leaving small intervals between sutures to permit continued postoperative drainage (Fig. 3). The incisional site was left opened to be healed by second-intention healing. A light protective over-the-head bandage was applied and maintained for 11–15 days (Fig. 4).

Postoperative care:-

Postoperatively, all surgically treated dogs received inj. ceftriaxone at 25 mg/kg intravenously or intramuscularly twice daily for five days along with inj. meloxicam at 0.1 mg/kg subcutaneously once daily for three days for analgesia and control of inflammation. The surgical site was cleaned at alternate day interval with antiseptic solution (5% povidone-iodine), and an Elizabethan collar was maintained for 14 days to prevent self-inflicted trauma. Skin sutures were removed between 14 and 18 days after surgery following complete wound healing and satisfactory resolution of the hematoma.

Postoperative complications:-

Recurrence was seen in the conservative treatment group among five cases however, no suture site dehiscence, pinnal deformity or recurrence was noticed in all these surgically treated five cases. All the operated cases recovered uneventfully.

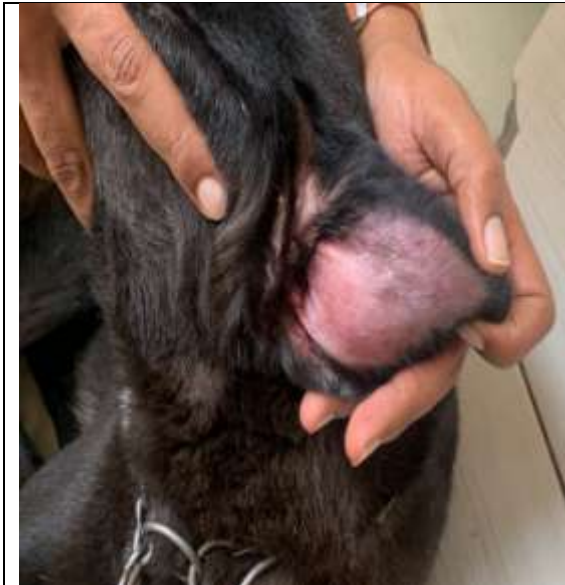
Figures:-

Fig. 1: Unilateral swelling of left auricular pinna in a Labrador dog



Fig. 2: Preoperative preparation of the surgical site



Fig. 3: Sutured site after drainage and evacuation of the hematoma contents



Fig. 4: Postoperative over the head bandaging to prevent self-mutilation of the surgical wound

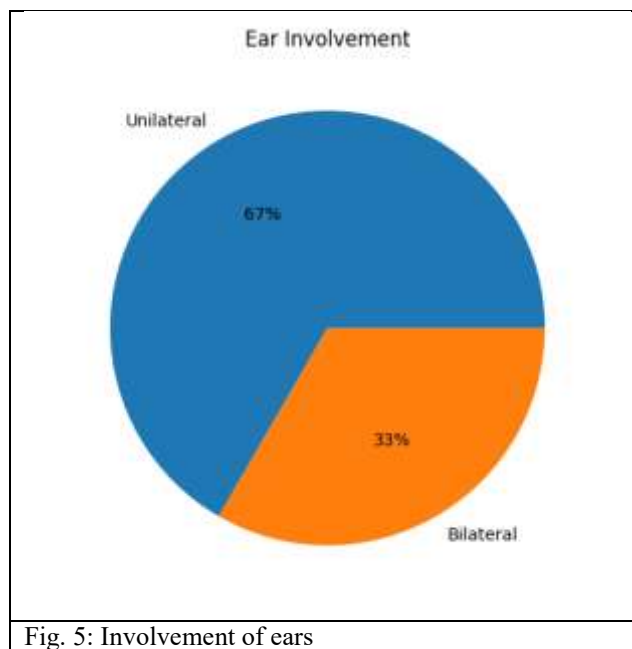


Fig. 5: Involvement of ears

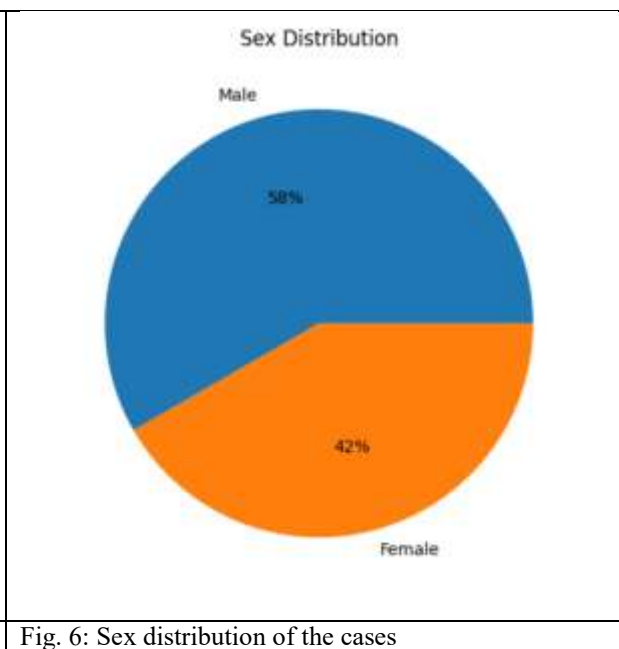
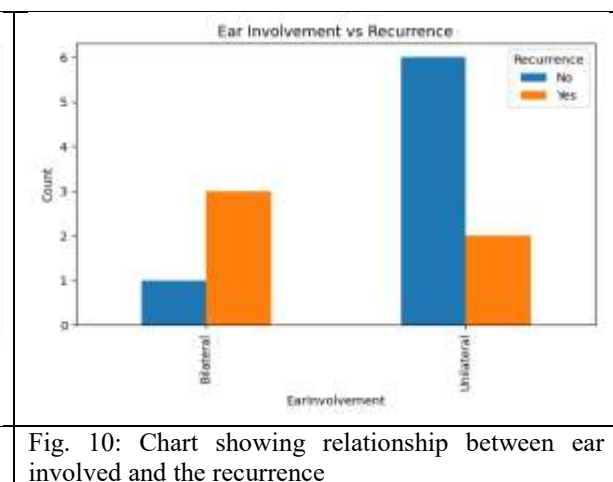
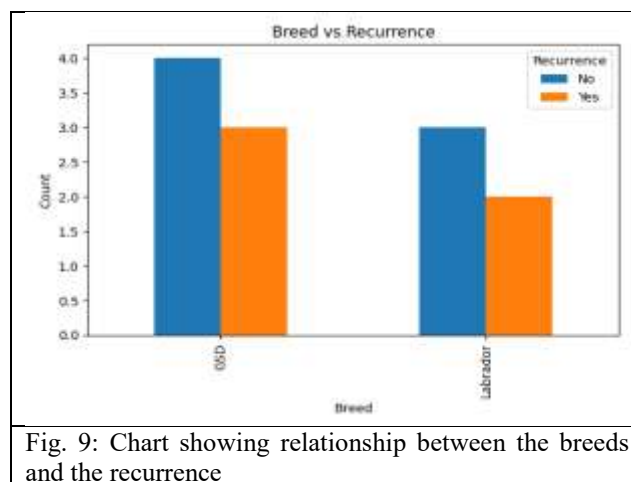
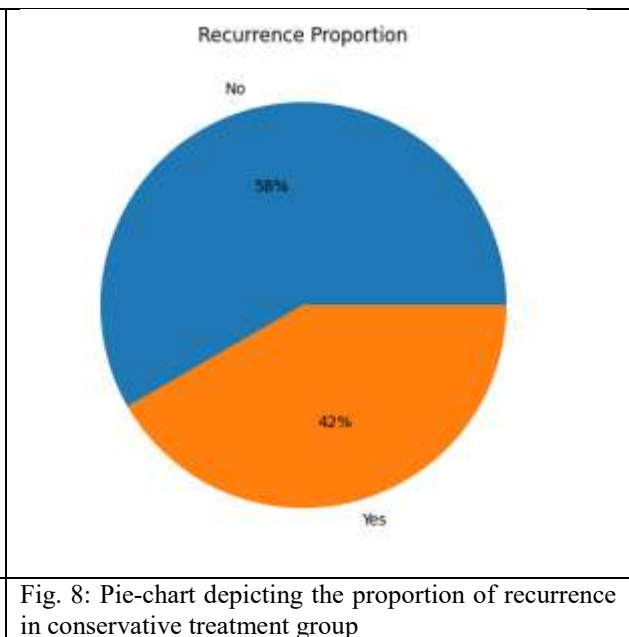
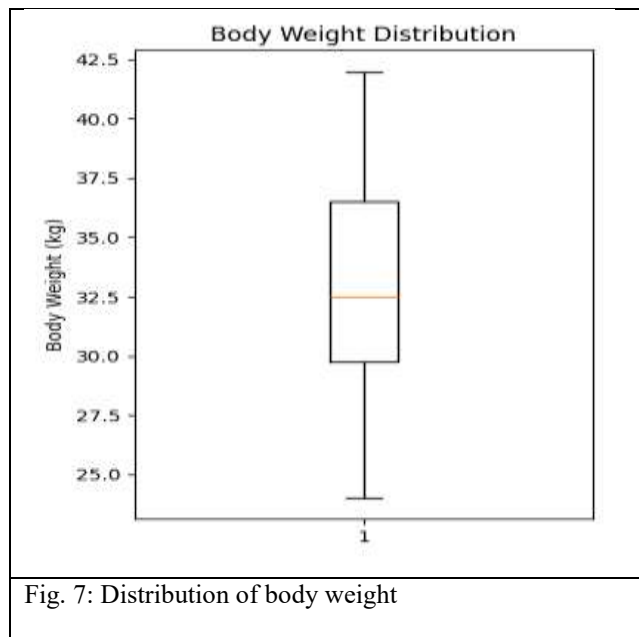


Fig. 6: Sex distribution of the cases



Results and Discussion:-

Five dogs were presented with aural hematoma in both the ears (bilateral, n=5) and seven dogs had unilateral aural hematoma (unilateral, n=7) (Fig. 5). Males (58%) were affected more than the females (42%) (Fig. 7). The age distribution of the cases is depicted in the Fig. 7. Seven dogs (58.3%) recovered with conservative management alone. Five dogs (41.7%) experienced recurrence after aspiration and medical therapy (Fig. 8). More recurrence was seen in GSDs (Fig. 9) and in the dogs affected with bilateral aural haematomas (Fig. 10).

All surgically treated dogs showed complete resolution without further recurrence during a 10-month follow-up period. More Mild postoperative pinna thickening was observed in two dogs, but no significant cosmetic deformity developed. Ear function and comfort were restored in all cases. No recurrence was seen in the dogs treated with surgical intervention in a 10 months follow-up period. Aural hematoma is commonly associated with underlying otitis externa, allergic skin disease, or self-trauma resulting from excessive head shaking (Fossum, 2019). In the present series, concurrent otitis externa was identified in 75% of dogs, supporting previous reports that ear disease is a major predisposing factor.

Conservative management is attractive because it is minimally invasive; however, recurrence rates remain relatively high (Chauhan *et al.*, 2025). In this study, recurrence occurred in 41.7% of medically managed dogs, which is

consistent with previous clinical observations (Pavletic, 2018). Repeated aspiration alone often fails because the potential space between the skin and cartilage remains intact. Surgical drainage with mattress suturing effectively eliminated the dead space and prevented re-accumulation of blood. The excellent outcome observed in all surgically treated dogs agrees with the recommendations of Fossum (2019) and Hedlund (2020), who reported lower recurrence rates with surgical techniques compared with repeated aspiration. Breed predisposition has been described in large, pendulous-eared dogs such as Labrador Retrievers, although German Shepherd Dogs are also frequently affected due to their high incidence of otitis externa and vigorous head shaking behavior (Miller *et al.*, 2013). The predominance of unilateral cases in the present series is also consistent with earlier reports.

Conclusion:-

Aural hematoma was successfully managed in twelve dogs using both medical and surgical approaches. Conservative treatment was effective for small or early lesions, whereas recurrent or bilateral hematomas responded best to surgical drainage with mattress suturing. Identification and treatment of underlying otitis externa were essential components of successful therapy. Surgical management provided the most reliable long-term outcome with minimal recurrence.

Conflict of interest:-

All the authors declare no conflict of interest.

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