

## Evaluating lumps and bumps of veterinary patients

Tumors of the skin and subcutaneous (tissue just underneath the skin) are the most common tumors affecting dogs and second most common tumors affecting cats. There are a wide variety of tumors that can occur within the skin, and it is very important to remember that not every skin tumor is cancerous. In fact, the vast majority (80%) of skin tumors in dogs are considered to be benign, meaning they do not metastasize (spread) to other locations in the body. This is in contrast to skin tumors in cats, where 50-65% of tumors are malignant, meaning they grow as very locally invasive masses and have a higher chance of metastasizing to distant sites. Unfortunately, a veterinarian cannot tell if a tumor is benign or malignant just by visualizing or palpating the mass. Further tests are necessary to be able to determine exactly what kind of tumor the lump or bump could be.

There are two main ways to determine whether a skin tumor is benign or malignant. The first involves performing what is known as a *fine needle aspirate* with cytological analysis. This non-invasive procedure generally entails introducing a small gauge needle (about the same size that is used to draw a blood sample or administer a vaccination) into the tumor and attaching a small syringe to the needle and aspirating (literally “sucking up”) some of the cells into the syringe. The cells are then dispersed onto a microscope slide, special stains are applied to the sample, and the slide is then evaluated under a microscope. The assessment may be performed ‘in house’ by the veterinarian examining the patient, or more often, the sample is sent to a laboratory where a cytopathologist (veterinarian with specialized training in the evaluation of samples of this nature) will examine the slides and make a diagnosis.

There are several advantages to this type of sampling. It is considered a rapid, non-painful, simple procedure to perform, and is usually relatively inexpensive. In most cases, fine needle aspirates can be performed while the patient is awake. If the tumor is located in a particularly sensitive area (e.g. around the eyes or anus), a veterinarian may recommend that the patient be lightly sedated to facilitate sampling in a safe manner. Fine needle aspirates will give information about the characteristics of the individual cells comprising a tumor, and can often be useful for being able to determine if a tumor is cancerous or not. The main disadvantage to this form of sampling is that it may not prove to be the most accurate because this type of analysis examines only individual cells. It also may not be accurate for determining the exact type of cancer the tumor may be. There is also the possibility that the sample may return non-diagnostic, meaning no cellular material could be obtained. Finally, since the size of the needle used to sample the tumor is very small, it is possible that the portion of the tumor containing the cancerous cells would be missed and a truly cancerous tumor may be misdiagnosed as a being benign.

A more accurate way of sampling skin tumors from dogs and cats involves performing what is known as a *tissue biopsy*. There are several ways to obtain a tissue biopsy; all of which usually involve either heavy sedation or general anesthesia. The veterinarian will first decide whether to perform what is known as an incisional or excisional biopsy. For either procedure, the fur covering the skin over the tumor will be clipped and sterilely prepared. For incisional biopsies, small pieces of the tumor will be procured, and the veterinarian obtaining the sample may do so by either using a needle that is slightly larger than that used to perform a fine needle aspirate, a special biopsy instrument known as a punch biopsy, or simply use a scalpel blade to remove a small block of tissue from the tumor. Excisional biopsies generally require more advanced pre-surgical planning, and in these instances, the goal is to remove the tumor in its entirety. In all cases of biopsy, the tissue will be placed into formalin (a special liquid that 'fixes' tissue) and will be submitted to a laboratory for histological analysis by a pathologist. This process generally takes about 5-7 days.

The main advantage of performing a biopsy is the higher degree of accuracy of final diagnosis. Biopsy samples can also include information about whether or not cancer cells are seen invading into blood vessels or lymphatic vessels, which could indicate a higher chance of metastasis. If an excisional biopsy was performed, biopsy reports can include whether or not the tumor was entirely removed. The main disadvantages are that biopsy procedures require heavier sedation or anesthesia, results take longer to return, are considered slightly more invasive, and can be more costly.

If you notice a new lump or bump on your pet, you should have it evaluated by your veterinarian as soon as possible. During the visit, the tumor should be measured and its location 'mapped', either by physically drawing a picture of the location of the tumor on your pet, or via obtaining a photograph of the tumor and making it a part of your pet's medical record. You and your veterinarian can discuss what would be the best plan for evaluating the tumor. If the tumor is determined to be benign, you will need to monitor it in the future for any signs of change in size, shape, or consistency, as this could indicate transformation to a more malignant behavior. If the tumor is determined to be malignant, your veterinarian may recommend referring you to a veterinary surgeon or veterinary oncologist for further testing. If noticed early, even malignant skin tumors can be considered very treatable and the prognosis could be excellent. The best way to examine your pet for skin tumors is simply by petting them or grooming them and also by scheduling regular physical examinations with your veterinarian.

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