

# *An Outcome of Eclampsia in Bitch*

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## ABSTRACT

Eclampsia in the bitch, also known as puerperal tetany, is a metabolic disorder characterised by hypocalcaemia. It is most commonly seen in lactating females during the first three weeks following parturition, but it can occur before, during, or up to six weeks after parturition. Hypocalcaemia is most often caused by calcium loss in milk and insufficient dietary calcium intake. Eclampsia is an acute, life-threatening disease condition that often manifests 2-3 weeks after whelping, during the time of peak lactation. Large litters of small-breed bitches are most frequently affected. Moreover, hypocalcaemia during parturition has been associated with dystocia.

## INTRODUCTION

**E**clampsia (Periparturient hypocalcaemia) can be recognized by progressive neurologic symptoms such as tremors, ataxia, and disorientation, which are finally followed by seizures, coma, and death. It is particularly prevalent in small-breed dogs nursing large litters, especially during peak lactation, which occurs 2-3 weeks following whelping. Hypocalcaemia can also develop during parturition, which can lead to dystocia. A tentative diagnosis is based on signalment and clinical symptoms; confirmation requires serum calcium concentration measurement. A total serum calcium level below 7 mg/dL is suggestive for the condition. Treatment is determined by the

severity of the neurologic symptoms, but commonly involves intravenous calcium gluconate administration.

### Etiology of eclampsia in dogs

- Eclampsia in dogs is caused by dangerously low calcium levels in the blood.
- It is primarily caused by a lack of adequate dietary calcium during gestation combined with demands on the female dog's calcium stores during pregnancy.
- Nursing the puppies leads an additional demand on the mother's calcium stores,

putting them in the danger zone that triggers the symptoms of eclampsia.

- Providing excessive calcium supplements to a pregnant dog may increase the risk of eclampsia after birth by suppressing the body's normal biological regulation of calcium, resulting in a decrease in calcium supply once the heavy demands of nursing begin.
- Eclampsia is more common in small breed dogs or dogs with big litters due to the puppies' high milk demand.

### **Clinical symptoms**

- Panting and agitation are early clinical symptoms of eclampsia.
- Increased neuromuscular excitability causes mild tremors, twitching, muscle spasms, and gait abnormalities (stiffness and ataxia).
- Aggression, whining, salivation, pacing, hypersensitivity to stimuli, and confusion are common behavioural changes.
- Severe tremors, tetany, generalised seizure activity, and death are all possible outcomes.
- In severe cases, hyperthermia may ensue.
- Seizures that last for an extended period of time might produce cerebral oedema.
- Tachycardia, hyperthermia, polyuria, polydipsia, and vomiting are all possible side effects.
- If the eclampsia is not treated, the symptoms will worsen, with the dog appearing confused and uncertain of where it is and, maybe, who you are.
- At this period, some dogs get a high fever.
- Seizures are prevalent, and the dog usually collapses to the ground.

- Untreated eclampsia will eventually cause the dog to go into a coma and die.

### **Pathogenesis**

Hypocalcaemia is most often caused by calcium loss in milk and insufficient dietary calcium intake. This calcium metabolism imbalance develops because calcium mobilisation from bone into the serum pool is insufficient to compensate for calcium efflux through the mammary glands during lactation. Lactational demands from large puppies or a large litter are frequently observed. Although eclampsia can occur in any breed, with any size of litter, and at any moment during lactation. It is more common in small breeds of dogs. It happens rarely in bitches during late gestation. Although hypocalcaemia is uncommon in queens, it can occur during early lactation.

Oral calcium supplementation during pregnancy may predispose dogs to eclampsia during peak lactation, because excessive calcium intake during pregnancy induces calcium regulatory system down regulation and consequent clinical hypocalcaemia when calcium demand is high.

### **Treatment**

Intravenous calcium must be administered carefully and slowly, otherwise it might induce significant heart rate reduction (bradycardia) and arrhythmias (irregular heart rate). To control seizures and tetany, some dogs will require anti-seizure medications such as diazepam. For follow-up care, oral calcium supplements and weaning the puppies as soon as possible are usually required. Recovery from eclampsia is usually quick and complete if it is detected and treated promptly. Additional drugs may be used to treat symptoms such as seizures and muscle stiffness. Once the dog's calcium levels have returned to normal, she will be given oral calcium and vitamin D supplements. It is normally recommended that puppies stop nursing for 12-24 hours. They should be fed canine milk replacement formula until the mother is able to nurse again. However, the puppies should be weaned as quickly as possible from their mother's milk. Calcium

absorption from the intestines is increased by taking vitamin D supplements. The serum calcium concentration should be checked on a weekly basis.

Corticosteroids lower serum calcium levels and are hence contraindicated. They could interfere with intestinal calcium transport and increase urine calcium loss.

## CONCLUSION

Owners should be advised that eclampsia is likely to reoccur in subsequent pregnancies. Feeding a high-quality, nutritionally balanced, and appropriate diet during pregnancy and lactation; providing food and water ad lib during lactation; and supplementing puppy feeding with milk replacer early in lactation and with solid food after 3-4 weeks of age are all preventive measures to consider in the bitch. Oral calcium supplementation during pregnancy is not recommended and may promote postpartum hypocalcaemia rather than prevent it. Calcium supplementation at peak lactation may be beneficial in bitches with a history of eclampsia.

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