

MELANOMA

Description and Types

Can Dogs Get Skin Cancer?
AKC

What are melanocytes and what is a melanoma?
VCA Animal Hospital

What is Melanoma in Dogs? *One Vet*

Can Dogs Get Skin Cancer? (AKC)

Dogs can get skin cancer, just like we can. In fact, skin tumors are the most commonly diagnosed type of tumor in dogs.

- This is partly because skin tumors are easier to see with the naked eye than other types of tumors, and partly because the skin is exposed to more of the environmental factors that can cause tumors, such as chemicals, viruses, and solar radiation, then your dog’s internal structures.
- Luckily, this also means that you and your veterinarian have a better chance of catching your dog’s cancer before it progresses past available treatment options. (AKC)

What are melanocytes and what is a melanoma? (VCA Animal Hospital)

Melanocytes are cells that produce a pigment called melanin.

- They are found in many parts of the body where there is pigment, particularly skin, hair, and eyes.
- A **melanoma** is an abnormal production of melanocytes in a dysregulated manner that forms a nodule, mass, or other form of lesion. (VCA Animal Hospital)

What is Melanoma in Dogs? (One Vet)

Melanoma is a type of tumor that develops when the melanocytes (pigmented cells) start reproducing abnormally forming masses, lesions, or nodules. Melanocytes are specialized cells that produce the pigment melanin.

- The tumors can be malignant (malignant melanoma) or benign (melanocytomas).
- Malignant melanomas are metastatic and quickly spread to other areas of the body such as the lungs, liver, and regional lymph nodes.

Based on location, there are several types of melanomas in dogs:

- **Oral Melanoma.** Canine oral melanoma is the most common melanoma type (accounts for up to 80% of all melanoma cases. Melanoma tumors in the oral cavity are malignant tumors – invasive and with high metastatic rates.
- **Nailbed Melanoma.** The nailbed (subungual crest) is another common melanoma site. This melanoma type presents in 15-20% of the cases. Nailbed melanoma is metastatic and usually spreads to regional lymph nodes.
- **Dermal Melanoma.** Cutaneous melanoma affects the dog’s skin and manifests with dark lesions. The lesions can be solitary or irregularly distributed in different locations. Most dermal melanomas are benign.
- **Ocular Melanoma.** Ocular melanoma may develop on various eye tissues such as the eyelid, conjunctiva, and uvea. Most eye melanomas are benign. However, due to their location, they are problematic and impair vision unless removed. (One Vet)

<p>Breeds at Risk</p> <p>Breeds (<i>Dog Cancer.com</i>)</p>	<p>Any breed of dog can get melanoma, but some breeds are overrepresented. Breeds that are diagnosed with melanoma more commonly include: (<i>Dog Cancer.com</i>)</p> <ul style="list-style-type: none"> • Airedale Terriers • Bull Terriers • Chesapeake Bay Retrievers • Chihuahuas • Chow Chows • Cocker Spaniels • Doberman Pinschers • German Shepherd • Golden Retrievers • Irish Setters • Poodles • Schnauzers • Vizsla (benign) <p>Other Information:</p> <ul style="list-style-type: none"> • Dark-haired dogs are more likely to have dermal or nail bed melanoma. • One study suggested that Vizslas between 5 and 11 years old are more prone to benign melanocytomas, hopeful news for Vizsla owners. • Another study suggested that ocular (eye) melanoma, which is also usually benign, is possibly more common in female German Shepherds between 5 and 6 years old. (<i>Dog Cancer.com</i>) <p>Other Breeds:</p> <ul style="list-style-type: none"> • Bernese Mountain Dog • Boston Terrier • Gordon Setters • Labrador Retriever • Scottish Terrier • Springer Spaniels
<p>Causes and Risk Factors</p> <p>Causes of Skin Cancer in Dogs <i>AKC</i></p> <p>What Causes Melanoma Cancer in Dogs? <i>One Vet</i></p> <p>Risk Factors for Dog Melanoma (<i>Dog Cancer.com</i>)</p>	<p>Causes of Skin Cancer in Dogs (<i>AKC</i>) Skin cancer can have a variety of causes.</p> <ul style="list-style-type: none"> • Just like with people, genetics play a large role in which dogs are more likely to get skin cancer. In fact, it is believed that genetics are the number one factor in the risk of a dog getting skin cancer. • Triggers that may lead to a dog developing skin cancer include too much exposure to the sun, chemicals in the environment, hormonal abnormalities, and certain types of viruses. (<i>AKC</i>) <p>What Causes Melanoma Cancer in Dogs? (<i>One Vet</i>) The exact cause of melanoma in dogs is unknown. Usually, canine melanoma is caused by a combination of genetic and environmental factors such as:</p> <p>Age.</p> <ul style="list-style-type: none"> • Older dogs are at a higher risk of developing canine melanoma. The average age of melanoma diagnosis in dogs is ten years or older. However, oral tumors can also occur in younger dogs. <p>Breed.</p> <ul style="list-style-type: none"> • According to Embrace Pet Insurance, certain dog breeds (Golden Retrievers, Irish Setters, Cocker Spaniels, Schnauzers, Poodles, Bull Terriers, Chihuahuas, Pinschers), are at high risk of developing melanoma.

	<p>Excessive Skin Licking.</p> <ul style="list-style-type: none"> • <i>First Vet</i> states that excessive licking of one spot may stimulate the melanocytes to start multiplying uncontrollably. Over time, this may lead to mutation and tumor formation. <p>Sun Exposure.</p> <ul style="list-style-type: none"> • The exact role of sun exposure in melanoma development is unclear. This is confirmed by <i>ASPCA Pet Insurance</i>. However, the site mentions that melanoma is more common in light-colored dogs and in non-hairy body areas. • Sun exposure, unlike in humans, doesn't appear to play a role in determining risks for melanoma in dogs. (<i>One Vet</i>) <p>Risk Factors for Dog Melanoma (<i>Dog Cancer.com</i>) The following are possible risk factors, but with no strong data to support them:</p> <ul style="list-style-type: none"> • Excessive licking one place on the skin causes a mutation in the cells. • Chemicals in the environment, hormones, or viruses. • Other sources of chronic inflammation, such as deep infections or burns. • In general, neither sex is more likely to have melanoma. (<i>Dog Cancer.com</i>)
<p>Symptoms</p> <p>Symptoms of Malignant Melanoma in Dogs <i>Wag!</i></p>	<p>Symptoms of Malignant Melanoma in Dogs (<i>Wag!</i>) The signs that your dog may have malignant melanoma can vary depending on where the cancer originates. The three most common places are the mouth (oral), skin, or toes.</p> <p>Oral</p> <ul style="list-style-type: none"> • Dark (black, brown, grey) lump or lesion on mouth, tongue, lips, or gums • Facial swelling • Bloody drool • Foul breath • Unable to eat • Loose teeth • Dropping food from the mouth <p>Skin</p> <ul style="list-style-type: none"> • Rash or grouping of small blister-like lesions, usually on the feet, underbelly, and face • Large lump anywhere on the body, usually darker than the skin surrounding it • Pain or bleeding from a spot or lesion of unknown origin that does not seem to be healing <p>Toes</p> <ul style="list-style-type: none"> • Swelling of the foot • Discolored toenail • Malformed toes • Loose toenail (<i>Wag!</i>)

Testing and Staging

Diagnosing Melanoma in Dogs *One Vet*

What the Vets Are Looking for That Indicates Melanoma
Dog Cancer.com

What is Malignant Melanoma? (Stages)
Wag!

Diagnosing Melanoma in Dogs *(One Vet)*

Diagnosing melanoma in dogs starts with a physical examination.

- Since the primary tumor is visible, the vet will inspect its **physical characteristics** (swelling, ulceration, or bleeding).
- To confirm the diagnosis, the vet must perform **fine-needle aspiration (FNI)** and **biopsy**. The analysis of the specimen taken with FNI is called **cytology**, and with biopsy – **histopathology**.
 - FNI and biopsy will confirm the diagnosis and then help with tumor **staging**. The procedure is called **mitotic index** – the percentage of melanoma cells undergoing mitosis (cell division) at a time.
 - It is used as a measure of how fast the tumor is expected to grow.
- To evaluate the dog’s overall health and check for metastasis, the veterinarian will perform
 - Blood tests
 - Urinalysis
 - Chest x-rays
 - Abdominal ultrasounds
 - MRI
 - CT scans. *(One Vet)*

What the Vets Are Looking for That Indicates Melanoma *(Dog Cancer.com)*

Several things on the cytology or biopsy can help a veterinarian or pathologist diagnose melanomas and predict how aggressively they may behave.

Ki-67

- Several studies have found Ki-67 to be the most reliable indicator of how aggressive a dog’s melanoma will be.¹⁶
- Ki-67 is a nuclear protein associated with rapid tumor growth and cell proliferation. Knowing if these proteins are present may help predict aggressive behavior.⁵ The pathologist can see these proteins with the help of a special stain.
- A Ki-67 index greater than 15% suggests a bad prognosis.¹⁶

Nuclear Atypia

- This is when the nuclei of the cells have an abnormal appearance associated with malignancy.¹⁶ Sometimes it is reported as “mild,” “moderate,” or “severe.”

Mitotic Index

- Many studies suggest the [mitotic index is the most accurate way to predict aggressive behavior](#) in a tumor.
- The pathologist looks for cells that are right in the middle of dividing, then counts how many there are in a high-powered microscopic field.²
- The sample is then given a score.
- In general, a tumor with less than three mitotic figures in a high-power field will likely express benign behavior and be less aggressive. *(Dog Cancer.com)*

Staging - What is Malignant Melanoma? *(Wag!)*

Malignant melanoma is often fatal within one year even with treatment to remove the cancer.

- The average survival time for this disease is up to about 10 months, though dogs can live up to 36 months with immediate surgical removal of the melanoma.
- The only treatment is surgery because chemotherapy and radiation are not effective.

There are **four stages** of malignant melanoma, and each has its own survival time.

- Stage one (smaller than 2 cm): about twelve months
- Stage two (2-4 cm): about eight months
- Stage three (larger than 4 cm or tumor that has spread): about four months
- Stage four (extensive metastasis): about one month *(Wag!)*

Treatment

How do You Treat Melanoma in Dogs?
One Vet

How do You Treat Melanoma in Dogs? (One Vet)

There are several mainstream treatment options for melanoma in dogs – surgery, radiation therapy, chemotherapy, and immunotherapy.

Surgery.

- Surgical removal of the lesion is the treatment of choice for small melanomas that have not spread. In some cases, a veterinary oncologist might suggest surgery for palliative reasons. For toenail melanomas, the surgeon will perform an amputation of the entire toe.

Radiation Therapy.

- Radiation is often used for tumors that have spread in conjunction with surgery to improve the treatment outcome. Radiation is started two weeks after the tumor is removed and may prevent or delay tumor regrowth.

Chemotherapy.

- Chemo is sometimes suggested as part of the treatment plan. The usually used drug is carboplatin. Chemotherapy for melanoma in dogs is given in four to six doses, every three weeks.

Immunotherapy.

- There is a melanoma vaccine developed for the treatment of melanoma in dogs and is used in conjunction with surgery or radiation. A dog with melanoma will need a few initial doses and then booster doses.

In addition to medical treatment, ask your vet about some of the [holistic cancer treatments](#) you can offer your dog. Popular available options are diet and CBD.

Diet.

- Special diets are particularly important for dogs with oral melanoma. This is because the lesion’s presence in the mouth is uncomfortable or even painful.
- Your vet or a veterinary nutritionist should be able to tell you what foods are best for your dog.

Cannabidiol (CBD)

Products. CBD has many health benefits but the most relevant for a dog living with cancer would be anxiety and inflammation relief. When choosing pet CBD for your dog, opt for pet-safe vet-approved brands such as Honest Paws.

- Specifically formulated to relieve occasional joint stiffness and discomfort in your dog
- Made with organic, full-spectrum hemp oil and other all-natural ingredients
- Supports connective tissue (*One Vet*)

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