

Canine aggression toward a new puppy in the household

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Abstract: A 5-year-old spayed female pure breed German Shepherd dog was referred to a veterinary behaviorist because she was aggressive toward a 2-month-old male pure breed Czechoslovakian Wolf dog. The puppy was recently introduced in the household. The German Shepherd was previously treated because a social phobia diagnosis.

The detailed history and the behavioral evaluation supported the presumptive diagnosis of territorial and protective aggression, which are often included in the same category, and predatory aggression. Predatory behaviors were unexpectedly discovered during the consultation and classified as predatory aggression. The adult dog didn't show aggressive behaviors toward familiar or unfamiliar people, but she was reactive toward other dogs. The puppy showed a normal age-related behavior.

The therapeutic strategy included safety recommendations, environmental changes, behavior modification and training sessions with professional trainers team support, drug therapy for the German Shepherd dog (fluoxetine, 1 mg/kg q 24 hours). Territorial, protective and predatory aggression was initially controlled. Finally the adult accepted the puppy as a pack member and improved her relationship with other dogs. This case report offers the opportunity to remind the importance of an appropriate procedure for the introduction of a new dog in the household to prevent behavioral disorders.

Key Words: behavior problem; dog; canine aggression; puppy introduction.

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Presentation

A 5-year-old spayed female pure breed German Shepherd dog (GS) was referred to a veterinary behaviorist because she was aggressive against a 2-month-old male pure breed Czechoslovakian Wolf dog (CW). The puppy was recently introduced in the same household from a professional breeder to improve her behavior (social phobia outcome).

History and presenting signs

The GS female had been purchased from a private at 8 weeks of age. In the past she was treated for a social phobia (Pageat et al., 2013) by the same veterinary behaviorist. She was fearful of individuals with whom it was unfamiliar, particularly when she was at home. When she was inside, she tried to avoid any contact with unfamiliar people, hiding in corners, becoming anxious if anyone familiar forced her in the interaction. She didn't like to stay outside in the garden alone, presenting fearful signs against the surrounding environment. During the walks she was calmer, in green suburban areas or in the country and in mountains where the probability to meet foreign people is minimum. The owners received specific instructions about the dog's management, increasing

calmness and reducing emotional tension. They had not to force the dog in the interaction with strangers, allowing the dog reach her protected area, where a mattress bed and bowl for water were placed. A desensitization and counter-conditioning program was implemented on the stimuli foreign people. Some sessions of socialization with humans were performed with professional trainers and the support of "teaching dogs". A teaching dog helps other dogs develop their canine communicative skills by displaying different body language to convey different messages. Teaching dogs are integrated in the socialization classes.

The GS was treated with fluoxetine, 1 mg/kg for a period of six months. She improved and she was able to tolerate the presence of foreign people at home. In the more stressful situations she reached her protected area, or she was gently invited to, and then rewarded and everyone was instructed not to disturb her. She gradually increased the time spent outside in the garden alone, with longer explorative phases. She appreciated more the play with humans and objects outdoor and she was able to relax in her bed dog. The rate of success was acceptable, so the working sessions and the drug therapy were interrupted.

Approximately one year later, the owners would like to introduce another dog in the household. The veterinary behaviorist counselled an adult rescue or sheltered dog with a personality profile compatible with the clinical case. The owners selected by themselves a Czechoslovakian Wolf because they loved this breed. They spayed the adult female for reproduction prevention and adopted the puppy. In the owners' perspective the GS showed high maternal care when she suddenly and without any threaten sign attacked the puppy because he approached her or explored her doghouse or other resources of her own property. After 3 days the introduction of the puppy in the household the GS bit him when he was exploring her indoor protected area, injuring his neck and causing a cervical trauma, fortunately without more severe consequences.

A consultation was fixed in order to evaluate the two dogs and their interaction. The owners had produced some interesting videos and photos of the dogs as soon as the puppy arrived at home after adoption the days before the consultation. During the visit, the CW had a normal age related behavior (Battaglia, 2009), while the GS showed anxiety signs. She showed defensive aggressive behaviors toward the puppy when he approached her or her own resources. Furthermore predatory aggressions toward the puppy were discovered thanks to the video registrations produced by the owners. The dog aggressive behavior was successively confirmed by behavioral tests (Netto & Planta, 1997).

Physical and laboratory evaluation

The GS received a thorough physical exam included a neurologic evaluation to rule out medical problems that might contribute to the behavioral signs (Wahl et al., 2008). Since thyroid disease might also contribute to an increase in anxiety, a complete blood count, chemistry panel and thyroid profile were performed, which would also serve as a baseline prior to drug use. The all medical work up had no remarkable findings. The two dogs health status was up-to-date (vaccination/parasite control).

Diagnosis

The presumptive diagnosis was territorial and protective aggression, associated with predatory aggression. The diagnostic criteria correspond to those described by Landsberg et al. (2013), who categorized aggression first based on motivation and then by target or situation. These authors reported that territorial aggression is directed toward unfamiliar people or animals approaching or entering the territory. Territorial behaviors are to some extent a variant of normal behavior (i.e. intruder on territory). Protective aggression is directed toward unfamiliar people or animals approaching or acting in a way the pet perceives to be threatening.

Predatory behaviors were unexpectedly discovered during the consultation. In wolves, the full canine predatory motor sequence: orient>eye>stalk>chase>grab-bite>kill-bite>dissect>consume, is reliably triggered by the movement of prey; however the organization of the predatory sequence has become relaxed in dogs due to a shift in niche from hunter to scavenger (Udell et al., 2014). Predatory behavior in dogs could include any or all of stalking, chasing, catching, biting, killing, and eating and may socially facilitated and more dangerous in a group (pack). Predation is not preceded by threats because during hunting a warning behavior would be counterproductive. Barking and, in some cases growling, may occur during pursuit of prey (Landsberg, 2013).

Predatory behaviors may stimulated by anything that moves, including other animals, joggers, cyclists, playing children, or moving automobiles. It is a normal instinct in dogs to chase and hunt prey. However, when this behavior is directed toward people and domestic animals, it can be extremely dangerous. The co-morbidity makes the treatment more difficult, while multiple aggressive diagnoses might be listed as a poor prognosticator (Overall, 1997).

Treatment

In the aggressive disorders safety for humans and dogs is a priority. If it is not possible to predict and prevent all situations in which aggression might arise, then it might be unsafe and impractical to proceed. Furthermore pet owner compliance, in particular the willingness and ability to implement the recommendations, is critical for safety and therapeutic success.

The treatment strategy included:

- a. Recommendations: the dogs had to be separated to avoid further accidents. They should be walked individually too. The GS had to be monitored in the interaction with other dogs, to be leashed and muzzled during the walking. As a precaution any interaction with children should have also be carefully supervised.
- b. Environmental changes: the two dogs were housed and managed separately. A large crate was allocated in the dining room for the puppy. The puppy was able to go around only when the GS was absent. When the GS was inside, she had to stay in her protected area and to move only under the owners' supervision to avoid any approach to the victim. A dog-appeasing pheromone diffuser (Adaptil, formerly DAP) was placed, since it has been demonstrated to reduce stress associated with social isolation in newly adopted puppies (Gaultier et al., 2008).
- c. Behavioral modification: the owners were encouraged to improve the dogs communicative skills with a targeted educational program. A professional dog trainers team supported the veterinary behaviorist: a weekly appointment was scheduled with the clients and their dogs. The CW had to attend puppy classes to learn socially acceptable behaviors and to socialize with other dogs of different ages (Seksel, 2008). The GS had to resume training working sessions concentrating on owner control. Basic obedience commands ("sit", "stay" and "come") and both systematic desensitization and counterconditioning protocols were applied to reduce the GS's response to stimuli (Overall, 1997). Furthermore the GS was gradually introduced to cooperative problem-solving tasks in order to develop her socio-cognitive skills in the inter-dog interaction (Ostojic & Clayton, 2014).
- e. Drug therapy for the GS: fluoxetine was prescribed (oral dose of 1 mg/kg q 24 hours) initially for a period of six months. This medication was chosen for its anxiolytics effects and because it has been effective in the treatment of some forms of canine aggression (Dodman, 1998).

Follow-up

- a. After two weeks of treatment: the drug was administered to the GS as prescribed, a transitory reduced appetite in the first days, but no other side effects, was signaled. After the first week the owners allowed the puppy to move freely in the dining room; as soon as he approached the GS she reacted and bit him, fortunately with moderate consequences. The owners were asked to follow carefully all the instructions in order to avoid further accidents.
- b. After one month of treatment: the GS improved greatly her behavior. At the control visit she was under the owners' control and she positively reacted to the overall behavioral modification program. The puppy showed normal age-related social behaviors. The owners were instructed to gradually introduce the puppy to the adult dog, only after their supervision. The GS was leashed to guarantee the CW's safety in the interaction.
- c. After two months of treatment: the two dogs started to interact socially. The GS showed less territorial and protective aggression, even because the CW learned to avoid the conflictual situations and locations. Supervision was always required, but they were left outside for progressive longer times.
- d. After 6 months of treatment: the drug therapy was gradually withdrawn. The dogs spent mostly the daytime together in the garden, without episodes of territorial and protective aggression. When they were inside each dog had its own area for relaxing and/or sleeping. No problem was signaled in their interaction. The GS was a little more sociable with unfamiliar people. The training sessions were interrupted. Predatory behaviors were gradually transformed into predatory play behaviors without any consequences.
- e. A year after the consultation: the dogs relationship was confirmed as positive. No aggressive events were recorded. Aggression is not really curable, but it may be controllable in the majority of cases. Therefore the owners were recommended to fix regular control visits in the next months in order to detect a possible social conflict in the couple due to the behavioral maturity of the CW. They were also given specific instructions to prevent territorial, protective and predatory attacks against humans and/or other dogs in the future because of the possible socially facilitation for aggressive behaviors (pack strategy).

Summary and discussion

The detailed history and the behavioral evaluation supported the diagnosis of territorial-protective aggression and predatory aggression, in the GS.

Affective defense, as defined in both the human and animal literatures, is an aggressive response based on the presence of elements of either fear and/or threat, which may be real or perceived. Predatory attack has been understudied relative to affective defense and consists of a purposeful and goal-directed attack with absence of sympathetic arousal (Weinshenker & Siegel, 2002).

Territorial and protective aggressions are often included in the same category. As reported by Landsberg et al. (2013), problems occur when the pet has a very low threshold for arousal and is aggressive in relatively benign situations, and/or the pet's response is excessive for the needs of the situation, as in this case a reaction against a puppy. Anxiety and fear also play a role in the development or progression of aggression since threats and aggressive displays are more likely to be exhibited toward novel, unfamiliar or fear-eliciting stimuli. Fearful dogs may be more aroused in general, causing aggressive displays to be more intense and prolonged. They also generally return to baseline more slowly than a territorially/protective aggressive dog which may cease the behavior as soon as the threat is removed.

In contrast to affective defense as territorial-protective aggression, predatory attacks in animals are limited to a single category of aggressive behavior. Moyer (1968) defined predatory aggression

as specifically triggered by the presence of a prey object within the visual field of the predator. Predatory behavior is not signaled and is aimed at destroying the opponent, so such attacks are particularly serious. By some ethologists predation is considered a behavioral strategy in association with feeding behavior more than aggression; in fact the primary goal of the initiator is to destroy the opponent, which is not the case in a true aggressive context (Miklósi, 2015). Even if aggressive behavior and predatory behavior differ both in terms of motivation and in their ultimate goal, in the authors opinion it is acceptable to use the terminology of predatory aggression in behavioral clinic, consider some behavioral aspects as being homologous and, in some cases, aggression can have as fatal consequences as predation.

Most of our current information on breed differences in dog-directed aggression is based on the early research of Scott & Fuller (1965). A recent review paper by Mehrkam & Wynne (2014) summarizes the state of the science regarding behavioral differences between dog breeds. The authors concluded that we are currently unable to draw conclusions about clear breed differences in aggression, especially in dog-directed aggression. An interesting research topic has been proposed by Udell et al. (2014) related to predatory behavior. Exploring breed differences in dogs they suggested that the presence or exaggeration of key components of the predatory sequence may predict superior initial performance on pointing tasks when compare to a breed selected for its inhibited predatory response, with broader implications for the understanding and investigation of canine social cognition.

Fluoxetine has been selected to support the behavioral modification in the GS because this medication is a specific serotonergic agent, far more potent than clomipramine, which has been efficacious in the treatment of canine aggression, as well as of companion animal panic and avoidance (Overall, 1997). It was hypothesized that the medication might have effects also on predatory aggression. Predatory aggression, like other forms of canine aggression, involves discrete brain regions and neurotransmitter systems can be manipulated should this be deemed necessary and appropriate. One of the principal neurotransmitters involved in the propagation of predatory behavior is acetylcholine, which has a facilitatory effect. Serotonin and Gamma-aminobutyric-acid (GABA) have an inhibitory action on this type of aggressive behavior. The influence of serotonin on aggressive behavior appears to be linked to the strong inhibitory effect that this neurotransmitter has over emotional processes and impulsive behavior. Reducing the availability of serotonin by blocking its synthesis or available receptor sites negatively affects the suppressive effects of punishment, whereas the restoration of normal serotonin levels reverses this dishinibitory effect. Theoretically, centrally acting anticholinergics, serotonergic agents and GABA agonists should reduce the potential for predatory aggression (Dodman, 1998), although clinical evidence have not been demonstrated.

About the prognosis, Chávez & Opazo (2012) reported that predatory aggression may be difficult to be treated despite the drug and the behavioral treatment. The patient was a 2-year-old male German shepherd referred owing to its aggressive behavior toward people and other dogs. The dog tended to form a pack with the other dogs of the household and killed neighborhood dogs, cats, hens and rabbits. In the authors' opinion, an early and exhaustive behavioral evaluation of the dogs, including the application of behavioral tests, and an harmonization among drug therapy, environmental and behavior modification contributed to the success of the present case. Of course any aggression type, not only predatory, can't be completely solved out, but it can be controlled with a good prognosis (Overall, 1997). The risk assessment for aggressive dogs to minimize public health problems (Landsberg, 2013) and the owners' compliance greatly supported the therapeutic strategy.

The effectiveness of veterinary behaviorists' advice given to puppy owners in the prevention of undesirable behaviors in dogs has been demonstrated by Gazzano et al. (2008). Once clients decide to expand their family they should receive an adequate education to make the additions successful. In this way the likelihood that clients will be able to integrate new family members successfully may be increased (Bergman & Gaskin, 2008). First, a gradual introduction is recommended (Overall,

1997). Second, the new pet should be kept separate from the other(s) whenever they are not closely supervised. This advice is designed to ensure that no injuries occur and that the social system of the original pet(s) is not suddenly fragmented. When you first bring home a new pet you should expect a period of transition and adjustment for the other pets in the household. If the animals in the household do not revert to normal behavior in a short time or if they become aggressive, the clients should be advised to look immediately for a qualified professional help.

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Aggressione canina nei confronti di un nuovo cucciolo di casa

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Sintesi

Una femmina di pastore Tedesco, sterilizzata, di 5 anni di età, è stata presentata alla consulenza del Veterinario Esperto in Comportamento poiché aggressiva nei confronti di un cucciolo di Lupo Cecoslovacco di 2 mesi, recentemente introdotto in famiglia.

Il Pastore Tedesco era stato precedentemente trattato clinicamente a causa di una fobia sociale.

L'anamnesi comportamentale e la valutazione comportamentale supportavano una diagnosi di aggressività territoriale e protettiva (spesso incluse nella stessa categoria) e di aggressività predatoria. Questa ultima forma di aggressività si era evidenziata inaspettatamente durante la consultazione.

Il cane adulto non presentava comportamenti aggressivi nei confronti di persone familiari o sconosciute ma era reattivo nei confronti di altri cani. Il cucciolo mostrava un comportamento normale per l'età.

La strategia terapeutica includeva raccomandazioni di sicurezza, modificazioni ambientali e comportamentali, sessioni di training con il supporto di un istruttore qualificato e una terapia farmacologica per il Pastore Tedesco (fluoxetina, 1 mg/kg/die).

L'aggressività territoriale, protettiva e predatoria fu rapidamente messa sotto controllo. Al termine del percorso terapeutico il cane adulto accettò il cucciolo come membro del gruppo e la relazione con altri cani migliorò notevolmente.

Questo caso clinico offre l'opportunità di sottolineare l'importanza di procedure appropriate per l'introduzione di un nuovo cane nell'ambiente familiare, al fine di prevenire problemi comportamentali.





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