

# Aural hematomas: Underlying causes

*The identification and treatment of any underlying disease is essential when caring for Pets with an aural hematoma.*



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**A**n aural hematoma is a collection of serosanguineous fluid between the auricular cartilage and the skin of the pinna on a dog or cat, although the condition is more common in dogs. The primary cause of aural hematomas is a pruritic ear, which may result from otitis externa or media, ectoparasitism, atopy or foreign matter in the ear canal. As the pruritic Pet scratches his ear or vigorously shakes his head, small blood vessels beneath the skin of the pinna rupture (*Figures 1A-1D*, page 25). The entire pinna may swell or only a portion may be affected. It is often at this time when the owner presents the Pet for examination.

A complete history and otoscopic examination, including a fine needle aspirate and cytology, are necessary to differentiate a hematoma from angioedema, abscess or tumor. If the hematoma is left untreated, the altered blood supply and fibrosis may cause the tissue to remodel. This remodeling may lead to a contracted pinna, resulting in a crinkled appearance often referred to as *cauliflower ear*. To prevent this, surgical correction of the lesion should immediately be

recommended because medical management will likely result in recurrence (see *Treating aural hematomas*, page 32).

Veterinarians must complete an otoscopic examination to evaluate the integrity of the tympanum. The topical administration of certain cleaners, antibiotics and other medications can result in hearing loss if the tympanum is ruptured. If the Pet resists examination and the tympanum can't be visualized, sedation or anesthesia may be necessary for the examination and cleaning.

Successful resolution of an aural hematoma necessitates the identification and treatment of any underlying disease, such as an ear infection, atopy, food allergies or hypothyroidism. Dogs with recurrent aural hematomas should also be evaluated for hyperadrenocorticism. If the underlying disease is not treated, the hematoma may recur and cause an unfavorable short- or long-term response to treatment, which can negatively affect the Pet's health and perpetuate client dissatisfaction.

## **Ear infections**

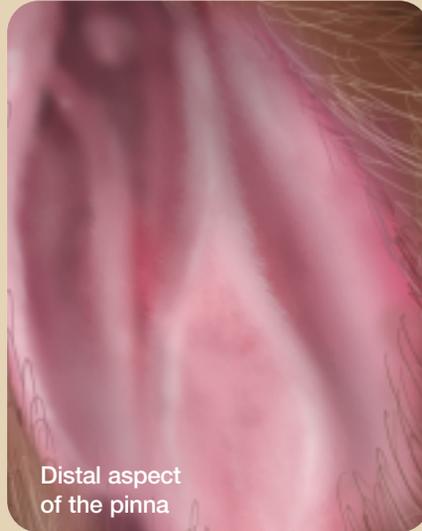
The most frequent cause of an aural hematoma is a bacterial or yeast infection of the

Figure 1A



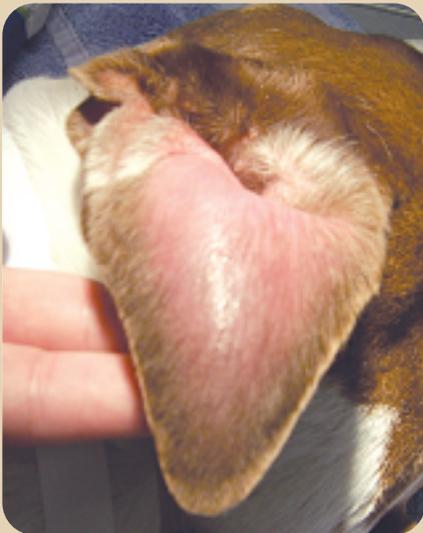
A healthy ear is light pink and clean. There can be some yellow or brownish wax, but a large amount of wax or crust is abnormal. There should be no redness or swelling inside the ear.

Figure 1B



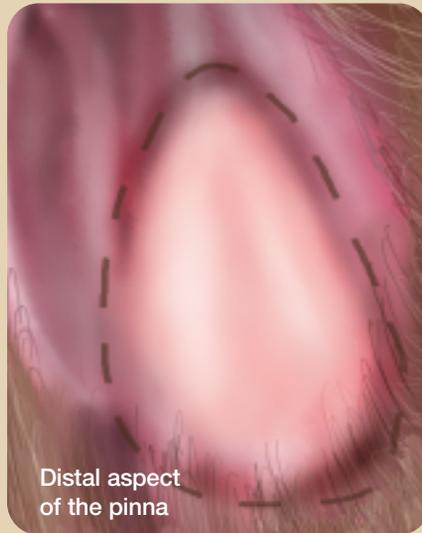
Distal aspect of the pinna

Figure 1C



An aural hematoma is a collection of serosanguineous fluid between the auricular cartilage and the skin of the pinna on a dog or cat.

Figure 1D



Distal aspect of the pinna

Illustrations by Christian Hammer

external ear canal, which in dogs often causes otitis. *Demodex* infections are another possible cause of otitis. Ear mite infestation occurs frequently in cats but is less common in dogs, and it can occur con-

currently with otitis. Infections and ear mites may cause discharge, scratching and head shaking. It is important to remember that dogs are not the common host for ear mites. By the time the dog presents to the

**Table 1: Dog Breeds Associated with Pituitary-Dependent Hyperadrenocorticism and Adrenal Tumors\***

Pituitary-Dependent Hyperadrenocorticism	Adrenal Tumors
German Shepherds	German Shepherds
Terriers	Labrador Retrievers
Beagles	Dachshunds
Dachshunds	Poodles
Poodles	

\*Source: Ettinger SJ, Feldman ED, eds. *Textbook of Veterinary Internal Medicine: Diseases of the Dog and Cat*. 4th ed. Philadelphia, Pa: WB Saunders, 1995;1543.

veterinarian, the mites may have been eliminated by the dog, but a significant ear infection may remain.

Because several kinds of bacteria and at least one type of yeast, including *Malassezia*, can cause an ear infection, veterinarians should perform an ear swab and cytologic examination of any exudates to specifically direct therapy at the appropriate offending organism (See *Banfield Journal*, September/October 2005 issue). Culture and sensitivity may also be warranted in some cases. Foreign bodies or neoplastic masses in the ear canal can predispose a patient to an otic infection. If appropriate treatment is instituted and the infection or hematoma recurs, other underlying causes need to be considered.

### Hypothyroidism

Although the age of onset is variable, hypothyroidism most commonly occurs in dogs from 4 to 10 years of age. It usually affects mid- to large-sized breeds and is less common in toy and miniature breeds. Dermatologic manifestations occur in 60 percent of hypothyroid dogs and can include odoriferous skin that may be pruritic from a secondary bacterial or yeast infection. Hypothyroidism may also increase

the likelihood of bleeding problems that cause aural hematomas to form.

A thorough history and complete physical examination are imperative before diagnosing hypothyroidism. The veterinarian must rule out the effects of nonthyroidal illnesses (hyperadrenocorticism, hypoadrenocorticism, diabetes mellitus or pyoderma) that may depress the Pet's thyroid hormone concentration. The effects of these disease processes are collectively called *euthyroid sick syndrome*.

The hematologic finding associated with hypothyroidism is a mild normocytic, normochromic, nonregenerative anemia. Hypercholesterolemia is an important serum biochemical abnormality; it occurs in about 80 percent of dogs with hypothyroidism and may be used as a screening tool. If hypothyroidism is suspected, veterinarians should run a complete thyroid panel (total T<sub>4</sub>, free T<sub>4</sub> and canine thyroid stimulating hormone tests).

### Hyperadrenocorticism

Hyperadrenocorticism commonly presents in middle-aged and older dogs. It may be seen in dogs less than 2 years old and rarely in dogs 6 to 9 months old. *Table 1* lists breeds associated with pituitary-dependent hyperadrenocorticism and adrenal tumors. Pituitary-dependent hyperadrenocorticism (85 percent of all hyperadrenocorticism cases) is more common than adrenal tumors (15 percent of cases). The signs of hyperadrenocorticism associated with aural hematomas are poor healing tendencies, increased vascular fragility, nonspecific dermatoses and chronic or recurrent infections.

Testing for hyperadrenocorticism begins with a complete blood count, serum chemistry panel, electrolytes and urinalysis.

Preliminary findings from the minimum database should guide the veterinarian to run either a low-dose dexamethasone suppression test or ACTH stimulation test. Upon obtaining these results, a high-dose dexamethasone test may be indicated to differentiate pituitary-dependent hyperadrenocorticism from an adrenal tumor.

Another variable that must be considered with the treatment of ear infections and aural hematomas is iatrogenic hyperadrenocorticism. With this, patients exhibit clinical signs as a result of excessive or prolonged exposure to exogenous corticosteroids. Clinical hyperadrenocorticism can be seen when a steroid-containing medication is administered topically or by injection for prolonged periods, as may be the case with chronic otitis.

## **Allergies**

Dogs with atopy or food allergies are subject to ear inflammation. Otitis is the only clinical sign of disease in three to five percent of atopic dogs and 20 percent of dogs with food allergies. When atopy or food allergies occur, otitis is usually noted in both ears, and secondary bacterial or yeast infections are common. There is no gender or breed predisposition, and the age of onset in dogs is between 4 months and 14 years. Ectoparasite infestation, such as fleas, can cause another allergic condition for which the Pet should be evaluated and, if present, the appropriate treatment should be prescribed.

If an allergy is suspected, diagnosis depends on a thorough history, possible biopsy, hypoallergenic diet trial, response to

corticosteroids and serum allergy or intradermal allergen testing.

### Arriving at a treatment plan

Treating recurrent ear infections and subsequent aural hematomas is a more complex matter than selecting the correct ear cleaner and topical medication. The formation of aural hematomas can be multifactorial and can become a source of frustration for both the client and veterinarian.

At the time of diagnosis, a thorough history and complete examination direct the veterinarian to perform further diagnostics for hypothyroidism, hyperadrenocorticism or an allergic condition. If the physical examination, otoscopic examination or diagnostic testing reveals a possible underlying cause for the aural hematoma, the veterinary team must recommend the best diagnostic and treatment plan and educate the client about the complexity of the problem. Team members should describe other conditions associated with otitis and explain the value of a thorough workup and treatment plan in preventing recurrence. If the underlying disease is not treated, it may recur and the aural hematoma may reform. Then the Pet may continue to be uncomfortable and the client's money may be wasted in the long run.

Surgical treatment of aural hematomas is most commonly recommended because it immediately relieves the Pet's pain and ensures the best long-term outcome. However, in cases where the client declines surgical hematoma alleviation, some practitioners may elect a conservative approach with drains or the use of oral prednisone at anti-inflammatory doses (1 mg/kg per day). However, drains have been associated with a higher recurrence rate, and prednisone administration is only anecdotally support-

ed. No scientific evidence is available that shows oral prednisone has any better result than no treatment. The patient's medical records should reflect that the client declined the suggested surgery and instead chose a more conservative therapy.

The pros and cons of the different surgical techniques used to alleviate aural hematomas are discussed in *Treating aural hematomas* on page 32. But remember that to offer complete care and help ensure the hematoma does not recur, veterinarians must also identify and treat any underlying causes of the hematoma's formation. 🐾

### Suggested Reading

1. Ettinger SJ, Feldman EC, eds. *Textbook of veterinary internal medicine: Diseases of the dog and cat*. 5th ed. Philadelphia, Pa: WB Saunders, 2000;1420-1427.
2. Feldman EC. Chapter 118. In: Ettinger SJ, Feldman EC, eds. *Textbook of veterinary internal medicine: Diseases of the dog and cat*. 4th ed. Philadelphia, Pa: WB Saunders, 1995;1538-1577.
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4. Beaver BV, Haug LI. Canine behaviors associated with hypothyroidism. *J Am Anim Hosp Assoc* 2003;39:431-434.
5. Newman Veterinary Medical Services. *Hyperadrenocorticism: Cushing's Disease*. Available at: [www.newmanveterinary.com/Cushings.html](http://www.newmanveterinary.com/Cushings.html). Accessed Sept 7, 2006.

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# Treating aural hematomas

*Choose the appropriate technique and provide high-quality care after the procedure to help Pets' ears heal.*



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**A**ural hematomas are the most common physical injury of the pinna, and they are most apparent on the pinna's concave surface. When Pets vigorously shake their heads or scratch their ears, trauma to the ears causes the blood vessels and capillaries in the pinna to rupture.<sup>1</sup> When these vessels break, blood pools in the space between the skin and cartilage, creating a hematoma. This condition is usually unilateral, but it can be bilateral. Hematomas should be drained as soon as possible. If they are left untreated, fibrin formation can occur, leading to fibrosis, contraction and thickening, potentially leaving the ear with a deformed cauliflower-like appearance.<sup>2</sup> If treatment is delayed, surgical intervention may be more difficult and scars will be more likely to form. This article discusses the treatment options that help alleviate hematomas and produce successful outcomes for canine patients. These techniques can be altered, as appropriate, for feline patients.

## **Surgical treatment**

The goals of surgical intervention are to remove the hematoma, establish drainage, prevent recurrence by placing the tissues in apposition and to retain the pinna's normal appearance by minimizing scar formation.<sup>3</sup> There are several techniques for draining and eliminating hematomas. Selection of the appropriate technique depends on how long the hematoma has been present and the veterinarian's personal preference. Veterinarians must also consider patients' overall health and whether they can tolerate general anesthesia. You should discuss the pros and cons of each technique with clients, partnering with them to decide which treatment plan to pursue.

It is essential to treat any underlying conditions that may have contributed to the hematoma formation (see *Aural hematomas: Underlying causes*, page 22). Veterinarians should perform a thorough otoscopic examination (preferably while the Pet is anesthetized) to rule out concurrent otitis externa, otitis media, tympanic membrane damage or aural foreign body. If otic disease is found, perform a proper ear canal