

## SKIN ORIGIN SQUAMOUS CELL CARCINOMA IN DOGS

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.

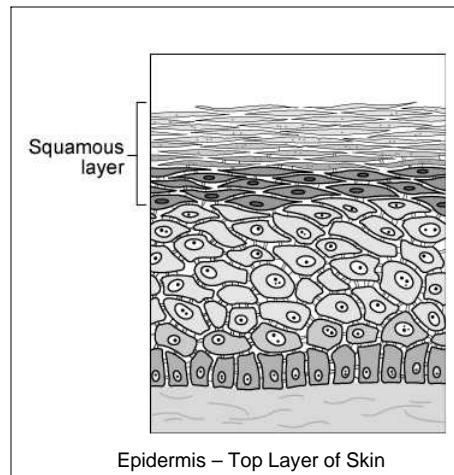
### ***What is this tumor?***

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. Most can be cured surgically, the exception being those arising in the nail beds.

### ***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, multistep genetic damage of cells (mutations in the DNA genome) and failure to repair the damaged DNA. Loss of an adhesion molecule called E-cadherin enables these altered proliferating epithelial cells to invade surrounding tissue. This marks the transition to malignancy (carcinoma). There is local and body-wide (systemic) immune suppression. In dogs, the relationship to sun exposure is less obvious. There may be some association with papilloma virus.



### ***Is this a common tumor?***

This is an uncommon tumor except in the nail beds. In deeply pigmented, and often large dog breeds (including Standard Poodles, Labradors, Setters, Greyhounds and Dachshunds), nail bed tumors may be multiple.

### ***How will this cancer affect my pet?***

Prolonged trauma or inflammation may precede malignant transformation of cells. These cancers are more likely to be erosive and ulcerated than a physical 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 and often invade the adjacent bone. Eventually, malignant cancers may spread to the local lymph nodes and make these swell. They can then go throughout the body by invading the blood, lymph and nerve transport systems. The immune system is usually damaged which allows the cancer to progress and infections to persist.

### ***How is this cancer diagnosed?***

Clinically, this tumor resembles many other skin tumors. Loss of the nail is common when tumors arise in the nail bed and in this site, it resembles inflammatory diseases such as infections and foreign bodies.

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 suspect tumor. Cytology is the microscopic examination of small 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) indicate how the cancer is likely to behave.

### ***What types of treatment are available?***

The most common treatment is surgical removal of the tumor. Wide surgical excision is usually curative except for those tumors arising from the nail beds.

Alternative treatment is usually only where the site precludes successful surgery. These include cryosurgery or specialized adjunct treatments such as photodynamic therapy or 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 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 and preventing the dog from sunbathing are useful preventatives.

***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 local recurrence or metastasis (distant spread).

Skin carcinomas are usually only locally destructive with infrequent metastasis (spread elsewhere). Any recurrence is usually seen within weeks to months.

Digital, nail bed tumors may recur in the same digit or in another months to years later. Approximately one-third of tumors in this site will metastasize after amputation of the digit because they can spread up the nerves even when there is a surgical margin around the tumor. Tumors that histologically show well differentiated cells may still metastasize.

***Are there any risks to my family or other pets?***

No, this is not an infectious tumor and it is not transmissible.

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*This client information sheet is based on material written by Joan Rest, BVSc, PhD, MRCPath, MRCVS.  
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