

Rat Mammary Tumors

The latest happenings with two recent cases of rat mammary tumors.

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Photo Courtesy Jerry Murray, DVM

This rat came in for surgery to have several large mammary tumors removed.

Rats in general are prone to three common problems: mammary (breast) tumors, respiratory disease and heart disease. It has been estimated that more than half of the intact female rats will develop mammary tumors during their lifetime; however, spayed female rats are unlikely to develop mammary tumors. Why intact female rats are so prone to mammary tumors is still unclear, but it is believed that both estrogen and prolactin are involved in the development and growth of these mammary tumors. This column focuses on two recent rat mammary tumor cases.

In the first case, the rat came in with several rather large mammary tumors on the right side of her body (see the photo). Rats have mammary tissue over most of their body, but common locations for mammary tumors include the armpits, the groin area, on the belly, by the vulva and on the sides. Some of these tumors can become very large, but the most common type of tumor is a benign growth called a fibroadenoma. Even if it is a benign tumor, it can cause some serious problems due to its size. Likewise due to its size, these tumors can be a challenge to successfully remove. Rats in general are prone to hypothermia (low body temperature), shock and death during a long surgery; therefore, it is important to remove mammary tumors when they are still small.

The second case also involved a large mammary tumor. The owners requested medical treatment instead of surgery. Medical treatment is aimed at lowering estrogen and prolactin levels to prevent the tumor from getting any bigger and to hopefully shrink it over time. Anti-estrogen medications such as leuprolide (Lupron), anastrozole (Arimidex) and tamoxifen (Nolvadex) can be used in rats, and melatonin can be used to lower the prolactin level. After just one month of treatment with leuprolide and melatonin, the rat's tumor is slightly smaller, and the rat seems to be doing better. Another thing that may help decrease the growth of mammary tumors is to make dietary changes, such as adding conjugated linoleic acid (CLA), adding omega-3 fatty acids, adding soy, and reducing the carbohydrate level of the rat's food.

It is important to spay female rats when they are young to help prevent mammary tumors when they get older. It may also be possible to prevent mammary tumors by starting rats on anti-estrogen medications when they are young. However if the rat still develops mammary tumors with or without preventative therapy, it is always better to remove the tumors when they are still small.

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