

# Vaccine-associated Sarcoma

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A fibrosarcoma is a tumor of the connective tissue. The frequency of fibrosarcomas is increasing in cats and is believed to be caused by a local reaction to a vaccine. Although these sarcomas are being seen more frequently in cats, they are still rare. Current estimates on the incidence of these vaccine-associated sarcomas (also called vaccine-associated fibrosarcomas) are about one tumor per 5,000 to 10,000 cats vaccinated. Vaccine-associated sarcomas are most commonly associated with the FeLV vaccine. They also have been associated with rabies vaccines and other injections.

Research is ongoing to determine the exact cause of vaccine-associated sarcomas and how they can be prevented and treated. Possible explanations for the tumors include abnormal reactions to the adjuvant in vaccines, genetic predisposition, and infections with another virus.

The possible risk of vaccine-associated sarcomas has led to a reevaluation of vaccination protocols. We do not want to vaccinate more than necessary, yet we want to be sure cats are protected from serious, sometimes fatal, infections. This is why it is recommended that adult cats without potential exposure to FeLV may not need vaccination against that disease. In cats with potential exposure, the risk of FeLV infection is greater than the risk of developing a sarcoma so vaccination is advised. It is recommended that all cats receive rabies vaccination.

A small, painless swelling sometimes develops at the site of a recent vaccination. This should disappear in several weeks. If it persists, however, it could mean it is developing into a vaccine-associated sarcoma and should be checked by your veterinarian. The warning signs for a vaccine-related fibrosarcoma are:

- A lump that persists for more than three months after vaccination.
- A lump that is larger than two centimeters in diameter (2.5 centimeters = 1 inch).
- A lump that one month after vaccination it is still increasing in size.

If you have any concern regarding a lump at a vaccination site, do not hesitate to contact your veterinarian. Vaccine-associated sarcomas can occur within months of vaccination, or may take up to 10 years to develop.

Fibrosarcomas are malignant tumors, but rather than spreading to other locations, they tend to invade deeply into the underlying tissues. If a vaccine-associated fibrosarcoma develops, surgical removal is attempted, but generally, this tumor is so invasive it is difficult to remove it all. Radiation or chemotherapy are often recommended in combination with surgery.



Vaccination guidelines recommend that the FeLV vaccine should be given low on the left rear leg, in an area distinct from where other vaccinations are given. The rabies vaccine is given low on the right rear leg. If a tumor would develop, knowing which vaccine was given where will help determine with which vaccine the tumor is associated. Also, if a tumor would develop, amputation of the leg would, in many cases, be curative. Cats do incredibly well on three legs, and many owners prefer this to having their cat succumb to a tumor.