THE PET HEALTH LIBRARY
By Wendy C. Brooks, DVM, DipABVP
Educational Director, VeterinaryPartner.com

Eosinophilic Granuloma Complex

What is a Granuloma?

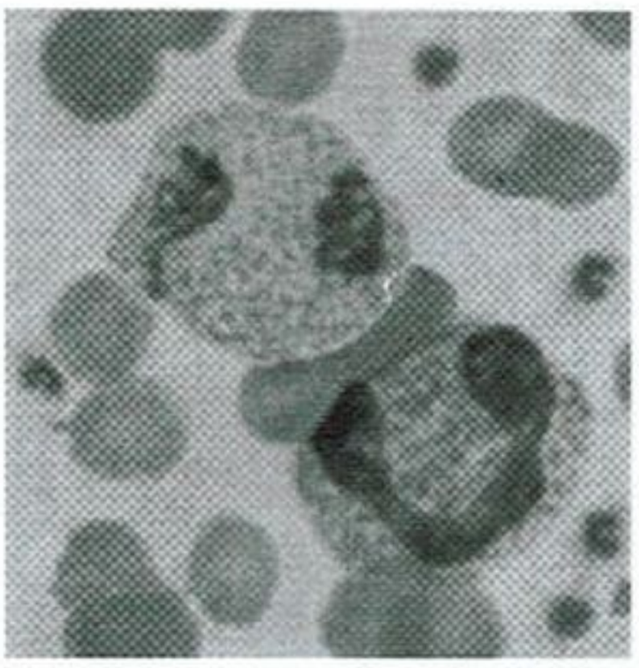
A granuloma is a solid grouping of inflammatory cells coming together in a lump or solid structure.

What is an Eosinophil?

An eosinophil is a type of white blood cell that is commonly associated with allergic responses or with parasitism. Eosinophil counts will go up on a blood test when a pet has fleas or worms or when an allergy is flaring up. Eosinophils can circulate in the blood or they can infiltrate tissue. They are part of the immune system and are on patrol for biochemical signals from tissue (calls for help, if you will) telling them that a parasite has invaded. Eosinophils home to the signal and release chemicals to attack the parasite. Unfortunately, they can be tricked into thinking that some sort of benign materials (pollens, dust, etc) are attempting invasion. In this instance (allergy), they release their inflammatory chemicals inappropriately, creating the sensations of itching, swelling, redness and other symptoms of allergy.

The eosinophil has a characteristic appearance under the microscope due to the pink staining granules. The pink staining granules contain assorted toxins and biochemicals designed to attack an invading parasite. These granules can be thought of as small bombs directed against large invading organisms such as worms.

So what is Eosinophilic Granuloma Complex?



Given the above information it would seem logical that an eosinophilic granuloma would be a granuloma made up of eosinophils; however, the situation is more complicated. Initially, it appeared that eosinophilic granuloma was just what it sounds like but as it was studied more thoroughly, it was found that there were three different types of this condition and not all were granulomas and not all involved eosinophils.

There are three separate skin conditions making up the eosinophilic granuloma complex and a cat may have any or all of them. These three conditions are called:

- the indolent ulcer
- the eosinophilic plaque
- the eosinophilic granuloma

These conditions are felt to have an underlying allergic basis though it is not always possible to determine what that allergic basis might be. The presence of any of the three above conditions does not definitively imply any specific type of allergy. In fact, there is some evidence that some cases begin as simple allergic reaction to an external substance but when internal skin proteins are released by scratching, the reaction continues to involve these "self" proteins as well.

The skin conditions listed above should be considered reaction patterns rather than diseases in and of themselves. What this means is that they are not diseases but symptoms of some other underlying disease (usually allergy).

The Indolent Ulcer (also called the rodent ulcer)
Cats with indolent ulcers have an erosion on the margin of their upper lip. Sometimes, a proliferative eroded structure also develops on the tongue so if your cat has a classical lip ulcer, it is a good idea to open the cat's mouth and check the tongue yourself. Tongue lesions are usually somewhat deep inside the mouth. In general, the appearance of the indolent ulcer is classical and a biopsy is not needed; though occasionally these are precancerous conditions and biopsy may be needed to rule out a malignant skin tumor.

YumYum shows his rodent ulcer

The Eosinophilic Plaque
This lesion typically looks like a raised thickened raw area of skin usually on the belly, inner thigh, anal, or throat area. Cats with these lesions are commonly extremely itchy. A microscope slide pressed onto the affected area often picks up numerous eosinophils that can be detected under the microscope, thus confirming this condition. Cats with this condition generally have increased circulating eosinophils in their bloodstreams as well.

Throat area eosinophilic plaque

The Eosinophilic Granuloma (also called the linear granuloma)

The eosinophilic granuloma produces a classical swollen lower lip or chin or a classical long, narrow lesion running down the back of the thigh. Sometimes proliferations grow from the actual footpads where they ulcerate as the cat is forced to walk on them. There is some tendency for this condition to occur in adolescent kittens though it can occur at any age.

Pink lower lip swelling represents the eosinophilic granuloma

Foot pad proliferation is a less common form of eosinophilic granuloma

What Exactly is Happening to these Cats?

The eosinophilic granuloma complex represents a disorder of eosinophil function. The eosinophil's real job is to attack parasites. It is designed to be attracted to areas where parasitism is occurring and once there it releases biochemicals to destroy the invading creature. In cats with eosinophilic granuloma complex, eosinophils are called to the site of an allergic response and the biochemicals released cause damage to local collagen. As mentioned, the reaction can include "self" proteins as well as external ones.

Treatment

In most cases, the eosinophilic granuloma responds to cortisone-type medications. Typically an injection of long-acting corticosteroid (such as Depo-Medrol) is given and most lesions resolve with one or two injections. As long as such treatment is needed only once or twice a year for recurrences, more exotic medications or diagnostics are not needed.

Lesions that are more refractory (not readily yielding to treatment) are another story. Biopsy may be needed to confirm the diagnosis of eosinophilic granuloma; tumors or other ulcerative lesions may mimic the eosinophilic granuloma complex. Biopsy may also explain less obvious underlying causes such as Demodex mites or ringworm fungi. (Keep in mind eosinophilic granuloma represents an inflammatory reaction to proteins deemed foreign by the eosinophils.) After you are confident of the diagnosis, treatments that might be employed include:

- A more aggressive steroid course (such as the well-published protocol of three Depo-Medrol injections given two weeks apart).
- A food allergy diet trial to determine if food allergy is the underlying source of inflammation. Keep in mind it is not possible to control the diet of a cat that roams outdoors.
- A trial course of aggressive flea control.
- Intradermal skin testing for airborne allergy.
- A trial course of antibiotics.
- A trial course of cyclosporine. Cyclosporine has assorted anti-inflammatory properties that could be of benefit.
- Chlorambucil in combination with steroids. Clorambucil is a drug used against unwanted white blood cell infiltrations including cancers and inflammatory conditions. It should be saved as a last resort.

Other treatments that have been used when other options have failed include: doxycycline, an antibiotic with anti-inflammatory properties; gold therapy (yes, oral medications using gold have been used with mixed success in inflammatory conditions); removing the lesion via laser or cryotherapy; and daily high dose interferon alpha.

Female hormones (such as Ovaban® tablets and Depo-Provera® injections) were once widely used for this condition but are now considered inappropriate due to side effect potential (they can cause diabetes

mellitus, pyometra, and can raise the risk of mammary cancer).

The eosinophilic granuloma is an incompletely understood condition. For now it is best to view it as an extreme symptom of allergic skin disease. It is fortunate that most cases are easily controlled as the refractory ones can be extremely difficult.

Learn more about flea control products.
Learn more about food allergy.
Learn more about inhalant allergy.

Date Published: 1/1/2001
Date Reviewed/Revised: 01/01/2012