

## **Developments in the Diagnosis & Treatment of Chronic Otitis Externa**

Dunbar Gram, DVM, DACVD, MRCVS

Royal (Dick) School of Veterinary Services, Edinburgh, Scotland  
and Animal Allergy and Dermatology, Virginia Beach, Virginia,  
USA

**INTRODUCTION:** Otitis externa is defined as inflammation of the external ear canal. Patients may demonstrate pain, head shaking, scratching, erythema and a bad odor. As veterinarians, it is important that we think of otitis externa as a symptom rather than a specific disease entity. Otitis externa is typically a symptom due to a primary underlying disease or multiple diseases that lead to secondary bacterial or fungal infections. Predisposing factors facilitate its development. Perpetuating factors make otitis difficult to control, even after the primary disease and predisposing factors are addressed. An analytical approach is particularly important when working with a patient who has chronic or recurrent otitis externa. Clinicians should approach this symptom with an investigative thought processes. Nonspecific therapy without consideration of underlying causes/complicating factors can lead to the otitis progressing to an increasing level of severity.

Ultimately the patient may develop what I call extreme otitis or “otitis extrema.” Otitis extrema is a “play on words.” Because it sounds like “Otitis Externa,” but is a much more severe or extreme case. Once this stage is reached, resolution may not be possible. If resolution is possible, it will likely require several months of intensive treatment and the need for maintenance therapy.

The following “recipe” illustrates the complex nature and interplay of factors contributing to the development of otitis:

1) Start with and retriever who may like to swim (Moisture is a predisposing factor). 1) Add food allergy and/or the genetics to be atopic (primary cause of inflammation). 3) A “pinch” of yeast and bacteria (secondary cause and are normally present in the ears in small numbers). 4) Add 1, 2 and 3 together, let it sit for a while (1day-10 years). 5) An otitis is bound to develop. 6) Determine if you would like to have a routine course of otitis externa or if a more severe version: “Otitis Extrema.” 7) For “Otitis Extrema” select for a difficult patient or a client that ignores recommendation for a strict dietary trial, will not follow through with recommended reevaluations and/or demand refills of medications without examinations (gross and microscopic) while not pursuing cleaning recommendations. 8) Simmer for a few months to years (until mother in law comes to visit during the holidays and complains of odor). 9) VOILA! You will likely have a case of “Otitis Extrema.”

**DEFINITIONS:** Before progressing further, a few brief definitions are necessary. They are expanded upon further in the literature. I would like to thank Dr. Craig Griffin for being my primary reference and my patients for giving me first hand experience. 1) PRIMARY causes directly induce otitis externa (inflammation). Examples include atopy and seborrhea. 2) SECONDARY causes contribute to or cause pathology only in the abnormal ear or in combination with predisposing factors. Examples include yeast and bacteria that can be found in a “normal ear.” 3) PERPETUATING factors prevent the resolution of otitis. These factors make it much more difficult to manage a patient with otitis, even if the primary cause has been eliminated or controlled. Examples include otitis media and progressive pathologic changes within the ear canal (thickening of the skin, increased glandular secretions, increased gross and microscopic folds of skin, disruption of the normal process of “epithelial migration). 4) PREDISPOSING factors increase the risk of

developing otitis externa. Examples include excessive moisture (swimmer's ear/high humidity) and anatomical attributes (narrow, hairy canals with pendulous pinnae).

To summarize, an underlying disease (PRIMARY CAUSE) induces inflammation and otitis externa, which causes an abnormal ear and may lead to infection (SECONDARY CAUSE). Otitis is more likely to develop if PREDISPOSING FACTORS are present. If the primary cause, secondary cause and predisposing factors are not addressed, the PERPETUATING FACTORS will likely develop and lead to a case of severe otitis externa (AKA "otitis extrema")

The use of otic products that address the inflammation and secondary infections are very useful in treating patients with otitis. However, it is important to educate our clients as to potential causes and prepare them for a more in-depth work up if necessary.

I do feel that it is appropriate to utilize products containing antimicrobials and steroids for patients with otitis externa. They are convenient to use and they work! Their best use is in the treatment of an acute, non-recurrent case of otitis externa without significant discharge in the ear canal. They may even work well if a discharge is noted, as long as the discharge is removed and not allowed to accumulate. For many years, Mometamax® has been my favorite otic medication. It is extremely useful and effective. It is so useful that some veterinarians may be tempted to use it without client education regarding the underlying cause (primary disease) of the otitis externa. With Posatex®, I have an additional option for my resistant yeast patients as well as my resistant bacteria (although Gentocin is a good choice for many resistant bacteria)

In my practice, clients find the product so effective that they may ask for a refill of their Otomax® without having me examine their pet's ears. Examinations are critical to search for clues as to what primary etiology may be present, additional problems that may develop and ensure that perpetuating factors have not become a factor.

Examinations are also important to evaluate the effectiveness of the otic cleaning that is being performed by the client in the pet's home environment. Chronic use of antibiotics can lead to microbial resistance, otic occlusion and cutaneous reactions while neglecting the underlying problem and predisposing a patient to otitis media. Clients are more accepting of recommendations for reevaluation when prepared for them in advance and enlightened as to why they are so important.

If used a few times a year, otic therapies (such as Otomax® or Posatex®, can control the symptoms in a cost efficient and convenient manner. The client should be informed of this rationale and be prepared to be vigilant for the potential progression of symptoms as well as need for further work up. A thorough history and physical examination with each evaluation will often provide clues as to the potential underlying problem(s). In some cases, this may lead to the recommendation that more should be done sooner rather than later. Waiting to address likely primary causes may only allow the patient's symptoms and quality of life to deteriorate, secondary changes to occur (perpetuating factors) and increase a client's frustration. This is particularly true in breeds such as terriers, retrievers, sharpeis and cocker spaniels (and perhaps surprisingly German Shepherd Dogs). These breeds are predisposed to have many of the primary causes and predisposing factors that lead to otitis externa and thus predisposed to develop perpetuating factors. Once they have developed perpetuating factors, they are more likely to develop "Otitis Extrema." I feel many of the otitis problems in GSD (few predisposing factors) are associated with the primary cause of food allergy.

I want to emphasize that **OTITIS EXTERNA IS A SYMPTOM**. In order to control this problem, it is important to realize that chronic cases have at least one primary cause and several other factors contributing to the symptoms. Treatment failure or recurrence is likely if these causes and factors are not identified and addressed.

I wonder sometimes if perhaps more of these factors (conformation) should be addressed surgically before secondary causes develop and perpetuating factors become chronic. We know that secondary causes (yeast and bacteria) are lurking in the ear waiting for their chance to contribute. Surgery (lateral ear canal resection) BEFORE perpetuating factors have developed may be an alternative to frequent and chronic cleaning/drying. A lateral ear resection is not an appropriate for patients that require a total ear canal ablation (TECA)

#### A Guide to Otitis “Extrema”:

(How to avoid it and how to treat it)

This guide represents my approach to many of the severe otitis cases that I manage. It is used as an example of how complex the issues can be that lead to this symptom. Not all patients will require as thorough of a work up or respond to therapy. Most of the cases that reach this stage do so because the client has not been willing or able to do what has previously been recommended. Therefore, the veterinarian has been faced with a choice of doing nothing or trying a less than adequate approach, such as refilling otic medication without an examination. I hope that most of you will not see or be in a situation where you may enable the creation of these cases. Studying them will help emphasize the need for a thorough history, examination and client education when faced with a more routine case of otitis externa.

In order to identify any and all primary and secondary causes of otitis externa, a thorough history and examination are necessary. Only then can the underlying problem(s) be assessed and addressed. Treating the secondary infections is typically relatively simple in early cases of otitis externa, but if the underlying problems are not identified and treated, patients are doomed to progress to chronic or recurrent cases. Predisposing or perpetuating factors can be the most difficult challenge. Perpetuating factors often require a great deal of attention by both the client and veterinarian. These chronic changes are not

quickly reversed. Surgery may be the only alternative in some cases.

We will begin with a brief synopsis of a potential protocol and then proceed to important aspects of the history, examinations, assessment and plan that are appropriate for the vast majority of cases of chronic otitis externa.

**PROTOCOL** for Otitis Extrema cases. 1) History: verbal and written; client and previous veterinary records (helps identify primary CAUSES). 2) Exam: dermatological, otic, cytology, bacterial culture/sensitivity, CBC, chemistry, thyroid, intradermal allergy test (Helps identify primary and secondary causes as well as predisposing and perpetuating factors). 3) Plan: client education, systemic steroids, antimicrobials, strict hypoallergenic diet, topical cleaning/therapy initially if logistically possible (or wait 5-10 days after starting systemic therapy). Reevaluate with otic exam and cytology approximately every 7-21 days for 2-3 months. Client education (helps confirm primary and secondary causes while managing predisposing and perpetuating factors)

History: Rarely is it easily extracted by the time a patient reaches this stage. Important points include: Duration of this particular episode. Age at first onset of otitis - often many years previously. Seasonal nature – perhaps originally. Other important symptoms such as pruritus and age of onset. Medications recently used and in the distant past. Dietary history, bowel consistency and frequency. Status of the skin/ears of any relatives of this patient. Degree of client desperation and willingness to pursue recommendations

Examination: Both otic and dermatological gross examinations and microscopic examination of the otic debris (deep): 1) Otic: In reality, sometimes I can only observe the pinnae due to otic occlusion. Ideally, examine the pinnae, distal vertical canal, proximal vertical canal, horizontal canal and tympanum. A great otoscope can greatly facilitate my examination and improve the

comfort of the patient. 2) Dermatological: The rest of the body looking for clues suggestive of allergies, keratinization defects and hypothyroidism. 3) Microscopic: Bacteria, yeast, ear mites, Demodex and others.

The problem list typically includes: Pain (difficulty with topical therapy), Otic discharge (potential occlusion), Infection(s), Swelling (occlusion) or Ulceration and Dermatological abnormalities.

Plan for Otitis Extrema: Depends on the assessment. I like to approach these cases while keeping in mind the Serenity prayer: "Grant me the serenity to accept the things I cannot change, courage to change the things I can and the wisdom to know the difference." 1) Treat the pain and swelling (with steroids): would also address the potential underlying problem of atopy (likely the most common primary cause). 2) Treat infections (secondary causes) systemically and topically if possible. 3) Clean the ear if possible. This facilitates topical therapy and can address perpetuating and predisposing factors. 4) Pursue appropriate ancillary testing such as intradermal allergy testing, thyroid, CBC/chem. (Investigate primary causes) These tests would be compromised after the use of steroids. 5) Initiate VERY STRICT HYPOALLERGENIC diet. 6) Reevaluation, Reevaluation, Reevaluation with cytology and otic examination

**SUMMARY:** Treat the primary and secondary causes while addressing the predisposing and perpetuating factors. Please keep in mind that otitis should be thought of as a symptom of an underlying disease and not a disease entity itself. To take liberties with a well known phrase: "It is important that we study the history of how we create a case of otitis lest we repeat it"

## Client Education: Ear Infections

Author: Dunbar Gram, DVM, DACVD, MRCVS

With the proper use of medication and a treatment plan, most ear problems can be successfully treated. Mild cases may require only one medication. Most patients however will require ear cleaning either at a veterinarian's office or at home. If the ear problem does not improve or frequently returns, underlying contributing factors such as allergy may require further consideration.

### ***Common underlying causes of ear problems***

- 1) Airborne allergies***
- 2) Food allergy***
- 3) Keratinization defect (Seborrhea)***

Often, an "ear cytology" is the first step when an ear infection is suspected. This allows your veterinarian to determine if abnormal amounts of yeast or bacteria are present. Microscopic organisms are typically present in small numbers within healthy ear canals. Problems arise when there is an increase in the number of organisms or an abnormal type of organism, resulting in infection. With infections, pus may also be noted. An additional test called a "bacteria culture and sensitivity" may be considered if the bacterial infection appears resistant. Resistant bacterial infections can be very difficult to manage and in some situations require anesthesia and surgery.

### ***Resistant bacterial infections are typically associated with:***

- 1. Chronic or recurrent infections***
- 2. Chronic use of medications while the underlying disease process continues or progresses (such as allergies or growths in the ears)***
- 3. Not completely following your veterinarian's instructions because of time constraints or an uncooperative patient***
- 4. A combination of the above factors***

In addition to normal amounts of normal organisms, a healthy ear canal also produces "ear wax." Problems may also arise when too much wax is produced or the wax does not find its way out of the ear

canal onto the ear flaps and beyond as normally expected. This can result in excessive wax build up and inflammation or infections.

Your veterinarian may find it necessary to clean the ear in order thoroughly examine the vertical and horizontal ear canal as well as the ear drum. There may be growths or “foreign objects” within the ear canal that require special techniques or surgery to remove. In some cases, it is necessary to reduce swelling of the ear canal through the use of steroids before the ear can be cleaned.

“Otitis Externa” refers to ear disease that affects the horizontal and/or vertical canal but not the middle or inner ear. If the ear drum is diseased or ruptured, the middle ear is often affected and “Otitis Media” requires additional forms of therapy and precautions.

it is important to have ear problems properly diagnosed and begin therapy order to prevent progression of the ear disease, prevent the development of resistant infections and to help return the ear to a healthy state. If therapy is begun quickly, only several days of therapy may be required but if left untreated, many months of therapy or surgery may be necessary.

***Potential tests if ear infections are difficult to control or recur***

- 1) Bacterial culture and sensitivity***
- 2) Intradermal Allergy test for airborne allergies***
- 3) Strict hypoallergenic dietary trial based on your pets dietary history for 2 months. Blood test for food allergy are not very accurate***
- 4) Blood work for disease like hypothyroidism, or other medical problems.***

In order to prevent the development of irreversible changes to the ear canal, it is necessary to follow treatment recommendations including ear cleaning and pursue reevaluations with your veterinarian. It is not uncommon for the outer part of the ear to improve much more quickly than the deeper part of the ear. The follow up examination is critical to ensure that therapy is not discontinued prematurely. Examination of the deeper part of the ear canal may reveal the need for more thorough cleaning, longer therapy or additional tests for underlying diseases.

## Ear Cleaning Protocol: By Dunbar Gram, DVM, DACVD

Thorough cleaning of the ear can be a challenge at times. The ear flaps (pinnae) and vertical canals are much easier to clean than the horizontal canal. Please talk with your veterinarian regarding any special instructions or protocols.

### GENERAL INFORMATION REGARDING EAR CLEANING:

It is important that ear cleanings be performed correctly in the appropriate sequence; clean first, then medicate.

In order to clean ears, gently tug the ear flap upward with one hand and carefully squirt in the ear cleaner with the other. Completely fill up the ear canal until it is almost overflowing. Carefully pull the ear flap back and forth in order to allow the cleaner to make its way to the bottom of the ear canal. Add more of the cleaner if necessary. Then, softly massage the ear canal at the base of the ear for a minute or two. You may be able to feel where the ear cartilage, which feels similar to our own ear cartilage, attaches to the head near the jaw bone. This is a good place to massage. The massage should NOT cause significant discomfort but allow the cleaner to dislodge the accumulation of debris within the canal so that it can be ejected from the ears as you pet shakes his or her head. After the head shaking, use soft facial tissue paper or cotton balls to "mop up" the ear canal debris and the wax that has splattered against inside of the ear flap. You can also gently wipe out the debris in the crevices and folds of the ear cartilage. Do not be overly aggressive in this step, because it can do more harm than good. DO NOT insert cotton swabs or any other implement into the ear canal.

Summary: Proper cleaning and medications are typically very helpful with most ear problems. Recurrent infections often have an underlying cause necessitating further workup in order to prevent the development of irreversible changes within the ear that may require surgery. Reevaluation by your veterinarian is necessary to ensure that both the superficial and deeper part of the ear problem has resolved before you discontinue therapy.