

******CANCER******

What is it? Why my dog?

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Introduction

‘Cancer’ is a very big topic, so my intention is to write about the subject in general, and in terms of you, your dog, and your veterinary surgeon, and what happens. I am writing with 30 years of experience in small animal practice, which means that there is little I have not encountered. Cancer varies from the common skin wart (a cancer caused by the Papilloma virus) to catastrophic bone cancer (the dreaded Osteosarcoma) and red- or white-cell leukaemia.

In my view and experience, cancer is no more common now than it was at the start of my career.

Just this week, on a television program made in an actual hospital (for humans), I witnessed a cancer diagnosis being given to man, who had been admitted to Accident and Emergency for a completely different problem, in a terribly clumsy way, by a young medic.

Hopefully, finding out that your dog has cancer is done with greater care and empathy. And hopefully, soon after, all the treatment options, including the possibility of doing nothing, are discussed quietly and carefully.

Always think of what is best for your dog, not yourself, or the vet.

What is cancer?

Put simply, it is when certain body cells go rogue and multiply uncontrollably, eventually harming or killing the body. All cell types in the body (muscle, bone, nerve, membrane, skin, connective tissue, etc.) have that potential, and it is the body itself that stops it from happening all the time. The body does this by means of 'genetic switches', which when turned 'off', allows the cancer to occur.

What switches the body's protection from cancer to 'off' is multifactorial. More about that below.

What causes cancer?

There is very rarely a direct causal link between a 'cause' and the cancer, but is almost always the consequence of an interaction between the body (including genetic predisposition), the environment (which includes lifestyle, and the effects on the body), and the purported 'cause', whatever it may be. Some cancers are caused by viruses, for example the Feline Leukaemia Virus and the Bovine Leukaemia Virus or Enzootic Bovine Leukosis Virus. Interestingly, these diseases in cats and cattle can be vaccinated against successfully.

It is a very complicated subject, and never as simple as 'X causes cancer'. Whenever I read, in the press, or hear on the radio, about something *causing* cancer, I choke on my cornflakes. Then I check out *who* has written the article (are they qualified to make such statements?), and based on *what information* they have written it. It is never that straight forward. These scares come around on a regular basis, and is a feature of our culture.

Why my dog?

I am asked this all the time, especially at that moment I break the news, and when it not a cat with Leukaemia most likely caused by failure to vaccinate, it is very hard to answer.

But at the very core of that answer lies the fact that the genetic switch that protected your dog from that cancer has been turned to 'off', thereby allowing the cancer cells to proliferate.

What turns the switch onto 'off'? Some 'environmental factors' (and this includes the body itself and its surroundings), like smoking in people, asbestos, radiation, stress, etc can affect genetic switches. Some individuals or families are more susceptible than others. Sometimes it is simply a function of 'time', ie it has simply taken *that* time for the cancer to emerge.

Usually, however, the only answer one can give with any certainty is: *it's just bad luck that this has happened to your dog at this time.*'

How and when is cancer diagnosed?

The majority of skin/superficial cases (lumps and bumps that can be felt) are discovered by their owners. A significant proportion, however, are discovered at the time of vaccination. These include abdominal, chest, eye, and mouth tumours.

Usually what takes you to the vet is that you have found a lump, or noticed that your dog seems unwell and, perhaps, losing weight. The experienced vet often already knows there is something seriously the matter before even examining the dog, sometimes as you walk into the consulting room. The patient with a malignant metastatic cancer has a look about them that provides the clinician with the clue.

But it is not always bad news. Many cancers, for instance Lipomas and several skin lumps and tags, are benign ('harmless') and require treatment or surgery only when it becomes a nuisance to the dog or the owner.

Once I was examining a bouncy, healthy dog that was brought in for its booster vaccinations and found a small lump on its tongue (yes, some vets do examine their animals from nose to tail). The owner happened to be an oncologist. We agreed that the lump needed removing as soon as possible, *because almost all lumps on tongues are malignant*. I did the surgery the next morning, and it was indeed malignant. It was confirmed by histopathology.

Histopathology also confirmed that it had been removed completely. Years later, that dog is still bouncy and happy. Something similar happened with a terrier belonging to a local GP. During the vaccination check-up I felt a distinct lump in the thigh bone (the dog was not lame), about two thirds of the way down. Before I even approached the subject of X Rays and scanning, he suggested we amputate. I did this the next day, and, again, it was the saving of the dog. It was a malignant bone tumour (an osteosarcoma). The cancer was probably days from spreading to the rest of the body.

I recommend to all my owners that they get into the habit of running their hands over their animals regularly, and get used to how the animal normally feels, and have a look into their mouths just as regularly.

A word of advice: never diagnose a problem in your dog by doing an internet search. Get the diagnosis from the clinician/vet first, and *then* do your research.

The way cancers are diagnosed after being noticed/discovered are:

- ≡ Some cancer types are obvious and require little/no further diagnostic work.

- ≡ Smears (impression smears) can be made from the surface (if ulcerated) and examined by microscope. Modern vets have lost this skill, and send these slides to specialists.
- ≡ A fine-needle aspirate can be collected. This is when a needle is introduced into the tissue and some of that tissue is sucked up into the needle. This tissue is then applied to a glass slide and sent to the histologist. In my experience the results of half of all these samples come back as 'no cells found', and many come back as 'no malignant cells found', which means that the needle missed the cancer tissue/cells. It is a singularly frustrating procedure, and I rarely do it.
- ≡ A biopsy can be collected. This usually requires an anaesthetic. A sample can be taken by scalpel or biopsy punch, or by needle (Tru-cut) biopsy. In most cases this provides the answer.
- ≡ Some blood cancers can be diagnosed on a bloodsmear. These are usually cancers of the blood or bone marrow. If we understand that the cancer cells can float freely in the bloodstream, then we understand that the bloodsmear might sometimes not contain any cancer cells at all, especially if those cells are low in numbers. The same problem arises when collecting a fine needle biopsy from the lymph glands. Swollen lymph glands is usually the first sign of lymphoid (white blood cell) leukaemia. Please keep in mind that one or two swollen lymph glands is not a sign of leukaemia, necessarily. With leukaemia the three pairs of superficial lymph glands (can be felt), and the abdominal lymph glands (can also be felt only by the skilful clinician) are raised. The superficial lymph glands are 1) just behind the corner of the jaw under the ear 2) in front of the shoulder where the neck meets the body 3) behind the knee joint where the hind leg makes that hollow. The vet may be chatting about recipes as he or she

examines your dog, but this is the kind of thing that will be noticed. Gum colour, muscle mass, skin thickness, all offer clues.

- ≡ All samples are sent to a diagnostic laboratory for histopathology. These days the results are returned with suggestions for further diagnostics, or treatment options, which are very helpful to the vet and the owner. Sometimes a result is open to dispute, or an opinion from a second laboratory.
- ≡ Sometimes the vet might choose surgical intervention first, then send tissue (or the entire lump) to the lab for histopathology. This is a good option if the vet has a firm idea what the tumour might be, and sure that surgery will cure your dog of the problem.
- ≡ After the initial examination, the vet might suggest Xrays or Ultrasound scanning. The procedures often require an anaesthetic.
- ≡ Sometimes what the vet finds on the initial examination that it is wise to refer your dog to a specialist oncologist. This may involve CT scanning and complicated laboratory work like 'immunofluorescence'.

Generally, most cancers are diagnosed and treated successfully by your vet in a small animal practice. Some require referral to a specialist with specialist facilities. Some dogs are so unfortunate that there is little to do, but to have that terrible conversation immediately. Luckily these are few.

Are all cancers bad news?

Cancers are either *benign* or *malignant*.

When they are *benign*, the lump, or whatever form the cancer has taken, sits there quietly doing nobody any harm.

When they are *malignant*, they are either locally destructive and/or spread through the body from a primary site. Tumours/lumps that spread through the body are called ‘metastatic’, and the spread or seeding elsewhere in the body is referred to as ‘metastasis’. The most likely spread is to the local lymph glands and beyond, and parts of the body that has the finest blood-vessels (lungs and liver, for example).

Some cancers are so slow-growing that the normal lifespan of the dog is not long enough for that tumour to cause trouble. Some heart-base tumours (chemodectomas) grow so slowly that they never produce any symptoms and the dog dies of old age.

Some cancers are present at birth. These are called *terratomas*.

The bone-marrow or blood cancers vary in malignancy. They are sometimes very difficult to diagnose and can evade blood sampling, blood smears, and lymphnode biopsies, as we have discussed above.

There are several cancers that only ever require attention when they stop the animal from walking, eating, etc. These include the fatty lumps. One of those in a dog’s armpit can stop it from walking normally and place abnormal stresses on the joints.

What can you do to help your dog before a cancer diagnosis?

- ≡ Get into the habit of feeling your dog’s body all over on a regular basis. If you do this, you gain a kind of ‘muscle memory’ and your hands will tell you immediately when something is the matter.

- ≡ Look inside your dog's mouth for lumps and bumps. This is why it is important that you train your puppy to allow you to do this. Please note the following. All lumps of the tongue are dangerous. Most lumps of the gums are not. Some lumps of the lips are dangerous.
- ≡ Use your visits to the vet to take advantage of a clinical examination. A good clinical examination (which takes no more than a few minutes) can be life-saving.

Conclusion

Sometimes, with no notice at all, you find that your dog has cancer, and that it is the worst of all forms. I found one in a dog that came for its vaccination last week (the owners had not noticed anything) and today the biopsy result came back as a 'carcinoma of a high grade' and a nil prognosis.

Fortunately these kinds of cases are in the minority.

Mostly a lot can be done, and the treatment options are many. When surgery is an option, it is good option, and most are cured. 'When in doubt, take it out' is a very good approach.

Chemotherapy and radio therapy are also readily available, and these days most practices can do chemotherapy, and with considerable success.

Whatever your decision, please make it in the interest of the dog. Just because something is mentioned as a treatment possibility, does not mean it is best for your dog.

When the diagnosis is a bad one, the prognosis is 'poor' or 'grave' (these are actual terms used by clinicians and pathologists), and there is no light at the end of the tunnel (and much

pain and suffering), we sometimes have to steel ourselves and say goodbye. I don't know how we bear this, but we do.

But keep in mind, at all times, that a diagnosis of 'cancer' does not mean it is the end of your dog's life. Many reach old age, and depart this world for some other reason.

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