

Skin Tumors in Ferrets

by Dr. Bruce Williams

In previous articles, we have discussed the two most common neoplasms of the ferret, islet cell tumors [insulinomas] and adrenal tumors. Now let's look at the third most common group, the various tumors of the skin.

Ferret skin tumors are very common, and increase in frequency with age. Let's get one point straight right away - the VAST majority of skin tumors in ferrets are benign. Malignant tumors, or tumors that will grow rapidly, invade and destroy adjacent tissues, and metastasize to distant sites where they can continue their destructive processes, are very rare in ferret skin.

The most common skin tumor in ferrets, both at the AFIP and in a recent retrospective study by Parker et al (Veterinary Pathology, Jan 1994) is a tumor composed of undifferentiated epithelial cells, known as a basal cell tumor. This cell has the ability to differentiate into several different components of normal skin, including glands (at which time it is called a sebaceous epithelioma), hair follicles, or just simple sheets of epidermal cells.

Most tumors show at least two, if not more of these structures, a feature which has caused some pathologists in the past to consider them malignant; however, now we know that this is not the case.

Basal tumors appear as small warty growths that may have a depressed center. They grow slowly, and are freely movable, as they do not involve structures underneath the skin. They are easily removed, and do not recur (unless the surgeon fails to remove all of the tumor at the time of surgery). They are most common on ferrets over the age of four. While they should be removed, as they may become traumatized and infected, owners should be reassured by the good outlook (or prognosis) with which they are associated.

The second most common skin tumor in the ferret is the mast cell tumor. Mast cells are a population of cells in the skin which are closely associated with blood cells. Normally, they mediate allergic reactions, liberating certain chemicals which cause vascular dilation, causing the redness associated with hives and other allergic conditions. Mast cell tumors, although they are associated with a high rate of malignancy in the dog and cat, are generally benign in the ferret. There are no reports of malignant mast cell tumors in the ferret medical literature.

Mast cell tumors usually appear as flat, often hairless, small plaques on the ferret's body. They are also freely movable and do not involve under-lying structures. They may be somewhat crusty, as ferrets will often chew or scratch at these sites, as some of these tumors itch. In rare cases, animals

may have multiple mast cell tumors at once. Excision of these tumors is considered curative.

Another very common skin tumor is not actually a tumor, but a cyst, or a dilated sweat gland, known as an apocrine cyst. Apocrine glands may also form benign, or rarely, malignant tumors, but by far, the most common lesion associated with these glands is a simple cyst. These cysts appear as small, round, hard "bubbles" just underneath the skin surface. If squeezed, they may rupture and spill their contents into the surrounding tissue. This causes a marked inflammatory response and gives the appearance of rapid growth. Once again, surgical excision is curative. These cysts may occur anywhere on the body, but the prepuce, or penile sheath of males, is the most common site, in my experience. There is a higher concentration of apocrine glands here than at anywhere else in the ferrets skin, so, logically, there would be an increased incidence of cysts at this site as well.

Well, then, where are the bad tumors? There are actually very few of them. In the last three years, I have seen less than five. All of these skin tumors arose from those apocrine sweat glands that we just talked about. This malignant tumor, or carcinoma, generally grows rapidly, and in contrast to most other skin tumors, often becomes firmly anchored to underlying muscle. It rapidly invades and destroys adjacent skin and may metastasize to the local lymph nodes, or in the case of two of the five cases, the lungs, resulting in the death of the animal. While excision may be curative if caught early, masses of this type that have reached any size are associated with a much poorer outlook.

Of course, malignant tumors arising internally, such as lymphosarcoma, may metastasize to the skin, as they may metastasize to any other site. I have not discussed these neoplasms, as they are generally uncommon and do not originate in the skin.

One final note - while excision of the vast majority of the tumors that we have discussed is curative, there is nothing to prevent a second basal cell tumor, or mast cell tumor, from arising in another site at a later date. This does not worsen the prognosis for that animal, just requires a second trip to the vet for removal. And remember, always have your vet get those tumors analyzed - while most skin tumors are benign, you and your pet will sleep better knowing about that tumor for sure.

Bruce Williams, DVM

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References

1. Parker, GA et al. Histopathologic features and post-surgical sequelae of 57 cutaneous neoplasms in ferrets (*Mustela putorius furo*). *Veterinary Pathology*, 30(6) 499-504, 1993.
2. Fox, JL. *Biology and Diseases of the Ferret*. Lea and Febiger, Philadelphia, 1988.

Article located on Ferret Health Care at [miamiferret.org](http://www.miamiferret.org)
http://www.miamiferret.org/fhc/skin_tumors.htm