OTITIS EXTERNA AND MEDIA
(INFLAMMATION OF THE OUTER EAR AND MIDDLE EAR)

BASICS

OVERVIEW
- "Otitis externa"—inflammation of the outer ear or external ear canal
- "Otitis media"—inflammation of the middle ear
- The terms are not diagnoses, but rather are descriptions of clinical signs

SIGNALMENT/DESCRIPTION of ANIMAL

Species
- Dogs and cats

Breed Predilections
- Pendulous-eared dogs, especially spaniels and retrievers
- Dogs with hair in their external canals—terriers and poodles
- Dogs with narrowing (known as "stenosis") of the external ear canal—Chinese shar peis

SIGNS/OBSERVED CHANGES in the ANIMAL
- Inflammation of the outer ear (otitis externa)—often secondary to an underlying disease; may see signs of underlying disease
- Inflammation—discharge in the outer ear canal, pain, itchiness (known as "pruritus") that may lead to rubbing or scratching the ears, and redness of the outer ear (known as "erythema")
- Infection—discharge in the outer ear canal that contains pus and frequently has a bad odor
- Long-term (chronic) inflammation of the outer ear (otitis externa) in dogs—results in rupture of the ear drum (known as the "tympanic membrane") in 71% of cases and in inflammation of the middle ear (otitis media) in 82% of cases
- Pain
- Head shaking
- Scratching at the ears
- Redness and swelling of the outer ear canal, leading to narrowing (stenosis) of the canal
- Cats tend to hold the ear down or tilt the head
- Abnormality in which the animal's sense of balance is altered (known as a "vestibular disorder") may lead to signs (such as head tilt; short, rapid movements of the eyeball [known as "nystagmus"]; lack of appetite [known as "anorexia"]; wobbly, incoordinated or "drunken" appearing gait or movement [known as "ataxia"]; and infrequent vomiting) that indicate development of inflammation of the middle ear (otitis media) and inflammation of the inner ear (known as "otitis interna")

CAUSES

Primary Causes
- Parasites (causing inflammation of the outer ear [otitis externa])—ear mites (*Otodectes cynotis*), other mites (*Demodex*, *Sarcoptes* and *Notoedres*), and the spinose ear tick (*Otobius megnini*)
- Hypersensitivities—atopy (disease in which the animal is sensitized [or "allergic"] to substances found in the environment [such as pollen] that normally would not cause any health problems), food allergy, contact allergy, and generalized (systemic) or local drug reaction
- Foreign bodies—plant awns
- Blockages in the ear canal—tumor or cancer, polyps, enlargement of the glands that secrete ear wax, and accumulation of hair; also may be secondary to other causes of outer ear problems
- Disorder in the normal replacement and shedding of skin cells (known as a "keratinization disorder") and increased wax production—functional obstruction of the ear canal
- Autoimmune diseases (in which the immune system attacks the body's own tissues)—frequently affect the ear flap; sometimes affect the external ear canal

Perpetuating Factors
- Secondary bacterial infections—common; *Staphylococcus intermedius* most often cultured from the horizontal ear canal in inflammation of the outer ear (otitis externa); *Pseudomonas*, *Proteus*, *Corynebacterium*, and *E. coli* frequently reported; *Pseudomonas* most often cultured in inflammation of the middle ear (otitis media)
- Infections—often mixed with, or entirely the result of the yeast, *Malassezia pachydermatis*; other yeast (*Candida*) or fungal species are rarely present
- Progressive changes—thickening or enlargement of the tissue of the external ear canal, enlargement of the glands that secrete wax, scar tissue, and cartilage calcification; cause treatment-resistant inflammation of the outer ear (otitis externa); prevent return to a "normal" ear canal even with proper treatment
- Inflammation of the middle ear (otitis media)—can produce signs on its own; can act as a reservoir for disease-causing organisms, leading to recurrent infections

RISK FACTORS

- Abnormal or breed-related conformation of the external ear canal (such as narrowing of the canal, hair in the ear canal, and pendulous ear flaps) restricts proper air flow into the canal
- Excessive moisture (such as from swimming, bathing or frequent ear cleanings with certain ear products) in the ear canal can lead to infection; overzealous client compliance with recommendations for ear cleanings are common
- Reaction to medications applied to the ear directly (known as "topical ear medications") and irritation and trauma from abrasive cleaning techniques
- Underlying generalized (systemic) diseases produce abnormalities in the ear-canal environment and immune response

TREATMENT

HEALTH CARE

- Outpatient, unless pet has severe vestibular signs (signs due to an abnormality in which the animal's sense of balance is altered; signs may include head tilt; short, rapid movements of the eyeball [nystagmus]; lack of appetite [anorexia]; wobbly, incoordinated or "drunken" appearing gait or movement [ataxia]; and infrequent vomiting)

ACTIVITY

- No restrictions, unless pet has severe vestibular signs

DIET

- No restrictions, unless a food allergy is suspected

SURGERY

- Indicated when the ear canal is severely narrowed or blocked or when a tumor, cancer or polyp is diagnosed
- Severe, medical treatment-unresponsive inflammation of the middle ear (otitis media) may require surgery to drain the middle ear (procedure known as "bulla osteotomy") or to remove part of the outer ear (known as "ear ablation") through the horizontal ear canal

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

Systemic Treatment (medications given by mouth, by injection, or by application to the body)

- Antibiotics—useful in severe cases of bacterial infection/inflammation of the outer ear (otitis externa); necessary when the ear drum (tympanic membrane) has ruptured; suggested initial antibiotic choices include cephalexin, enrofloxacin, or clindamycin; antibiotic-resistant infections require bacterial culture and sensitivity of the discharge in the ear to determine antibiotic selection
- Medications to treat yeast or fungal infections (known as "antifungals")—use with overwhelming yeast or fungal infection; example is ketoconazole
- Steroids—reduce swelling and pain; reduce wax production; anti-inflammatory dosages of prednisone; use sparingly and for short duration
- Selamectin—(Revolution®) for ear mites, applied onto body every 2 weeks for 3 applications

Topical Treatment (medications applied to the ear canal directly)

- Topical therapy is very important for resolution and control of inflammation of the outer ear (otitis externa)
- First, completely clean the external ear canal of debris; complete flushing under general anesthesia may be necessary, especially for uncooperative patients or severe cases, including those with inflammation of the middle ear (otitis media)
- Second, thoroughly clean the ear daily or every other day during initial therapy; then every 3 to 7 days once signs resolve
- Finally, apply appropriate topical medications frequently and in sufficient quantity to completely treat the entire ear canal
- Combination ointments are not recommended because they often accumulate in the ear canal and may perpetuate the condition
- Suggested topical medications include antibiotics (such as gentamicin) or antifungal drops (such as miconazole) for yeast or fungal infections, with or without steroids
- Commercial ear cleansers with compounds to soften and breakdown the ear wax (known as "cerumenolytics"), compounds to slow the growth of bacteria (known as "antiseptics"), and compounds to decrease secretions and reduce moisture (known as "astringents"); your pet's veterinarian will recommend the appropriate ear cleanser for your pet and will provide directions for use
- Cerumenolytics—dioctyl sodium sulfosuccinate or carbamide peroxide; emulsify waxes, facilitating removal of wax and debris
- Antiseptics—acetic acid or chlorhexidine gluconate; reduce or eliminate infectious organisms
- Astringents—isopropyl alcohol, boric acid, or salicylic acid; reduce moisture
- Antibiotics, antifungals, and/or parasiticides—use when presence of organism(s) has been confirmed
- Ivermectin 0.01% (Acarexx® Otic Suspension)—FDA-labeled to treat ear mites (*Otodectes cynotis*)

• Resistance to medications—perform a bacterial culture and sensitivity of the ear discharge
• Generally, ingredients of topical medications should be limited to those needed to treat a specific infection (that is, medications containing antibiotics should be used only for bacterial infections)

FOLLOW-UP CARE

PATIENT MONITORING

• Follow-up examinations and evaluations of ear discharge can assist in monitoring infection

PREVENTIONS AND AVOIDANCE

• Routine ear cleaning at home, as directed by your pet's veterinarian
• Control of underlying diseases

POSSIBLE COMPLICATIONS

• Uncontrolled inflammation of the outer ear (otitis externa) can lead to inflammation of the middle ear (otitis media); deafness; vestibular disease (abnormality in which the animal's sense of balance is altered); inflammation of the tissues under the skin that tends to spread (known as "cellulitis"); facial nerve paralysis; progression to inflammation of the inner ear (known as "otitis interna"); and rarely inflammation of the brain and its surrounding membranes (known as "meningoencephalitis")

EXPECTED COURSE AND PROGNOSIS

• Inflammation of the outer ear (otitis externa)—with proper therapy, most cases resolve in 3 to 4 weeks; failure to correct underlying primary cause often results in recurrence
• Perpetuating factors (such as narrowing of the ear canal and calcification of the cartilage of the ear) will not resolve and may result in recurrence
• Inflammation of the middle ear (otitis media)—may take 6+ weeks of systemic antibiotics until all signs have resolved and the ear drum (tympanic membrane) has healed

KEY POINTS

• The proper method for cleaning ears is very important; talk to your pet's veterinarian so you understand the procedure and frequency of ear cleaning