

A case of thunderstorm phobia in a Maremma sheepdog

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Abstract: A 5-year-old neutered female Maremma sheepdog, probably crossed with a Retriever, was examined due to a severe phobia of thunderstorms and loud noises. Adopted in late summer, she immediately presented signs of thunderstorm phobia and nocturnal awakenings. For this reason, the owners immediately turned to a veterinary behaviorist, who recommended behavior modification training based on creating a safe zone, desensitization and counter-conditioning with general thunderstorm sound effects. The therapy seemed to have immediately an effective outcome immediately, thanks to the start of autumn and decreasing thunderstorms, however due to the return of spring the dog started to show the same symptoms again. During the second visit, performed by the author, videos of nocturnal awakenings and panic reactions associated with thunderstorms were evaluated. The diagnosis was of phobia of thunderstorms and loud noises, characterized by sporadic panic attacks. Behavioral modification therapy was continued and Adaptil Collar® was introduced and Alprazolam as needed was prescribed. After the first summer, the owners agreed to administer Clomipramine on an ongoing basis to prepare the dog for the next summer. In the presence of medium-intensity thunderstorms, behavioral manifestations were reduced to trembling only and symptoms of anxiety in response to a change in barometric pressure had almost disappeared. Finally, thanks to the results obtained and to meet the requests of the owners, the following year will be managed by stopping the therapy with Clomipramine and keeping the Alprazolam as needed.

Key Words: dog; thunderstorm phobia; Clomipramine; Alprazolam.

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Presentation

A dog was examined due to a severe phobia of thunderstorms and loud noises. Nocturnal awakenings, related and not related to night-time thunderstorms, were also reported.

The dog was a 5-year-old neutered female Maremma sheepdog, probably crossed with a Retriever, that weighed 35 kg.

History and presenting signs

The dog's owners were a childless couple who lived in a house with a garden in a quiet suburban area. The garden is not very large, but it is well fenced and secure and includes a sheltered dog house, which is used daily. The dog was adopted a year before the visit. During this year, she always lived in the same environment, free to enter the house but not the bedroom. During the absence of both owners, approximately for half the day, the dog was often left in the garden. Before being adopted, the dog underwent four family changes because of her tendency to escape, especially during thunderstorms. Information about previous owners was unclear but it was reported that, in all four cases, she was always left outside all day, free or, in some cases, chained. Since she has been living with her current owners, she has never escaped and she has never tried to.

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turnal awakenings. For this reason, the owners immediately turned to a veterinary behaviorist, who recommended behavior modification training based on creating a safe zone, desensitization and counter-conditioning with general thunderstorm sound effects. The therapy seemed to have immediately an effective outcome immediately, thanks to the start of autumn and decreasing thunderstorms, however due to the return of spring the dog started to show the same symptoms again.

The owners, unable to manage the problem, especially the nocturnal awakenings, contacted a second veterinary behaviorist.

During the second behavioral consultation, videos of nocturnal awakenings and panic reactions associated with thunderstorms were evaluated. The symptoms found on video were: restlessness, hypersalivation, tachypnea, pacing, whining, attempts to leave the house, scratching at the door, attention-seeking. It was reported that, in severe cases, the dog vocalizes and manifests intense attempts to escape confinement, destroying the entrance door to go out into the garden and even jumping on furniture. In these cases, when the owners opened the front door, supporting the dog requests, she went out, sniffed the air, urinated but then she immediately returned into the house and, if the owners closed the door, she asked to go out again and again. Owners were also required to videotape the dog in their absence, because a comorbidity of separation anxiety and thunderstorm phobia have been reported (Overall et al., 2001).

Direct observation: the dog appeared sociable, not fearful or suspicious of strangers, not particularly reactive or impulsive. The level of obedience and self-control was good. Intraspecific social behavior, assessed during the socialization classes by the second instructor, appeared to be a little insecure, physical and basically impositive. Aside from the tendency to play physically, both with people and with dogs, other behaviors, centripetal, centrifugal and mixed did not present relevant elements.

Physical Examination Findings and Laboratory Results

Through a careful physical examination it was still possible to notice the area of the tail that the bitch used to bite immediately after adoption, but there were no more injuries. Other than that, the patient was in good health and had no palpation pain. Indeed, as suggested by Lopes Fagundes et al. (2018) and as already demonstrated in humans (Vlaeyen et al., 2000; 2012), painful conditions and the development of fear-related avoidance responses could be related. Blood count, biochemical and extended thyroid profile (determination of TSH, FT4, FT3 and rFT3 with FT4, FT3 and rFT3 in LC-MS-MS) were normal. Gastrointestinal symptoms were absent.

Diagnosis

Taking into account the dog's history and behavioral symptoms, the diagnosis was of phobia of thunderstorms and loud noises, characterized by sporadic panic attacks. The anticipation of the stimulus and the anxiety occurred only in the summer (approximately June to September), when the thunderstorms aroused with increased frequency and intensity. If the storms were present for a series of consecutive days, nocturnal awakenings and other anxious symptoms were manifested even in the absence of the storm itself. The phobia of noises was limited and substantially related only to fireworks or, in any case, to noises of very high intensity. Separation anxiety was not found.

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" (Beaver, 1999); this response can become worse with repeated exposure to that stimulus (Beaver, 1999). Thunderstorm phobia may be classified as a form of noise phobia (Beaver, 1999); however, some researchers have differentiated thunder-

storm phobia from fear of other noises because some dogs appear to react to other thunderstorm-related phenomena such as a change in barometric pressure (Houpt, 2005), ionization, static field, and even odors (Shull-Selcer and Stagg, 1991; Campbell, 1992; Overall, 1997). Clinical signs of thunderstorm phobia include panting, pacing, hiding, shaking, dilation of the pupils, salivation, lack of appetite, owner-seeking behavior, attempt to escape confinement, and inappropriate elimination (McCobb et al., 2001).

From a prognostic point of view, total resolution of thunderstorm phobia, that is, a dog totally calm in the midst of severe weather conditions, is probably not a realistic goal (Crowell-Davis, 2003). Given the current ineffectiveness of coping with stress, the panic attacks and symptoms related to anxiety, currently present only during the summer, there were concerns of an evolution to a generalized anxiety with possible emergence of substitutive activities or compulsive behaviors (Hewson & Luescher, 1999; Overall & Dunham, 2002).

Treatment

This type of phobia is difficult to treat (McCobb et al., 2001), though some limited success has been reported with both traditional behavioral modification techniques and drug therapies (Shull-Selcer & Stagg, 1991; Campbell, 1992; Voith & Borchelt, 1985). Treatment of storm phobia has historically included behavior modification: specifically, desensitization and counter-conditioning (DSCC), medication, or a combination of both (Houpt, 2005; Overall, 2002; Shull-Selcer & Stagg, 1991). However, specific reports assessing improvement in a quantitative manner are lacking (Crowell-Davis, 2003).

In addition to the traditional behavioral modification techniques of the first behaviorist, owners were advised to give the dog access to the sleeping area and to create a second safe zone there. The previous attempts to create a safe zone in the living room, denying access to the sleeping area, had not proved effective. The dog carrier introduced by the first behaviorist, despite the work of the owners, was still not used regularly by the dog so it was recommended to implement the work of habituation and, in the meantime, to insulate the carrier to reduce the perception of noise inside.

Furthermore, it was advisable to regularize the subject's routine in order to increase the predictability of the events and, to facilitate the forecast of thunderstorms, it was suggested to place one or more barometers in the home. In the meantime, the trainer's work was focused on differential reinforcement of other behavior, relational aspects to improve the management of attention-seeking and on the nose-work, reinforced learned attention-seeking, a behavior that may occur when a dog is deliberately or accidentally reinforced by owners for displaying certain behaviors (Gruen & Sherman, 2012). The protocol with general thunderstorm sound effects was abandoned because the owners were not able to manage it correctly and for prolonged periods of time, but a protocol of habituation to a generic non-antistatic pressure vest was introduced because, according to Cottam et al. (2013), "safe and effective treatment for canine thunderstorm phobia" and, according to Dodman et al., (2013), "moderately therapeutic for treatment of canine thunderstorm phobia", furthermore no statistically significant difference between the StormDefender® and the placebo cape groups were reported (Dodman et al., 2013). In addition, Pekkin et al. (2016) did not find a clear therapeutic effect of using pressure vests in noise phobic dogs. However, their results indicated the pressure could reduce the acute stress reaction and speed up the recovery after stress.

Alongside the behavioral modification techniques, Adaptil Collar® (CEVA Animal Health, Libourne, France) was introduced: the synthetic dog-appeasement pheromone has been shown to decrease anxiety in several fear-related conditions (Gaultier et al., 2005; Mills et al., 2006; Sherman and Mills, 2008) including noise phobia related to fireworks (Levine et al., 2007), although evidence of its efficacy as a single agent may not be sufficiently demonstrated (Frank et al., 2010).

Finally, as regards to pharmacological therapy, despite the initial resistance of the owners to

the use of psychotropics, alprazolam as needed was prescribed: 1 mg (0.029 mg/kg) of alprazolam (Xanax®, Pfizer Inc., NY, US) PO, 1 hour prior to thunderstorms or at the first sign of thunderstorm anxiety. Alprazolam is a rapid-acting benzodiazepine with strong anxiolytic and anti-panic properties (Overall, 2002).

Follow-up

First year

In the absence of thunderstorms, the presence of two safe zones, one in the bedroom and one in the living room, positioned so that the dog could be closer to the owners, immediately limited the nocturnal awakenings and the dog's anxious symptomatology. In the presence of thunderstorms, however, despite the introduction of alprazolam, the events were less frequent but still present, both day and night. The alprazolam proved to be effective if the owners managed to intervene with a certain timeliness, but it became difficult to calm the subject if the drug was administered after the beginning of the crisis which was therefore still intense. After the first summer, the owners agreed to administer medication on an ongoing basis to prepare the dog for the next summer. As suggested from the beginning, Clomipramine (Clomicalm®, Novartis International AG, Basel, Switzerland) 40 mg (1.14 mg/kg), PO, every 12 hours was introduced before the summer. Clomipramine, a tricyclic antidepressant with anxiolytic properties, is administered 1 or 2 times daily and induces a condition of continuous control of anxiety in many dogs (Overall, 2002).

Second year

The owners reported that they started allowing the dog onto the bed with them, so the pet carrier was removed because it was not used anymore. During the day, the patient used the carrier in the living room or sought contact with the owners who managed the situation correctly. During the night, she rarely got out of bed panting and asking to go outside the house. In the presence of medium-intensity thunderstorms, behavioral manifestations were reduced to trembling only and symptoms of anxiety in response to a change in barometric pressure had almost disappeared. Indeed, storm phobia is not an all-or-none phenomenon. "A certain degree of fear when exposed to a tornado, hurricane, or severe, thunderstorm is probably a normal behavioral and physiologic response, while intense fear in response to a change in a barometric pressure is not" (Crowell-Davis, 2003).

Conclusions

Owner unwillingness to use medication may pose a major limitation to the successful outcome of treatment. As a matter of fact, the dog in question has gradually improved and if medication had been given at the beginning, improvements would have been quicker. When introducing a pharmacological therapy, it is important not to forget that behavioral modification is just as crucial. In the case having the opportunity to allow the dog to sleep in the bedroom had a huge impact on behavior. In these cases, a certain degree of fear will probably always be present but the aim of treatment of the thunderstorm phobia cannot be the total elimination of the problem and owners need to be made aware of this. Furthermore, every desensitization process may encounter resensitization if the stimulus exceeds the subject's tolerance.

Finally, thanks to the results obtained and to meet the requests of the owners, the following year will be managed by stopping the therapy with clomipramine and keeping the alprazolam as needed. Trazodone (Trittico®, Angelini Spa, Rome, Italy) 150 mg (4.29 mg/kg), PO, every 12

hours, for those periods when the thunderstorms are very intense and are repeated a short distance, can be added. Trazodone is a serotonin 2 α antagonist and reuptake inhibitor with a long history of safe use in humans to facilitate sleep and as an anxiolytic in dogs (Gruen & Sherman, 2008). Not a medication for the whole thunderstorm season but limited short-period medication.

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Un caso di fobia dei temporali in un Pastore Maremmano

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Sintesi

Un meticcio di Pastore Maremmano, femmina castrata, di 5 anni, probabilmente incrociato con un Retriever, è stato condotto in consulenza per una grave forma di fobia dei temporali e dei rumori forti. Adottato in estate, ha immediatamente presentato segni della fobia e risvegli notturni. Per questa ragione i proprietari si rivolsero ad un comportamentalista che raccomandò una modificazione comportamentale basata sulla creazione di una zona di sicurezza ed un programma di desensibilizzazione e contro condizionamento basato sull'ascolto di riproduzioni sonore di temporali.

La terapia sembrò avere effetti positivi, grazie all'inizio dell'autunno ed alla riduzione della frequenza dei temporali, ma col ritorno della primavera i sintomi ricomparvero.

Durante la seconda visita, effettuata dall'autore, furono valutati i video dei risvegli notturni e delle reazioni di panico associate ai temporali.

La diagnosi fu di fobia dei temporali e dei rumori forti, caratterizzata da sporadici attacchi di panico.

La terapia di modificazione comportamentale fu continuata ed introdotto Adaptil® collare e Alprazolam secondo necessità.

Dopo la prima estate i proprietari si dichiararono favorevoli a somministrare Clomipramina per preparare il cane per l'estate seguente.

In presenza di temporali di media intensità, le manifestazioni comportamentali erano limitate a tremori e i sintomi di ansietà legati alle variazioni barometriche erano quasi del tutto scomparsi.

Infine, grazie ai risultati ottenuti e per andare incontro alle richieste dei proprietari, nel prossimo anno la terapia con Clomipramina sarà sospesa e mantenuto solo l'Alprazolam in caso di necessità.

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