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A case of dysthymia in a Yorkshire terrier

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Abstract: A 16 years old spayed female Yorkshire terrier weighting 4.1 kg, was evaluated because, in recent months, she started barking, crying and howling.

Considering the dog history and behavioral signs, it was considered possible that the aggressiveness and the crying could be related to painful arthritis.

The Age-Related Cognitive and Affective Disorders (ARCAD) scale was provided to the clients and a score of 27 was obtained, compatible with dysthymia. Therefore, also considering the main behavioral symptoms, dysthymia was considered the most probable diagnosis and the dog was treated consequently.

To relief the dog in the moment of acute outbreaks of arthrosis' pain, Meloxicam (Inflacam®) 0.2 mg/kg was prescribed to be given the first day, followed by 0.1 mg/kg q24h for six days, and Cartimax® mini, (sid, sine die).

Concerning gastrointestinal symptoms, Canikur® (sid for ten days), Phosphaluvet® (1.5 ml, 3 times per day, for 3 days) and Maropitant (Cerenia®; 2 mg/kg, in pills for 3 days after a first injection 1 mg/kg), were added at the original therapy.

A treatment with Selegiline (Selgian®) 0.5 mg/kg was prescribed, as advised by Landsberg (2013). The owners were warned that the treatment, if effective, should be maintained during the whole life of the dog.

The dog was brought to visit almost once a week. The diarrhea and vomit stopped. Dermatological problems did not come back. Nonetheless, behavioral improvements were not shocking.

Considering the multifactorial nature of the process, a holistic approach to treatment is necessary, and each individual component needs to be identified and solved. Furthermore, owners of senior pets should be clearly instructed by the veterinarian regarding the correct behavior to have. On the other hand, they should work closely with the veterinarian to report any behavioral change as soon as it arises.

Key Words: aged dog, dysthymia, selegiline

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Presentation

A 16 years old spayed female Yorkshire terrier weighting 4.1 kg, was evaluated because, in recent months, around 10 P.M., she started barking, crying and howling. She looked lost and confused, and she often run into or got stuck into objects, doors, walls and corners. Overall, she looked restless and anxious. When the crisis began, the owners were not able to approach nor comfort the dog in any way, as she tried to bite them violently. She also showed vomit and diarrhea that was not controlled by previous treatments.

History and presenting signs

The dog lived in Corse with another Yorkshire terrier (11-year-old spayed male); the owners were a middle-aged couple. They lived in a medium-sized house with a large garden. The dog

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had always lived there and both dogs had access to all the rooms of the house, in any moment. There was no history of fighting between the two dogs nor of other behavioral problems expressed by the female dog before, according to the owners. In particular, the dog never used to bite other animals or people. The owners said she was the exact opposite of what she used to be. Nonetheless, they claimed never having punished her, physically or verbally.

Both dogs had access to the garden when they asked for it and they were regularly taken for a walk on a leash at least once per day.

Both owners worked, nonetheless they managed to spend a good amount of time with their dogs, at the house or outside. In any case, the two dogs were used to stay quietly at home when they were left alone. Overall, nothing had changed in the house in the last few months.

The dog was originally taken to visit because of persistent diarrhea and vomiting. Sometimes she vomited right after eating her meal, sometimes after some hours. Defecation was altered in terms of consistence and texture, but not frequency. The dog was treated by another veterinarian of the same clinic with a product based on Spiramycin and Metronidazole (Stomorgyl® 12.5 mg/kg sid for 10 days), Spasmoglucinol® (4 mg/kg bid for three days) and Ultradiar® (one pill per day, for 7 days). She had an history of dermatological issues that seemed to be solved.

After one week of treatment, the symptoms had not satisfactorily changed.

Urination behavior was normal, as well as drinking and feeding. Except for the vomiting, her weight was stable and her appetite unchanged.

During the visit, the owners referred that the previous veterinarian had ascribed the behavioral problem to a diminished vision. Therefore, in the evening, the owners turned on almost every light in the house in order to help the dog, but no changing in her behavior was achieved.

Even if this was not the first cause for consultation, they seemed very concerned and almost scared of dog behavior, because when she started crying in the evening, they felt she really was suffering. The dog seemed less affectionate towards the owners, but she rarely bit them, whereas in the evening she was unapproachable.

Physical Examination Findings and Laboratory Results

Physical examination showed a diminished vision, due to a problem of bilateral cataract, and diminished hearing.

The palpation revealed a lumbar and hind limbs pain, compatible with a problem of arthrosis and it was confirmed by the evidence of parakeet beak on various lumbar vertebrae, highlighted with a RX. A slight abdominal pain was also remarked, as well as bloating.

A blood sample was taken and laboratory analysis (blood biochemical and hematologic assessment, as well as thyroid testing) were performed and the results were unremarkable.

A EMR was recommended to exclude brain neoplasia, but the owners were reluctant.

A fecal sample was taken but no parasite was found, consistently with the owners regularly deworming their dogs, and the giardia test was negative. An echography was performed to exclude the presence of foreign bodies.

The dogs were always brought together to the consultation. During the visit, the female dog walks around panting, vocalizing and she almost never sat down. She repeatedly licked her lips, yawned and snooze. She did not appreciate to be touched, exposing her teeth while staring at the veterinarian's hands. These behaviors were interpreted as a state of anxiety (Landsberg, 2013), rather than simple fear of the consultation, particularly because the owners said that she never behaved in that way and veterinarians were usually happy to visit her because she was very calm.

Diagnosis

Considering the dog history and behavioral signs, it was considered possible that the aggressiveness and the crying could be related to painful arthritis. Back pain could also be responsible for the gastrointestinal symptoms and bloating. The co-existence of different medical conditions, such as gastrointestinal disturbances and physical pain, might lower the level of one's tolerance, leading to an increase in frequency or severity of anxious or phobic behaviors, possibly leading to a subsequent increase in gastrointestinal disturbances, like in a vicious circle.

Dermatological problems, that had been simply treated as such, could have partially been a consequence of an anxious state.

In any case, health problems generally lower the tolerance threshold of an animal, who possibly had already begun performing avoidance behaviors, without the owners realizing it. Furthermore, even if medical problems can be resolved, the behavior problem might persist if the pet has learned that aggression can successfully remove anxious or annoying stimuli such as unwanted or painful contact.

The suddenness in the appearing of the symptoms allowed to consider the presence of a brain neoplasia, although it was difficult to discern if the symptoms truly had a sudden outbreak or if they had been so subtle that the owners had not noticed them.

However, due to the presence of disorientation (D), altered interaction with people and other animals (I), altered sleep-wake cycles and altered activity (S), partial activity level change (A) although the absence of house soiling (H), behavioral problems related to aging cannot be excluded, specifically Cognitive Dysfunction Syndrome (CDS) (Chapagain, 2018; Mongillo, 2010).

Nonetheless, the French approach according to Pageat was also considered (Pageat, 1998). Due to the marked temporal disorientation with the dog being more active in the evening/night, alternated with almost normal periods during the day, confusional syndrome (also referred to as canine cognitive disorder) of old dogs is taken into account. Dysthymia is also considered, as the most typical characteristic of this condition is the loss of body length and size, associated with aggressive response triggered by an attempt of external help, growling and whining (Pageat 1995; Pageat 2001).

Involutive depression was regarded as less probable due to the absence of enuresis, encopresis, absence of house soiling and of resumed oral exploration of the environment.

A connection between the digestive symptoms, stress and anxiety associated with aging-related neurologic changes was hypothesized (Gualtieri, 2010; Reiwald et al., 2013; Vermeire et al., 2009).

A French translation of the ARCAD scale as reported by Landsberg et al., 2013, proposed by Pageat (2001), was provided to the clients and a score of 27 (14 affective or emotional parameters + 13 cognitive parameters) was obtained.

According to this scale, a score between 22 and 30 is compatible with dysthymia. Therefore, also considering the main behavioral symptoms, dysthymia was considered the most probable diagnosis and the dog was treated consequently.

Treatment

Because the observed symptoms could be linked with a multiplicity of causes, the treatment involved a combination of environmental management, behavior modification, behavior medication and medical treatment of health problems.

To relief the dog in the moment of acute outbreaks of arthrosis' pain, Meloxicam (Inflacam®) 0.2 mg/kg was prescribed to be given the first day, followed by 0.1 mg/kg q24h for six days, and Cartimax® mini, (sid, sine die).

Concerning gastrointestinal symptoms, Canikur® (sid for ten days), Phosphaluvet® (1.5 ml, 3 times per day, for 3 days) and Maropitant (Cerenia®; 2 mg/kg, in pills for 3 days after a first injection 1 mg/kg), were added at the original therapy.

A treatment with Selegiline (Selgian®) 0.5 mg/kg was prescribed, as advised by Landsberg (2013). The owners were warned that the treatment, if effective, should be maintained during the whole life of the dog.

Selegiline is a selective and irreversible inhibitor of monoamine oxidase B (MAOB) (Milgram et al., 1993; Gerlach et al., 1994). Enhancement of dopamine and perhaps other catecholamines in the cortex and hippocampus is presumed to be an important factor in clinical improvement in dogs (Knoll, 1998). Selegiline metabolites, l-amphetamine, and l-methamphetamine may also enhance cognitive function. Furthermore, Selegiline may contribute to a decrease in free radical load in the brain, by directly scavenging free radicals and enhancing scavenging enzymes, such as catalase and superoxide dismutase (SOD), the latter of which is increased in dogs on selegiline therapy (Carillo et al., 1994). Overall, Seleginine is believed to have neuroprotective effects (Heinonen and Lammintausta, 1991).

A hypoallergenic diet was adopted. Senilife® was recommended to slow down aging-related cerebral modification (Osella et al., 2006; Lant et al., 2013; Colangeli et al., 2005) and Canergy® (propentofylline) was recommended to improve cerebral vascularity and oxygenation.

The owner was instructed to increase the environmental enrichment through increased social interaction, when the dog was consensual, without forcing her.

It was also recommended to the owner to introduce new toys in the environment, increase the time spent walking the dog outside (in a way that was compatible with her musculoskeletal pain) during the day, in order for her to be more tired in the evening and adapt her safe zone in a quiet corner of the house with a not painful or stressful access for her. Any change should be introduced slowly to reduce potential stress and pre-existing sources of stress and anxiety should be identified and avoided. Owners were also encouraged to maintain a stable and predictable environment and schedule, in order to increase predictability and decrease uncertainty and, consequently, anxiety. For the same reason, and to teach the dog new behavioral responses, the owners were advised to teach the "sit-down" command, asking the dog to assume a quiet posture before every interaction with them.

The use of DAP (dog appeasing pheromone) in the form of ADAPTIL® collar was also recommended in order to reduce anxiety and stress (Landsberg et al., 2015; Pageat et al., 2003).

Follow up

The dog was brought to visit almost once a week. The diarrhea and vomit stopped. Dermatological problems did not come back. Nonetheless, behavioral improvements were not shocking. Although the owners were warned that a response to Seleginine could take up to two months,, they seemed quite hopeless after less than a month and it was possible to assume that they had not given the therapy as recommended.

In any case, the owners were advised to continue the therapy as prescribed and to follow attentively every aspect of it, before applying changes to it.

Discussion and conclusion

As pets age, there are a number of health problems where a change in behavior is noticed as the first sign of illness (e.g. pain, sensory decline, neurological diseases...). On the other hand, aging is a multifactorial process that leads to a general deterioration in physical condition, such

as decreased cerebral perfusion (Peremans et al., 2002) and general tissue hypoxia, alteration in cell membranes, increased production of reactive oxygen species and decreased competence of the organism to clear them up, decreased response from the immune system etc. For these reasons, aged pets are less capable to maintain their homeostatic balance.

All these things combined could challenge the relationship between the dog and his owner. Furthermore, until recent times, the cognitive and emotional aspects of aging have been greatly overlooked and changing in behaviors have been dismissed as "old age", without little consideration to the fact that aging is a physiological process that doesn't necessarily involve diseases, discomfort and reduced quality of life.

Considering the multifactorial nature of the process, a holistic approach to treatment is necessary, and each individual component needs to be identified and solved. Furthermore, owners of senior pets should be clearly instructed by the veterinarian regarding the correct behavior to have. On the other hand, they should work closely with the veterinarian to report any behavioral change as soon as it arises. Only with a good collaboration between the two sides, good results can be achieved, appropriate diagnostic can be carried out and diseases and stressful/painful conditions of the animals can be avoided, thus improving their quality of life and, possibly, longevity.

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Un caso di distimia in un Yorkshire terrier

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Sintesi

Uno Yorkshire femmina, di 16 anni, castrata (4,1 Kg di peso) è stata portata in consulenza perché negli ultimi mesi abbaiava, si lamentava ed ululava.

Considerando la storia clinica del soggetto e i segni comportamentali, è possibile che l'aggressività e le vocalizzazioni possano essere correlate ad una forma dolorosa di artrite.

La scala ARCAD ha fornito uno score di 27, compatibile con una diagnosi di distimia. Per dare sollievo al cane in corso di episodi di dolore artrosico acuto è stato prescritto Meloxicam (Inflacam) (0,2 mg/kg il primo giorno, seguito da 0,1 mg/kg q24h per 6 giorni) e Cartimax mini, (sid, sine die).

Per quanto riguarda i sintomi gastroenterici, sono stati aggiunti alla terapia Canikur (sid per10 giorni), Phosphaluvet (1,5 ml, 3 volte al giorno per 3 giorni) e Maropitant (Cerenia; 2 mg/kg, in compresse per 3 giorni dopo una prima iniezione di 1 mg/kg).

È stato quindi prescritto un trattamento con Selegilina (Selgian) 0,5 mg/kg.

I proprietari furono avvisato che il trattamento farmacologico, se efficace, sarebbe dovuto continuare per tutta la vita dell'animale.

Il cane fu condotto ai controlli una volta alla settimana: la diarrea ed il vomito scomparvero ed i problemi dermatologici non si ripresentarono, tuttavia non ci furono progressi significativi dal punto di vista comportamentale.

In conclusione, considerando la natura multifattoriale del processo di invecchiamento, è necessario un approccio olistico al trattamento ed ogni aspetto individuale deve essere identificato e risolto. Inoltre, i proprietari di animali anziani dovrebbero ricevere dal proprio veterinario informazioni corrette riguardo al comportamento da avere. D'altra parte, essi dovrebbero collaborare strettamente con il veterinario per informarlo quanto prima di qualsiasi variazione del comportamento del proprio animale.