



## Uterine Adenocarcinoma in Rabbits

*Without question, uterine adenocarcinoma is the most common type of cancer found in female rabbits. This is a condition that is generally insidious. Signs that a doe exhibit are usually subtle and may slowly worsen over time. This disease is of great importance to BOTH rabbit breeders and those who own rabbits as pets.*

### NORMAL ANATOMY

**T**o quickly review, female rabbits generally reach sexual maturity by 4-6 months of age. Larger breeds of rabbits tend to reach this state slightly later in life around 6-8 months of age. The doe is an induced ovulator and can develop estrous (receptive to breeding) cycles that last around one to two weeks. The female rabbit has two uterine horns and two cervixes to accommodate their litter size. As a doe ages, various changes occur in the uterus that generally make them more likely to develop this condition. The most significant is the changing of the uterine wall to include more collagen.

### UTERINE CANCER

Believe it or not, studies have been done that show the incidence of uterine cancer to be higher in certain breeds. They include the Tan, Havana, and Dutch. The incidence in uterine cancer in these breeds over the age of four can be as high as 50-80%. Despite these breeds that may be overrepresented, age is the number one factor when considering whether or not a doe is afflicted with uterine cancer. A five-year-old seasoned Jersey Wooly brood doe is far more likely than an eight-month-old Holland Lop doe to develop uterine adenocarcinoma.

The disease begins with only the uterus undergoing neoplastic changes that lead to tumor formation. The uterus is an organ with a rich blood supply and metastatic spread to other organs is common. The most common locations include the lungs and liver. The tumor can sometimes grow so large that the structure that was formally the uterus begins to break down

and leaks into the abdomen. This is a serious complication that may lead to infection of the abdominal cavity (a septic peritonitis) and ultimately death.

### SIGNS

Clinical signs are the first clues you as a breeder or pet owner will have to determine if uterine adenocarcinoma is a possibility in your female rabbit. The earlier signs include:

- **Decreased fertility:** A proven doe begins to routinely not conceive after being bred multiple times.
- **Small litter size:** A doe that consistently gives birth to large litters now has one or two kits per breeding. These kits may be smaller and less developed than previous litters.
- **Pregnancy complications:** Abortions, resorptions, stillbirths, and dystocia may all increase over time.
- **Hematuria:** Does will have a blood tinged urine stream. Actual (frank) blood may be present at the end of urination. If these signs are not investigated thoroughly, the condition of uterine cancer worsens and signs become more severe. They include:
- **Depression:** Does will lay in the corner of their cage and act dull, lethargic, and appear sick.
- **Anorexia:** The doe will eat less food, drink less water, and lose a significant amount of flesh condition quickly.
- **Trouble breathing:** A doe will lay stretched out with her head extended upwards and may actually pant. This generally represents the presence of cancer in the lung tissue as well.
- **Swollen abdomen:** Called ascites, the doe will have an abdomen that is only seen during pregnancy despite her not being bred recently. Many times a fluid wave can be appreciated with palpation.



A rabbit uterus and cervix is shown in this photograph following an ovariohysterectomy (spay surgery). Note the large amount of fat that surrounds the female reproductive organ. This is normal in adult female rabbits. Uterine adenocarcinoma (cancer) has overtaken the entire left (rabbit's right) uterine horn and a portion of the cervix. The right uterine horn (rabbit's left) is completely normal. Note the gray, swollen, and enlarged appearance of the right uterine horn in relation to the healthy, pink tissue of the left horn.

### PREVENTION = TREATMENT

Thus far, chemotherapy has been ineffective for this type of cancer in rabbits. It is therefore imperative that both rabbit breeders and pet owners take the necessary steps to ensure that this disease is prevented and routinely screened for. It is necessary to distinguish between



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rabbit breeders and pet owners in this instance.

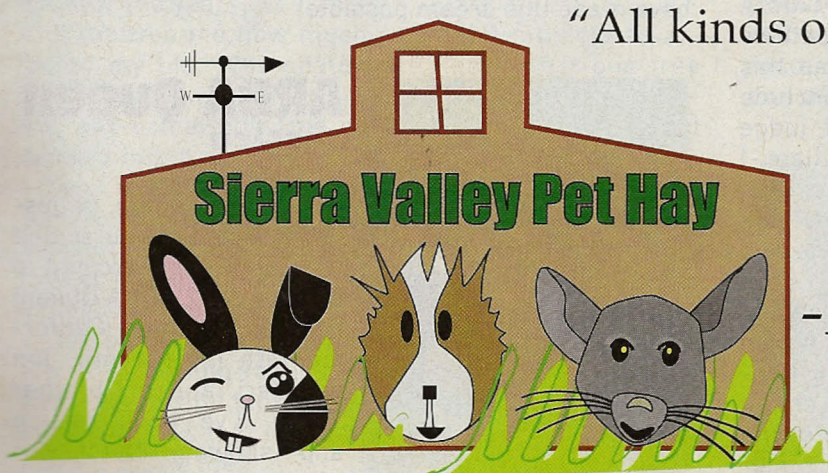
**Rabbit Breeders:** Perform routine abdominal palpations on does that are over the age of two. If you recognize any of the above signs for uterine cancer, perform the examination immediately. Much like determining if a doe is pregnant, palpation in the caudal abdomen is a useful and valuable tool that you have as a diagnostic aid. A pregnant doe

will commonly have segmental, penny-sized fetuses along both uterine horns as you gently palpate the abdomen. Does with uterine cancer will have nodules that are between 1-5 centimeters in diameter and may be painful when palpated in the doe. If and when the tumor is identified, the doe should be spayed immediately by a veterinarian or culled from the herd prior to developing serious complications.

**Pet Owners:** Prevention is the best medicine for pet owners. If you plan to own a female rabbit, you should have her spayed (an ovariectomy) before she is two years old.

I recommend to my clients with new rabbits that they should be spayed as early as six months of age. The surgery is generally less complicated and healing time is minimal. If your rabbit is intact, over the age of two, and experiencing any of the signs listed above, I recommend scheduling a visit with your nearest rabbit-savvy veterinarian. He or she will be able to perform the necessary diagnostics to determine whether a uterine tumor is present and whether or not it has spread to the lungs or other abdominal organs. Metastatic spread carries a grave prognosis. If the tumor is confined only to the uterus, surgery is frequently curative.

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