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SKIN ORIGIN SQUAMOUS CELL CARCINOMA IN CATS

These notes are provided to help you understand the diagnosis or possible diagnosis of cancer in your pet. For general information on cancer in pets ask for our handout "What is Cancer". Your veterinarian may suggest certain tests to help confirm or eliminate diagnosis, and to help assess treatment options and likely outcomes. Because individual situations and responses vary, and because cancers often behave unpredictably, science can only give us a guide. However, information and understanding for tumors in animals is improving all the time.

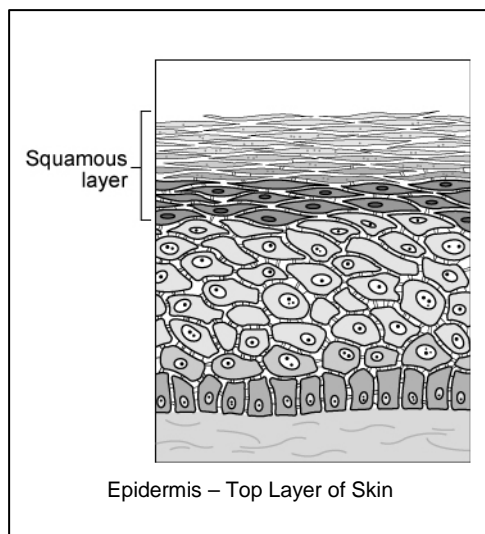
We understand that this can be a very worrying time. We apologize for the need to use some technical language. If you have any questions please do not hesitate to ask us.

What is this tumor?

This is a malignant tumor of skin epidermal cells with varying degrees of differentiation. Tumors of this type occur in people and all domestic species. The tumor is related to basal cell tumors. They can be cured surgically provided sufficient margins around the diseased tissue can be obtained at the time of tumor removal.

What do we know about the cause?

The reason why a particular pet may develop this, or any cancer, is not straightforward. Cancer is often seemingly the culmination of a series of circumstances that come together for the unfortunate individual.



In humans and most domestic animals, these tumors develop in areas of skin most exposed to sunlight (UVA and UVB radiation). The sunlight causes non-lethal, multi-step genetic damage of cells (mutations in the DNA nucleic acid genome) and failure to repair damaged DNA. Loss of the adhesion molecule called E-cadherin on these damaged cells enables them to invade surrounding tissue. This invasion marks the transition of the tumor to malignancy (carcinoma). There is local and body-wide (systemic) suppression of the normal immune response. In cats, these tumors affect non-pigmented areas of the skin with predilection sites of the ear tips, external nares (nose) and lower eyelid. The nail beds are also a predilection site.

Is this a common tumor?

This is a common tumor. Cats with white hair and skin have an increased incidence of this tumor. Exposure to sunlight is the main cause of this cancer. The black and brown melanin

pigments of the skin act as both a physical barrier and a UV radiation filter so the cancer is less common in pigmented cats.

In one survey, half of these feline tumors contained papilloma (wart) viruses, which may have a role in initiating or promoting the cancer growth. Many human renal transplant patients (who are deliberately immunosuppressed and who, like all humans, normally carry papilloma viruses) develop these tumors. Papilloma viruses are species specific and do not cross-infect from species to species.

How will this cancer affect my pet?

Prolonged trauma or inflammation may precede transformation of cells to cancer. These cancers are more likely to be erosive and ulcerated than a lump. They are always inflamed and may be crusted, bleed or have physical effects on the surrounding structures. Tumors in the nail bed cause swelling, pain, loss of the nail and lameness. Clinically, they are difficult to differentiate from inflammatory diseases.

Eventually, malignant cancers may spread to the local lymph nodes, which become swollen. The malignant cells can then travel throughout the body using the blood, lymph and nerve transport systems. The immune system is usually damaged or depressed and this allows the cancer to progress and secondary infections to persist.

How is this cancer diagnosed?

Clinically, this tumor may have a typical appearance and the color of the cat (white) and sites of tumor are suggestive. Loss of the nail is common when tumors arise in the nail bed.

Accurate diagnosis relies upon microscopic examination of tissue. Various degrees of surgical sampling may be needed such as needle aspiration, punch biopsy and full excision of the lump. Cytology is the microscopic examination of cell samples. This is used for rapid or preliminary tests to guide surgery. More accurate diagnosis, prediction of behavior (prognosis) and a microscopic assessment of whether the tumor has been fully removed rely on microscopic examination of tissue (histopathology). This is done at a specialized laboratory by a veterinary pathologist. The piece of tissue may be a small part of the mass (biopsy) or the whole lump. Histopathology also rules out other diseases.



Malignancy is shown by the word ending “carcinoma”. This, together with the origin of the tumor, the grade (differentiation) and stage (how large it is and extent of spread) are indicators of how the cancer is likely to behave.

What types of treatment are available?

The most common treatment is surgical removal of the tumor. Well-differentiated tumors may be permanently cured by total surgical removal, provided it is possible to get a wide margin and sun-exposure protection or prevention is subsequently used. Tumors on the nose, face and eyelids may be a problem because surgical margins cannot be large because of surrounding vital structures. Alternative treatment includes cryosurgery or specialized adjunct treatments such as photodynamic therapy and radiotherapy.

One characteristic of these tumors is their ability to attract an inflammatory response. Antibiotics can reduce swelling and clinical signs but they are not curative. Lymph nodes may swell not only because of metastasis but also because of secondary inflammation.

Can this cancer disappear without treatment?

Cancer rarely disappears without treatment but as development is a multi-step process, it may stop at some stages. The body's own immune system can kill cancer cells but it is rarely 100% effective, particularly with this type of cancer where the immune system is often compromised. Rarely, loss of blood supply to a cancer will make it die but the dead tissue will probably need surgical removal.

How can I nurse my pet?

Preventing your pet from scratching, licking or biting the tumor will reduce itching, inflammation, ulceration, infection and bleeding. Any ulcerated area needs to be kept clean.

After surgery, the operation site needs to be kept clean and your pet should be prevented from interfering with the site by rubbing, licking, biting or scratching. Any loss of sutures or significant swelling or bleeding should be reported to us. If you require additional advice on post-surgical care, please ask.

Sunblock is a useful preventative - if cats can be played with or otherwise distracted for a few minutes after application.



How / When will I know if the cancer is permanently cured?

'Cured' has to be a guarded term in dealing with any cancer.

Histopathology will give your veterinarian the diagnosis that helps to indicate how it is likely to behave. The veterinary pathologist usually adds a prognosis that describes the probability of recurrence at the original site or metastasis (distant spread).

The tumors usually grow slowly with time between initial detection and veterinary intervention and may be in excess of six months. Most are superficial at this time. Most cats with well-differentiated tumors can be cured if radical surgical excision, possibly with local lymph nodes removed, is feasible. Survival after surgery for poorly differentiated tumors is, on average, only about six months.

80% of animals are in remission after two years following radiotherapy of well-differentiated, early clinical stage tumors - similar to the percentage after surgery. Radiotherapy has poor results in clinically advanced tumors. Radiotherapy is only available at certain specialist centers and is not the correct option in every case.

Tumors arising from the nail beds tend to spread. Approximately one-third of tumors in this site metastasize after amputation of the digit. Even well-differentiated tumors can metastasize.

Are there any risks to my family or other pets?

No, this is not a transmissible tumor.