

# Eclampsia

## ABOUT THE DIAGNOSIS

**CAUSE:** Eclampsia is a sudden onset of potentially life-threatening symptoms resulting from low blood calcium (hypocalcemia) in the female dog (bitch) or female cat (queen) that has given birth in the preceding 3 weeks. In the bitch, eclampsia can occur at any time during lactation (nursing), but it is most likely to occur during the first 3 weeks of lactation, which begins within minutes after birth. Eclampsia occurs most commonly in small dogs with large litters, but it can occur in any bitch after whelping (giving birth). Symptoms of eclampsia include panting, pacing, restlessness, muscle stiffness and trembling, inability to rise, seizures, and coma. If eclampsia progresses to produce severe symptoms such as seizures and coma and is not treated immediately, death is possible. Eclampsia does not occur during pregnancy (before giving birth). Eclampsia is a well-known disorder in dogs, but it occurs very rarely in cats. Timing (postpartum) and symptoms are the telltale features that lead a veterinarian to suspect eclampsia.

There is no relation between eclampsia in dogs and cats and preeclampsia in humans, which is a disorder involving blood pressure and proteinuria in women during—not after—pregnancy.

The cause of eclampsia is a sudden transfer of circulating calcium from the mother's bloodstream into the milk; while this is beneficial to the puppies, the mother may experience such a sudden drop in blood calcium levels that eclampsia and the symptoms described above occur. There are many additional factors that contribute to this disorder. Maternal calcium is sacrificed for growth of the fetuses during pregnancy, and additional factors such as poor diet during gestation and lactation or excessive calcium supplementation during gestation can upset calcium balance and predispose to eclampsia. Offering reasonable amounts of a regular balanced diet and *avoiding* calcium supplementation *during pregnancy* (because these discourage the body from absorbing much ingested calcium, leaving it totally unprepared for the massive calcium absorption needed once milk production and nursing begin) are important preventive measures that can be taken to reduce the risk of eclampsia.

**DIAGNOSIS:** Eclampsia is usually diagnosed based on the onset of symptoms hours, days, or a few weeks after giving birth, and the positive response to treatment with calcium gluconate injections in a lactating bitch or queen. Although hypocalcemia confirms the diagnosis on a blood sample, the time and equipment necessary for performing this blood test are not always available in the short time frame (minutes) during which treatment with calcium gluconate is often necessary.

## LIVING WITH THE DIAGNOSIS

Eclampsia is a serious, potentially life-threatening condition, but it is a temporary condition that leaves no permanent aftereffects and requires no ongoing treatment if the initial stages are detected early and if adequate treatment (usually only needed for a few weeks at most) is provided. If your dog or cat has been diagnosed and treated for eclampsia, give medication at home exactly as your veterinarian prescribes it, even when symptoms are completely gone. This is because the course of treatment (typically days to a few weeks) is what keeps the symptoms away, and stopping treatment prematurely can cause eclampsia to return very quickly. Follow your veterinarian's instructions regarding hand-feeding the puppies or kittens if necessary, as a reduction in nursing may

lessen the burden of milk production and decrease the amount of calcium being transferred from the mother's body into milk. Eclampsia can recur if nursing resumes and the mother's calcium level is not regulated.

Eclampsia can recur with subsequent litters. To prevent this disorder, it is important that the bitch or queen has a nutritionally balanced diet during pregnancy and lactation. To ensure that this diet is consumed, the puppies or kittens can be removed from the mother for a short period of time several times daily while she eats. Solid food can be gradually offered to the puppies and kittens (beginning the weaning process) beginning at approximately 3 weeks while they are still nursing. Calcium should **NEVER** be given to the mother during pregnancy because it can disrupt the normal balance of calcium in the body and, counterproductively, it actually makes eclampsia more likely to occur in the mother a few weeks after birth.

## TREATMENT

Eclampsia may worsen quickly and can be fatal if it is not treated. Therefore, treatment should begin immediately when symptoms begin to be visible. Calcium (gluconate) is administered intravenously by a veterinarian, very slowly and with careful monitoring because intravenous calcium excess is also potentially very dangerous, until symptoms resolve. Low blood glucose (hypoglycemia) can occur simultaneously and if present, it can produce similar or identical symptoms; hypoglycemia is treated with dextrose, which can be given by mouth or intravenously. If tremors, muscle twitching, or seizures do not respond to this treatment, an anticonvulsant medication may also be needed. Depending on their age, kittens or puppies may need to be weaned and hand-fed to lessen the calcium drain of milk production.

When the bitch or queen is recovering from eclampsia and is stable, calcium should be supplemented at home. A carefully calculated and monitored dose of oral vitamin D may be needed to help the body absorb calcium. A well-balanced diet is important and may eliminate the need for vitamin D supplementation. Several commercial diets are available. Your veterinarian can discuss appropriate home treatments, diets, and supplements with you.

## DOs

- Be aware, despite the excitement of the birthing process, that after birth (for up to 3 weeks) symptoms of irritability, muscle twitching, or any others described above may indicate the beginning of eclampsia.
- Seek veterinary attention if any of these symptoms occurs; early intervention is a critical determinant of success and an important way of avoiding life-threatening eclampsia.
- Inform your veterinarian if your pet has ever been diagnosed with a medical condition or is taking medication, because some medications may alter the symptoms of eclampsia and would need to be adjusted or changed.
- Give medication exactly as directed by your veterinarian, and if you are concerned about possible negative effects, discuss them with your veterinarian immediately rather than simply discontinuing the treatment. Symptoms of eclampsia disappear with successful treatment, but this does not mean the medication can be ended prematurely because the eclampsia can recur anytime during the 3-week period after birth.
- Feed your pregnant and lactating dog or cat a well-balanced diet. Be sure that she always has access to fresh water.

## DON'Ts

- Do not give calcium or vitamin D supplements to your dog or cat during pregnancy since these actually “set the stage” for eclampsia and make it more likely that eclampsia will occur.
- Do not allow the puppies or kittens to resume nursing if your veterinarian has indicated that they should not; the mother may not have sufficient circulating calcium levels to handle milk production at that time.

## WHEN TO CALL YOUR VETERINARIAN

- If you cannot keep a scheduled appointment.
- If you are unable to give medication as directed.
- If the mother’s appetite decreases.
- If you are unable to hand-feed the puppies or kittens.

## SIGNS TO WATCH FOR

As indicators of the onset of eclampsia:

- In the postpartum bitch or queen: panting, nervousness, awkward/stiff gait, muscle stiffness or trembling, inability to rise, seizures.

As general indicators of potential health problems, warranting a veterinary visit:

- During gestation or lactation: decreased appetite, weakness, vomiting.

## ROUTINE FOLLOW-UP

- A follow-up visit usually is appropriate to measure the blood calcium level and therefore to determine when treatment at home can be stopped.

*Other information that may be useful: “How-To” Client Education Sheet:*

- How to Manage a Dog or Cat That Is Having Seizures

Practice Stamp or Name & Address