

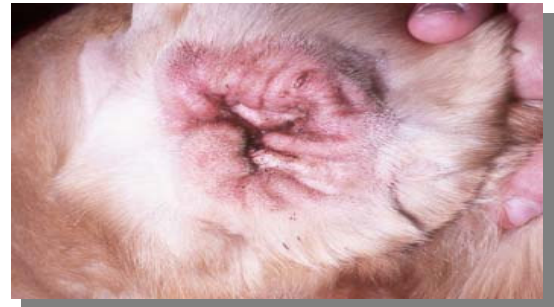


A Dog with Chronic Otitis

Sam, a 1.5 year old SF pitbull mix dog was presented for evaluation for total ear canal ablation surgery. She had a history of chronic bilateral otitis since the owner obtained her 3 months previously. Topical ear medications had been tried with no improvement. Additionally, the owner reported that Sam was pruritic, especially on her face, feet, axillary areas and inguinal areas. Sam was fed a commercial diet and fipronil was used for flea control.

On physical examination, Sam's outer ear canals were almost completely occluded by swollen, erythematous hyperplastic tissue, with a mild brown otic discharge. The canals were firm but not palpably calcified. Ooscopic examination to assess tympanic membrane integrity was not possible due to the severe ear canal swelling. Also, Sam's skin was generally erythematous, especially in the periocular, axillary and inguinal areas. The ventral interdigital areas of her feet were swollen and erythematous and the hair on her feet was stained brown due to chronic licking.

Differential diagnosis: *Primary* causes for otitis include hypersensitivity disorders (atopy, food allergy, contact hypersensitivity to topical medications), ectoparasites (otodectes, demodex), ear canal foreign bodies or masses, endocrine disorders (hypothyroidism, hyperadrenocorticism), keratinization disorders (idiopathic seborrhea), and immune-mediated disease (pemphigus, systemic lupus, drug eruption). Other factors which do not cause otitis by themselves but which may *predispose* an animal to otitis include narrow ear canals, hair in the ear canals, pendulous ear pinnae, and increased moisture in the ear canals due to swimming or high humidity. Once otitis externa is established, it can be complicated by bacterial or yeast infection, otitis media, or chronic pathologic changes of the ear canals (fibrosis, apocrine gland hyperplasia, calcification) which can *perpetuate* otitis even if the primary cause has



been addressed.

Day 0 - Diagnostic tests: Cytology of otic discharge revealed wax and 5-10 yeast/hpf. No bacteria were observed. Skin scrapes and ear swabs were negative, and skin cytology was normal.

Day 0 - Treatment plan: A strict hypoallergenic diet trial for 8-10 weeks was prescribed using a fish and potato product. To reduce ear canal inflammation, a short course of oral prednisone was prescribed at an antiinflammatory dose for 14 days. Topical therapy with a combination gentamycin-clotrimazole-betamethasone ear ointment was dispensed to be used in both ears twice daily to decrease inflammation and yeast overgrowth.

Day 7 Recheck: On physical examination, Sam's ear canal swelling had decreased by 50%. Ooscopic examination revealed normal tympani bilaterally and no evidence of ear canal foreign body or mass. The hypoallergenic diet was continued as was topical antimicrobial therapy and tapering prednisone. Additionally, a ceruminolytic ear cleaner was dispensed to be used weekly to decrease wax accumulation.

Day 40 Recheck: The owner reported that Sam had been doing well until 1 week prior to presentation, when the dog accidentally ate another dog's food. Within a few days Sam's ears had become red and pruritic. On examination, Sam's ear canals and skin were mildly erythematous, but the canals

were minimally swollen. Otic cytology revealed no bacteria or yeast.

Diagnosis: Chronic otitis (and dermatitis) due to food allergy.

Discussion: Keys to the successful diagnosis and therapy of chronic or recurrent otitis include: **A.** determining and addressing the primary cause; **B.** identifying secondary bacterial or yeast infection and instituting appropriate topical therapy; **C.** evaluation of possible middle ear canal involvement and, if found, prescribing appropriate systemic antibiotics (or antifungal medication if yeast otitis media); and **D.** thorough cleaning of debris from the horizontal and vertical ear canals.

A. Determining the primary causes for otitis starts with a careful history, including age of onset, duration of symptoms, other dermatologic or systemic signs, and previous therapies tried/response to therapy. Otitis is seen in 50-80% of dogs with food allergy and atopy, and can be the only symptom^{1,3}. Food allergy can occur at any age, whereas atopy typically starts between 1-3 years of age¹. After the history is taken, a detailed otoscopic examination and ear swabs for mites and cytology are performed. Oscopic examination may require sedation. The canals should be assessed for degree of erythema and exudate or stenosis, for possible foreign bodies or masses, and for integrity of the tympanum. In some patients with severe otitis, otoscopic examination may need to be delayed for 5-7 days pending ear cultures while medical therapy is instituted with topical and/or systemic antibiotics and steroids.

B. Secondary infections are identified by cytological analysis of ear swabs. The swab is rolled onto a slide, heat-fixed and stained, then examined under 40-100X. This test is performed at subsequent rechecks to evaluate response to therapy.

Culture and sensitivity of ear exudate are indicated in cases of chronic infection (especially if antibiotics have already been tried), when rod bacteria are seen cytologically, and when otitis media is present. In the latter case, cultures should ideally be taken from both the external and middle ears, since bacterial populations may be different.⁴ Topical therapeutics for otitis externa include a variety of antimicrobial solutions and ointments.¹⁻³

C. Otitis media is commonly seen in cases of chronic otitis externa (>6 week duration). Compatible symptoms may include a mild head tilt, Horner's syndrome or facial palsy on the affected side, however a more common symptom of otitis media is recurrent otitis which is minimally or only temporarily responsive to topical medications. Diagnosis of otitis media is often possible with otoscopic examination. A normal tympanum is a pale translucent membrane, while a diseased tympanum suggestive of otitis media may be thickened and opaque, torn, or missing entirely. An intact tympanum does not rule out otitis media, and in questionable cases the middle ear cavity can be aspirated for cytology and culture with a long spinal needle or a sterile tomcat catheter². CT scan is also useful. Radiographic examination of the tympanic bullae can be supportive of otitis media; however, normal bulla radiographs do not exclude otitis media.⁵ Bacterial otitis media is treated with long-term (1-3 months) systemic antibiotics based on culture and sensitivity. Yeast otitis media is treated with oral ketoconazole or itraconazole given for 3-6 weeks.

D. In addition to addressing the primary cause of the otitis and instituting appropriate medical therapy, removing accumulated ear debris and exudate is essential. This exudate blocks penetration of medications, inactivates some anti-

biotics, and perpetuates ear canal inflammation. If marked inflammation and edema are present, a 5-7 day course of topical and systemic steroids and antibiotics may be needed to reduce canal swelling before flushing. Although uncommon, potential sequelae to ear flushing can include vestibular signs or deafness, which may be temporary or permanent. These complications seem to be more common in cats, and therefore we prefer to use only saline for deep ear flushes in cats. To perform ear flushing, deep sedation or general anesthesia will be needed. Initially, a ceruminolytic agent can be instilled into the ear canal to loosen wax and debris prior to flushing. Then the ear canal is gently flushed using a 5-8 french red rubber urinary catheter (trimmed to 3 inches), using the otoscope as a guide. A video-otoscope or a commercial ear flushing apparatus may also be helpful. Flushing solution options include a general ear cleaner, dilute betadine in tepid water, or, especially is the tympanum is questionable, 0.9% sodium chloride. It is important to realize that anything (even water or saline) has the potential to be ototoxic, but so are the pus and bacteria that you are trying to remove! If an ear cleaner or ceruminolytic is used and the tympanum is determined to be ruptured, 0.9% saline should be used to flush out the cleaner. It is important to use separate materials/flush for each ear to avoid cross-contamination. Once infection is controlled, maintenance topical cleaning can be continued at home by the owner. Clients should be shown the proper technique for home ear cleaning. Frequency of cleaning is determined on an individual basis, but is usually 1-2 times weekly. The cleaning product chosen depends on the particular case, for example a dog with ceruminous otitis needs a ceruminolytic agent whereas a dog with moist ears may benefit from an astringent cleaner.¹⁻³

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