



Papillomas of the Skin

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?

Papillomas are benign, but sometimes multiple, tumors caused by viruses. They are commonly known as "**warts**". The tumors often disappear spontaneously because the animal slowly develops immunity to them, but some papillomas may need to be removed surgically because they are inflamed, bleeding or infected. They are permanently cured by total surgical removal and do not spread to other parts of the body although there may be multiple tumors.

There is also a **squamous papilloma** which resembles a viral papilloma but without evidence of viral infection.

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.

There are many different types of papilloma virus and they occur in all species of animals, including people. Each species of animal has its own viruses and their related tumors. One of the best known is the verruca of human feet.

The papilloma viruses attach themselves to the cell DNA (nucleic acid) and upset the normal regulatory mechanisms so that the cell divides abnormally and more frequently. The virus activates growth-promoting genes in the DNA (oncogenes); inactivates suppressor genes that would normally have an opposite regulating effect; and alters the genes which regulate normal, programmed cell death.

Why has my pet developed this tumor?

Your dog or cat is infected with one of these papilloma viruses. Many viruses are carried by normal animals without any clinical signs. We all carry several types of human papilloma viruses. Over 130 subtypes of papilloma virus have been identified in people. We know little

about canine and feline viruses. Only two subtypes have been fully characterized in the dog and two subtypes are recognized in cats.

Sometimes the infection is recent but in other cases the immune system in an animal becomes less competent for some reason so a papilloma virus that has been carried by that animal for a long time is then able to induce tumors. Papilloma viruses are very resistant to adverse conditions so can survive for long periods in the environment outside an animal. They can gain access to the body when the skin is softened when wet, through cuts and abrasions or with the assistance of a biting insect (such as a flea or mosquito) or tick for example.

Is this a common tumor?

Papillomas are uncommon in cats but common in dogs. Clinical syndromes include multiple oral (mouth) papillomas in young dogs, solitary cutaneous (skin) papillomas in dogs of any age, venereal (genital) papillomas, eyelid or conjunctival papillomas and fibropapillomas. There are probably different viruses associated with different sites and in young and old animals.

We see most of these tumors on the feet, or around and in the oral cavity.

Skin papillomas in cats are usually flat and plaque-like (sometimes scaly). There is also a fibropapilloma or sarcoïd in cats caused by a special subtype of papilloma virus.

How will this tumor affect my pet?

The lesions may be flat, scaly plaques or inward growing hard masses but are usually inflamed polyps ("warts"). They may ulcerate or bleed. The inward growing ones (similar to human verruca) may cause pain, particularly if they are on the feet.

There may be some genetic subtypes of animals who fail to recognize viral protein antigens so immunity cannot develop and the tumors persist. Some viral types in man are associated with cancer and papilloma viruses have been found in feline cancers (squamous cell carcinoma). We do not know about genetically determined immunity in dogs - but some dogs have persistent tumors.



How is this tumor diagnosed?

Clinically, most have a fairly typical appearance although the more common sebaceous tumors of dogs are very similar. Diagnosis relies upon microscopic examination of tissue. To obtain suitable samples of the tumor tissue various degrees of surgical sampling may be needed such as needle aspiration, punch biopsy and full excision of the tumor. Cytology is the microscopic examination of cell samples. This is used for rapid or preliminary tests but accurate diagnosis usually relies upon microscopic examination of tissue (histopathology). This is done at a specialized laboratory by a veterinary pathologist. Histopathology indicates whether the tumor has been completely removed and rules out other diseases including more serious cancers.

What types of treatment are available?

Some of these tumors regress spontaneously but the usual treatment is surgical removal.

In humans, a cream called Imiquimod, has successfully been used to treat papilloma virus lesions. It is an immune modifying agent that stimulates interferon production. It may have potential use in animals.

Can this tumor disappear without treatment?

Yes, the body's immune system can cause this type of tumor to regress in time (weeks to months).

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.

When will I know if the tumor 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, which describes the probability of local recurrence or metastasis (distant spread).



In healthy animals, the tumor is usually cured by surgery. If the viral infection persists because an animal has incomplete immunity, further tumors may develop. Rarely, the same site is affected by repeated re-growth of the tumor.

Are there any risks to my family or other pets?

No, although this is an infectious tumor, the viruses are species specific and not transmissible to humans. The tumors in dogs, cats and people species are not related nor are they transmitted between species.