



# A clinical case of aggression in an elderly dog

Maria Bollani

*Veterinary behaviorist freelance*

**Abstract:** A 14-year-old male mongrel dog was examined due to his aggressive behavior. Adopted as a puppy by his current family, he underwent surgery shortly after for bilateral hip dysplasia. At the age of 5 years, he underwent surgery for a thoracolumbar hernia, followed by a period of hospitalization and physical therapy. A diagnosis of pain related aggression, exacerbated by cognitive dysfunction syndrome was formulated. For the treatment of pain related to osteoarthritis Librela® and Aleveca® were used. Gabapentin (10 mg/kg BID) was chosen as pharmacological therapy. The behavioral therapy was focused on understanding the dog's needs. Physiotherapy sessions were conducted on a weekly basis. After the first three physiotherapy sessions, the dog appeared decidedly more at ease. The dog's problem was initially linked to severe physical pain, exacerbated by a gradual worsening of the cognitive dysfunction syndrome which made him very irritable and by a misunderstanding of his needs on the part of the owner. Once the pain problem was resolved, it became easier to work on building trust with the owner, who understood dog's real discomfort and tried to become a safe guide, providing him with the tools to deal with new situations such as physiotherapy.

**Key Words:** aggression, dog, elderly, pain, gabapentin, canine cognitive dysfunction.

\* *Corresponding Author:* maria.bollani.vet@gmail.com

## Statement of the problem

A 14-year-old male mongrel dog weighing 20kg was examined due to his aggressive behavior toward people.

## Clinical history

Adopted at 2 months old by his current family, the dog underwent surgery shortly after for bilateral hip dysplasia. At the age of 5 years, he underwent surgery for a thoracolumbar hernia, followed by a month of hospitalization and rehabilitation at a physiotherapy center, where he completely recovered the use of his hind limbs.

The dog had no further health problems until a month before the behavioral consultation when he began to be reluctant to move, limping and losing balance in his hindquarters. The owner, an elderly lady who lives alone, noticed that the dog no longer wanted to go out and if forced to do so, he would try to return home. Furthermore, the dog growled at the owner for the first time when she tried to help him onto the couch. Later, he also growled at her when she was sitting on the sofa, and he was on the floor nearby.

## Behavioral observation

During the physical examination, the dog growled and tried to bite the veterinarian, especially when his right hip was extended. The veterinarian advised the owner on an integrated approach to the dog, necessary to start a correct physiotherapy process and a behavioral evaluation was immediately performed. During the consultation, the dog had tremors, drooling, and was trying to hide under the owner's chair.

The dog's eating behavior has remained unchanged: with kibble and wet food for adult dogs given twice a day. However, his sleeping behavior has changed slightly: during the day, he is more

lethargic, and at night he wakes up and the owner takes him to urinate almost every night around 3 a.m.

When the veterinary behaviorist attempt to approach, the dog raises his lip and showed his teeth; the owner scolded him resolutely and mentioned that the dog has never been particularly sociable, or fond of physical contact, but he had never been aggressive in the past. This was confirmed by the colleagues who handled him during his hospitalization five years before. The owner also noted that recently, the dog has become much cuddlier and never lets her out of his sight.

The dog seemed indifferent to the presence of other dogs and the owner reported that he has not played or interacted with other dogs for a few years.

While some physical investigations were carried out, behavioral therapy was alongside physiotherapy.

X-rays of the hips and spine revealed an advanced state of arthritis in both joints, worse on the right side, and bone bridges at the thoraco-lumbar level. The hematobiochemical profile did not show major critical issues.

## Diagnosis

The medical problem increased the irritability which could subsequently trigger an aggression disorder or worsen an existing aggression problem. Therefore, a diagnosis of pain aggression (Haug, 2008), exacerbated by cognitive dysfunction syndrome (Palestrini et al., 2019) was made. These two pathological issues explain the general dejection of the subject, who appeared depressed at home, reluctant to move, and exhibited behavioral changes in the relationship with the owner, strangers and during the sleep-wake cycle. The dog also showed a tendency to react aggressively to stimuli.

Cognitive dysfunction syndrome represents an aging-related neurodegenerative disorder that results in a decline in higher brain functions, including those involved in memory and learning (Ciurli et al., 2023).

The first changes that arise concern the manifestation of inappropriate responses in social interactions, both with owners and with other animals.

The reduction in cognitive abilities also manifest as memory deficits. Due to the death of neurons by apoptosis, animals are no longer able to recall previously learned behaviors; they are more predisposed to behavioral problems such as anxiety and phobias, due to the inability to respond correctly to habitual stimuli and the difficulty in adapting to even the slightest changes in their daily lives. If there is a deficit in memory, familiar noises, situations, animals and people can suddenly trigger fear responses or induce a state of generalized anxiety. Any change, however large or small, can exacerbate symptoms and cause pain. A cognitive deficit was evident which up to that point had caused only modest behavioral signs.

The most common manifestations linked to states of anxiety and fear are isolation. Immobility, escape or aggressive behavior. Hypervigilance, hyperreactivity to stimuli, increased motor activity (pacing) and environmental exploration are equally significant signs. Individuals with a highly social nature can show a pathological form of attachment, insistent requests for attention and separation anxiety (Palestrini et al., 2019).

## Therapy

To treat and slow down cognitive dysfunction syndrome, the first action was to modify the diet, recommending it contain large quantities of fruit and vegetables with low levels of saturated fats. Because omega 3 and 6 fatty acids have an anti-inflammatory action, Senilife plus® and Cadigink® were prescribed. To further reduce the state of anxiety by addressing serotonin deficiency, the Re-

laxigen Pet® supplement was introduced. For the treatment of pain related to osteoarthritis, Librelle® and Alevica® were used. Gabapentin at a dose of 10mg/kg BID was chosen as pharmacological therapy. In dogs, gabapentin has been useful in the treatment of epilepsy, chronic, neuropathic and post-operative pain, as well as anxiety (Di Cesare et al., 2023).

The behavioral therapy was focused on understanding the dog's needs. The veterinary behaviorist recommended replacing the collar with a harness, to support the dog and help the owner lift him. A routine of very short walks at cooler times was established, helping the owner understand that dog's reluctance to move was essentially due to the pain. At home, a mat was placed near the sofa for the dog to rest on.

For the physiotherapy sessions, it was requested that the dog was always followed by the same operator, with whom a relationship of trust should gradually be established. The owner would be present at all sessions to provide security, caressing and talking to the dog. The operator would initially reduce physical and visual contact to a minimum, as well as manipulations that might cause pain. Every time before starting the session, the owner would have the dog do an olfactory search to help him relax and regain confidence in the environment.

## Follow-up

After the first three physiotherapy sessions, the dog appeared decidedly more at ease. Initially, he still had tremors when touched, but gradually he stopped. After five sessions he trusts the operator much more, even allowing himself to be pampered. The owner learned not to scold the dog for incorrect behavior and not to force him to move. The owner reported improvements at home as well: the dog no growled at her, his night sleep was getting longer, and during the day he appeared more alert.

## Conclusions

The behavioral problem was initially linked to severe physical pain, exacerbated by a gradual worsening of the cognitive dysfunction syndrome which made him more irritable. Once the pain problem was resolved, it was easier to work on building a trusting relationship with the owner, who understood dog's real discomfort and tried to become a safe guide. In line with attachment theory (Carlone et al, 2019; Mariti et al., 2013 a,b) this helped provide the dog with the tools to deal with new situations such as physiotherapy. The physiotherapist's work was also fundamental in allowing the dog to feel better both physically and emotionally.

## References

- Carlone B., Sighieri C., Gazzano A., Mariti C. The dog (*Canis familiaris*) as part of the family: A pilot study on the analysis of dog bond to all the owners. *Dog Behavior*. 5: 1-14; 2019.
- Ciurli L., Casini L., Cecchi F., Baragli P., Macchioni F., Curadi M.C., Gazzano V., Capsoni S., Gazzano A. The canine cognitive dysfunction syndrome: epidemiology, pathophysiology and diagnosis. *Dog Behavior*, 1-2023, pp. 1-8 • doi 10.4454/db.v9i2.169.
- Di Cesare F., Negro V., Ravasio G., Villa R., Draghi S., Cagnardi P. Clinical utility and pharmacokinetics of gabapentin in dogs, cats and horses. *Animals* 2023, 13(12), 2045; <https://doi.org/10.3390/ani13122045>
- Haug L. I. Canine Aggression Toward Unfamiliar People and Dogs. *Vet Clin North Am Small Anim Pract*. 38: 1023-41; 2008.

- Mariti C., Ricci E., Zilocchi M., Gazzano A. Owners as a secure base for their dogs. *Behaviour*. 150: 1275-1294; 2013a.
- Mariti C., Ricci E., Carlone B., Moore J. L., Sighieri C., Gazzano A. Dog attachment to man: A comparison between pet and working dogs. *J. V. B.* 8: 135-145; 2013b.
- Pageat P. *Patologia comportamentale del cane*. Point Veterinaire Italie, 1999.
- Palestrini C., Mazzola S., Cannas S. Cognitive dysfunction in elderly animals. *Veterinary Medicine*. 33: 4; 2019.
- Pittari J., Rodan I., Beekman G., Gunn-Moore D., Polzin D., Taboada J., Tuzio H., Zoran D. Senior care guidelines. *J. Feline Med. Surg.* 11: 763-78; 2009. doi: 10.1016/j.jfms.2009.07.011.

## Un caso clinico di aggressività in un cane anziano

Maria Bollani

*Veterinario comportamentalista freelance*

### *Sintesi*

Un cane meticcio maschio di 14 anni è stato esaminato per il suo comportamento aggressivo. Adottato da cucciolo dalla sua attuale famiglia, è stato sottoposto poco dopo ad un intervento chirurgico per displasia bilaterale dell'anca. All'età di cinque anni viene operato di ernia toracolombare, seguito da un periodo di ricovero e fisioterapia. È stata formulata una diagnosi di aggressione da dolore, esacerbata dalla sindrome di disfunzione cognitiva. Per il trattamento del dolore correlato all'osteoartrite sono stati utilizzati Librela® e Alevica®. Come terapia farmacologica è stato scelto il gabapentin (10 mg/kg BID). La terapia comportamentale era focalizzata sulla comprensione dei bisogni del cane. Le sedute di fisioterapia venivano condotte con cadenza settimanale. Già dopo le prime tre sedute di fisioterapia il cane è apparso decisamente più a suo agio. Il problema del cane era inizialmente legato ad un forte dolore fisico, aggravato da un progressivo peggioramento della sindrome da disfunzione cognitiva che lo rendeva molto irritabile e da un'incomprensione dei suoi bisogni da parte del proprietario. Una volta risolto il problema del dolore, è stato più semplice lavorare sul rapporto di fiducia con il proprietario che ha compreso il reale disagio del cane e ha cercato di diventare una guida sicura per fornirgli gli strumenti per affrontare nuove situazioni come la fisioterapia.