

Tumors in Ferrets

Two different tumors, found in ferrets, that are usually easily diagnosed and readily cured if caught in time.

Article and Photos by Bruce Williams, DVM, DACVP

“Can you handle another article?” said a voice on the other end of the phone.

“Sure,” I replied.

“Well, we’d like to cover two tumors on this one,” she continued, “how about mast cell tumors and chordomas?”

“Great!” I replied, inwardly thinking that these two neoplasms go together like a spoonful of hot fudge on a tuna fish sandwich. Odd bedfellows, to be sure — a slight skin tumor that can hardly get through the superficial levels of the skin contrasted with one of the most aggressive bone tumors that has the ability to chew through bone like a hot knife through butter.

There’s got to be something that binds these together, I thought. Having seen these in my own ferrets over the years (and of course, many of them in other people’s ferrets), I tried to recreate my own thoughts whenever they cropped up in my pets. “Oh well, at least it’s not an adrenal,” I would always think.

And that’s the key to these tumors. They are good tumors to have, all things considered. They don’t tend to recur, they rarely result in severe illness, and treatment involves quick, non-invasive surgeries that heal rapidly. On top of this, attentive owners or veterinarians can observe and identify them fairly easily.

So, let’s talk about a couple of tumors that will allow you to breathe a sigh of relief.

Mast Cell Tumors

I’ll talk about mast cell tumors first. They are more common than chordomas, so your chance of running into one is a bit higher.

Mast Cell Tumors Defined

Mast cell tumors are unassuming little neoplasms that appear on the skin of ferrets. They don’t even really look like tumors — more like little scaly red patches where the hair has fallen out. Mast cell tumors are commonly mistaken for little skin irritations, perhaps from adrenal disease or any undiagnosed cause of itching. However, these tumors are discrete, raised, red lesions that have no hair within their borders. They may be multiple, or appear in different spots over time. This microscopic view of a mast cell tumor of the skin shows the typical elevated, button-appearance and how shallowly it penetrates.

Origins Of Mast Cell Tumors

What are mast cells? Mast cells mediate a variety of vascular reactions in the body, usually of an allergic nature. They generally lie side by side to blood vessels and are chock full of histamine granules. When they are stimulated (which may be due to the appearance of an allergen such as pollen, or simple trauma such as scratching), they release their histamine, causing the blood vessel next door to dilate and leak fluid. In a limited fashion, this causes a round swelling known as a hive, and in a more diffuse fashion (as seen in the noses of hay fever sufferers like myself) it causes congestion, swelling, itching and general irritation.

Mast cell tumors are an unusually massive proliferation of these cells, which almost exclusively happens just beneath the skin in ferrets. They don’t extend deeply, just deep enough to replace the hair follicles, resulting in a hairless lesion.

Treatment Options

How do we treat them? Simple surgical excision — cut them out, sew the edges together, and voilà! These tumors are usually very small & rarely larger than 5 millimeters in diameter, so the surgery is simple. As long as excision is complete, the tumor will heal without a scar and won’t come back. In the very rare cases in which surgical excision is incomplete, it may need to be done again, but don’t worry about any long-term problems associated with these tumors. There is no need for chemotherapy or radiation in these cases.

Aside from adrenal disease and insulinoma, tumors of the skin are the most commonly seen neoplasms in ferrets. It doesn't hurt that they are on the outside of the animal as well, so that attentive owners (and even some not-so-attentive ones) can readily alert their veterinarians.

Skin tumors, on the whole, are certainly not the worst thing for your ferret to develop — 95 percent are benign and simple excision is curative. Chemo- or radiation therapy is rarely performed, and unnecessary for a benign tumor.

The more common varieties of skin tumors may be diagnosed at home. They still need to be removed, but knowing what they are allows you to sleep better between the time you notice them and when you can get to the veterinarian's office.

Sebaceous epitheliomas (also called basal cell tumors) are the most common type of skin tumor. These warty growths may attain a large size and become difficult to completely remove in one surgery, but you don't have to worry about the tumor metastasizing and causing a life-threatening problem. Some large tumors die in the center due to an impaired blood flow, causing a cavitated appearance, and may be misdiagnosed as spider bites.

Mast cell tumors come in second overall, and if you read the rest of this article, you'll know all about them.

Apocrine tumors, arising from scent glands, are the third most common, and a small subset of these tumors are the "bad actors" of skin neoplasms. Apocrine scent glands are most common around the head, neck, prepuce, and vulva of ferrets — and it is not surprising that this is where most of the apocrine tumors appear. These tumors can be simple cysts (what happens when the duct to the surface gets blocked), benign neoplasms, or rarely, malignant ones. Apocrine cysts often resemble small hard BB's under the skin, and may appear as dark round spheres of 1 to 2 millimeters in diameter when closely inspected. Benign apocrine tumors are large, freely movable lumps and are most common in the prepuce of male ferrets. Malignant apocrine tumors are seen almost exclusively in the prepuce or perivulvar area of females and grow quite rapidly. Unfortunately, these tumors tend to metastasize early and widely to internal lymph nodes and organs (the lung is a popular place) and surgical attempts at removal are usually initiated too late.

More Information

For more information on tumors in ferrets, [Click Here](#)>>

Other less common skin tumors include benign smooth muscle tumors of the muscles surrounding hair shafts (usually in the area of the neck or shoulder blades), and rarely, low-grade (non-metastasizing) malignancies associated with vaccination (though at a very low frequency and are certainly not a reason to forego your ferret's shots).

All skin tumors should be removed. They often cause irritation for ferrets and will only grow, making surgery more difficult at a later time. But don't panic when you see one — most often, they are only a minor nuisance.

A Word Of Warning

A couple of problems associated with mast cell tumors bear mentioning. In other species, especially the dog, these tumors are not so benign, and can cause severe, even life-threatening disease. The diagnosis of a mast cell tumor is serious in dogs, and some pathologists and/or practicing veterinarians will believe that this is the case in all species, including ferrets. The incorrect assumption that a mast cell tumor may metastasize or warrants radical surgery, extensive (and expensive) diagnostic tests in a ferret, or even follow-up treatment will needlessly alarm ferret owners.

Can mast cell tumors be malignant in ferrets? In 15 years I have seen hundreds of these tumors. When located in the skin they are invariably benign. I have only seen one malignant mast cell tumor in all this time, and it was not in the skin at all, but widely disseminated within the abdominal organs. Last year, I also saw a single case of disseminated mast cell tumors in the skin. This ferret had so many tumors that surgery was not an option, and it was scratching itself miserably. I'm not sure what happened in that case, but the manner in which this animal developed hundreds of tumors suggested that it was not a positive outcome.

The bottom line with mast cell tumors is this — go right to surgery, and don't worry about later complications.

Chordoma

Chordomas are not as common as mast cell tumors, but they have a very characteristic appearance and owners or veterinarians can usually diagnose them easily.

"Doc, my ferret has a knot on the end of its tail" is what I have heard during the course of many years. At examination, most affected ferrets have a hard, bony ball at the end of their tail. In most cases, the ferret behaves as if nothing is wrong. Over time, however, the tumor grows, the skin may become ulcerated or inflamed at the tail tip, and the tail may

end up dragging on the ground.

This large chordoma on the tip of the tail is unusual because most chordomas are noticed and excised when much smaller.

Origins Of Chordomas

Chordomas are tumors of primitive notochord, a substance that functions during formation of the developing fetus by acting as “scaffolding” upon which the vertebral column is laid down. It serves no useful purpose in the animal after birth, although remnants of this material are occasionally seen as incidental findings during microscopic examination of the spinal column. After the animal is born, the only time notochord really does anything is when this relatively uncommon neoplasm develops.

This large chordoma on the tip of the tail is unusual because most chordomas are noticed and excised when much smaller.
Chordomas Defined

Chordomas, unlike mast cell tumors, are malignant neoplasms; however, they rarely ever go anywhere, and their location at the tail tip in about 95 percent of cases makes them very easy to remove. Surgery is quick and simple — we remove the end of the tail where the tumor is located, throw a couple of stitches to hold the skin together, and surgery is done. These tumors are considered “low-grade malignancies” — they will invade the bone and soft tissue adjacent to their location and form cartilage and bone on their own (sort of like trying to make a new vertebra in a very disorganized fashion).

Note that I said that 95 percent are located at the tail tip — that leaves five percent elsewhere in the spinal column, from the head down to the back legs. This five percent is where the problem lies. Chordoma is the most common cause of a mottled or moth-eaten lesion in the ferret spine on X-ray. Regardless of location, chordomas are very invasive tumors — they eat through the existing vertebrae. Not a problem in noncritical locations like the tip of the tail, but a big problem anywhere else in the spinal column. Even the best surgeon can't get them all out, so they will always grow back, and eventually either impinge on the spinal cord (making the ferret para- or quadriplegic) or eventually the structurally weakened vertebrae breaks, resulting in similar signs. A chordoma outside of the tail vertebra warrants a very poor prognosis, and there is no treatment for this condition.

Treatment Options

I am occasionally asked if these tumors are painful, usually by owners trying to determine if it is worth spending money for surgery. Well, I've never had a chordoma myself, but a lot of people have (it's a neoplasm that people develop as well). Pain is a very common presenting sign in humans, and it's not difficult to understand why. The covering of the bone, called the periosteum, has a lot of nerve endings, and when disturbed, it hurts. (Don't believe me? Go break your leg!) The way chordomas will eat up bone, it has to be a painful situation. It may not look very painful, but ferrets are stoic animals, and also have very few muscles with which to move their tail and signify tail pain. I always recommend surgery, because these tumors have got to hurt.

Bottom line — if the chordoma's on the tail tip (and it usually is) — quick removal is a quick fix. If it's located anywhere else, surgery not only fails to be curative, but generally provides little relief or respite from the ravages of this neoplasm.

Save Your Worries

When ferret owners talk about tumors in their pets — thoughts generally turn to multiple surgeries, rising vet bills, and a long, slow decline. The nice thing about chordomas and mast cell tumors is that the fix is generally readily available, fast and a one-shot deal.

Dr. Bruce Williams is the chairman of the Department of Telemedicine as well as a staff pathologist at the Armed Forces Institute of Pathology in Washington, D.C. In addition to publishing numerous articles on ferret diseases in the scientific and lay press, Williams is credited with the identification of a novel coronavirus as the cause of epizootic catarrhal enteritis (ECE). He is a moderator of the Ferret Health List at www.smartgroups.com/groups/ferrethealth.