In cooperation with

Animal Behavior Case of the Month

Statement of the Problem

A dog was examined because of thunderstorm-associated anxiety behaviors, including pacing, whining, owner-directed attention-seeking, and trembling, of > 1 year's duration, with increasing severity over time.

Signalment

The dog was an apparently healthy 4-year-old 40.1-kg (88.2-lb) castrated male Golden Retriever.

History

The owners had obtained the dog from a breeder at 8 weeks of age as a companion. The dog was castrated at 9 months of age with no complications. At the time of the behavioral evaluation, the owners had 3 other dogs (all spayed females ranging in age from 19 months to 7 years) and a 9-year-old spayed female cat. One of the owners was generally home with the animals during the day, with occasional departures of 3 to 4 hours' duration. The dog's owners reported that it assimilated easily into their household, was easy to housetrain, and was generally mild mannered and affiliative toward them and the other animals in the home. Prior to 3 years of age, the dog did not have any fearful behaviors related to thunderstorms.

During the thunderstorm season (approx May to September) when the dog was between 2 and 3 years of age, it became restless during storms that included thunder and lightning. The dog would pace around the house and whine but would settle down on its bed when directed by the owners. No destruction of property was observed, even if the dog was alone at home. After each storm had passed, the dog seemed to relax and resume what the owners described as normal behavior. During the fall and winter of that year (October to March), there were only a few storms during which the dog became mildly restless.

During the month of June when the dog was between 3 and 4 years of age, it became increasingly anxious when thunderstorms occurred and would routinely shake, pace, and climb on or paw at the owners prior to and during storms. The owners reported that these anxious behaviors began approximately 30 minutes prior to the actual occurrence of the thunderstorm and would persist for approximately 30 minutes after the storm ended. If a thunderstorm arose when the owners were not home, the dog would scratch at the back door and had caused damage to the door and the surrounding molding. If there were no thunderstorms when the dog was left at home alone, there were no such occurrences. As the thunderstorm season progressed, the dog's clinical signs intensified, with increased severity of clinical signs and the addition of whining and trembling. The owners reported that they would attempt to ignore the behavior but that the behavior was becoming more difficult to ignore or redirect.

Physical Examination Findings and Laboratory Results

During the initial behavioral consultation, the dog remained standing and panted near one of the owners. After 20 minutes, it lay down on the floor next to the owner's feet and eventually settled into lateral recumbency with regular, even, slow breathing. Near the end of the consultation, a physical examination was performed. The dog weighed 40.1 kg, with a body condition score of 5 of 9 (ideal). Heart rate was 60 beats/min and regular. Results of a complete physical examination, including a neurologic examination, were normal. A CBC, serum biochemical profile, and determination of serum thyroxine concentration were performed at the time of the behavioral consultation to test for any metabolic or infectious diseases and to assess hepatic and renal function prior to possible initiation of treatment with psychotropic medications.[1] Results of all laboratory tests were within reference limits.

Diagnosis

A diagnosis of thunderstorm phobia, a specific type of noise phobia, was made. A phobia has been defined as "an intense fear response that is out of proportion—excessive for the degree of threat in a given situation."[2] Many phobias develop in response to a specific stimulus, either spontaneously or as a result of an associated negative experience, and can become worse with repeated exposure to that stimulus.[2] Some dogs with thunderstorm phobia may become frenzied and make attempts to escape from the area in which they are exposed.[3] Differential diagnoses for the dog's behavior during thunderstorms included noise phobia more generally and learned attention-seeking behavior that had been inadvertently reinforced by the owners. Additional differential diagnoses for the dog's destructive behavior when both owners were not home included separation anxiety, play, barrier frustration, territorial aggression, and inadequate exercise.[4] Thunderstorm phobia may be classified as a form of noise phobia[2]; however, others have differentiated thunderstorm phobia from fear of other noises because

This report was submitted by Margaret E. Gruen, DVM, MVPH, DACVB, and Barbara L. Sherman, PhD, DVM, DACVB; from the Behavioral Medicine Service, College of Veterinary Medicine, North Carolina State University, Raleigh, NC 27607.
Address correspondence to Dr. Gruen (megruen@ncsu.edu).

some dogs appear to react to other thunderstorm-related phenomena such as a change in barometric pressure.[3]

In this case, the dog did not have anxiety-related behaviors such as pacing and whining when exposed to other noises. The owner who was usually home during the day reported that the dog's anxious behavior was limited to times of thunderstorms; it did not startle or paw at her when loud noises such as trucks, motorcycles, or vacuums were present. Separation anxiety is characterized by excessive signs of anxiety when pets do not have access to family members.[4] Dogs with separation anxiety may be destructive or show other signs of distress such as urinating and defecating, vocalizing, pacing, or hypersalivating, and comorbidity of separation anxiety and thunderstorm phobia have been reported.[5] The dog's destruction of property and presumed escape attempts occurred only when the owners were not home and a thunderstorm occurred; in the absence of a storm, it could be left home alone with no destructive behaviors. Similarly, play, barrier frustration, and inadequate exercise were considered less likely differential diagnoses because the dog was able to be left alone in the house at times when there was not a storm and the dog received reasonable amounts of play and exercise, including daily walks and scheduled play time. Reinforced learned attention-seeking behavior may occur when a dog is deliberately or accidentally reinforced by owners for displaying certain behaviors. Such behaviors include pawing at or mouthing at the owners, who then provide a response or attention (even negative attention).[1] Although the owners reported that they attempted to ignore the dog during storms, they may have been inadvertently reinforcing the dog's attention-seeking behavior, so this could not be ruled out as a contributing factor.

Treatment

Treatment consisted of behavior modification, drug treatment, and pheromone treatment. As part of the behavior modification plan, the owners were cautioned not to scold the dog but to develop a means by which its restlessness and attention-seeking behaviors might be managed. The owners were instructed to begin training the dog to wear a head halter with accompanying lead,[a] as a means of providing greater control, and to settle on their command in a specific location (eg, on a dog bed next to the couch).[4] This food reward–based training was to be done for a short period each day, when thunderstorms were not present. Once the dog was able to settle in its spot on command, the owners were to use this technique, in conjunction with psychoactive medication, any time a thunderstorm occurred. If they were going to be out of the house and thunderstorms were predicted, they were instructed to give the dog medication prior to departure.

The atypical antidepressant trazodone was prescribed to be administered as needed to decrease the dog's anxiety during thunderstorms. The owners were instructed to give the dog 200 mg (5 mg/kg [2.3 mg/lb]) of trazodone, PO, 1 hour prior to thunderstorms if possible or at the first sign of thunderstorm anxiety.

Trazodone is a serotonin 2A antagonist and reuptake inhibitor with a long history of safe use in humans to facilitate sleep and as an anxiolytic in dogs.[6,7] Decreases in the neurotransmitter serotonin may be associated with increased anxiety, and medications that increase serotonin availability have demonstrated efficacy in alleviating anxiety-related conditions.[8,9] Trazodone may also be used in combination with other serotonergic agents,[6] so if use of trazodone alone did not provide adequate control, combination treatment with a baseline medication (eg, a selective serotonin reuptake inhibitor or tricyclic antidepressant) with adjunctive trazodone would be used. Combination treatment has been shown to be useful in conjunction with behavior modification in the management of thunderstorm-phobic dogs.[6,10,11]

In addition, the use of a collar impregnated with a synthetic copy of the dog-appeasement pheromone[b] that originates from the intermammary sebaceous glands of lactating bitches after whelping was recommended as an additional anxiety-reducing measure. The synthetic dog-appeasement pheromone[b] has been shown to decrease anxiety in several fear-related conditions,[12–14] including noise phobia related to fireworks,[15] although evidence of its efficacy as a single agent may not be sufficiently demonstrated.[16] The owners were also given instructions on the use of a desensitization and counterconditioning protocol to be used after the thunderstorm season was over. It was stressed that this training not begin until the thunderstorm season was over because dogs should not be exposed to the full fear-evoking stimulus during desensitization, except during structured training.[4] The goal was to decrease the dog's reaction to thunderstorms sufficiently to be able to manage the condition without medication; however, the possibility was discussed that as-needed administration of medication could continue long term.

Follow-up

Five weeks after the initial behavioral consultation, the dog's owners reported that they were training it to settle while wearing a head halter and leash and that it was tolerating the medication well, with no adverse effects observed. Only 1 thunderstorm had occurred during this period, and they reported that although the dog still seemed anxious and was panting, they were able to get the dog to settle when they were present and its anxiety was less intense. The dog had worn the collar impregnated with the synthetic dog-appeasement pheromone[b] for 30 days, after which the owners elected not to refill the prescription. At a 10-week postconsultation appointment, the dog's owners reported that they were able to give it trazodone at the first sign of thunderstorm anxiety and put a head halter on and that it would go to its spot and settle well. If they were planning to be away from home and a thunderstorm was predicted, they gave trazodone before leaving. No signs of destruction were observed when they returned after a thunderstorm had occurred. Six months after consultation, the dog's owners were managing it the same way in the rare instance of a thunderstorm (it was winter at the time) and were pleased with the progress. They had not initiated the planned desensitization and counterconditioning protocol. Continued management with trazodone was recommended when the thunderstorm season recurred.

a. Gentle Leader, Premier Pet Products, Midlothian, Va.
b. DAP, CEVA Animal Health, Libourne, France.

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