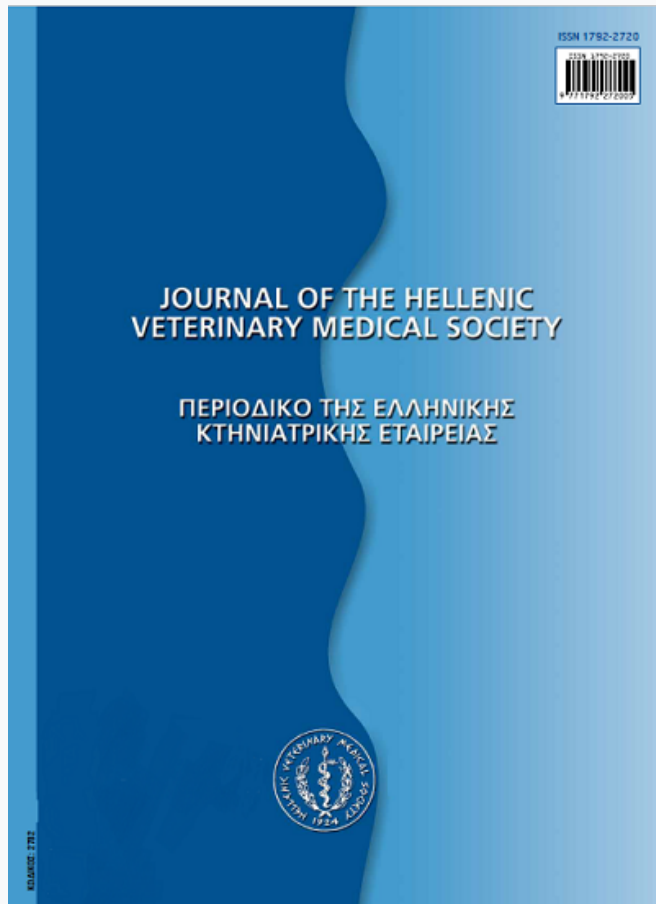


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■ Flank sucking in a Doberman pincher

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■ Θηλασμός του κενεώνα σε σκύλο φυλής Doberman pincher

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ABSTRACT. Flank sucking is a behavioural abnormality of compulsive nature that occurs almost exclusively in Doberman pinchers and is frequently accompanied by other abnormal behaviours, such as acral lick dermatitis, blanket sucking and pica. A 2.5-year old, intact male, Doberman pinscher was presented because of a two-month long history of persistent right flank sucking. The dog was up-to-date with vaccinations and lived exclusively outdoors with his mother. The onset of the problem coincided with a period of crate restraining, where a short chain was used to avoid copulation with his mother, when she was in oestrus. Since then, the abnormal behaviour occurred on a daily basis and was not associated with neurological signs. In addition, the dog presented blanket sucking and pica that had first appeared during puppyhood. No clinical abnormalities were detected and the dog did not show signs of anxiety, aggression or fear during physical examination and blood sampling. Later-on and while remaining calm in the waiting room of the Clinic, the dog started chasing, chewing and sucking his right flank for over three minutes, but stopped immediately after his owner's verbal intervention. Primary diagnosis was compulsive flank sucking; differential diagnosis included *Trichuris vulpis* infestation, allergic dermatitis and psychomotor seizures. Results of haematological and serum biochemical examinations were unremarkable, whereas serological examination for *Leishmania* and faecal parasitological examination did not reveal significant results. Suggested treatment included administration of an anthelmintic combination (praziquantel, pyrantel and febantel), orally, for 4 consecutive days and clomipramine, at the dose of 1 mg/kg of body weight, every 12 hours, orally, for a long period of time, along with instructions to avoid the causative and triggering factors. Two months later, the owner reported that, although clomipramine had not been administered, the abnormal behaviour disappeared when the dog had been relocated to a new environment with no other animals and was free to roam. However, flank sucking reappeared after the dog had been moved back to the initial environment and chained.

Keywords: behaviour, compulsive, Doberman pincher, flank sucking

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ΠΕΡΙΛΗΨΗ. Ο θηλασμός των κενεώνων διαπιστώνεται σχεδόν αποκλειστικά σε σκύλους της φυλής Doberman pinscher και αποτελεί καταναγκαστική διαταραχή της συμπεριφοράς, συχνά συνυπάρχουσα με παρόμοιας αιτιολογίας διαταραχές συμπεριφοράς, όπως η ψυχογενής δερματίτιδα από λειξη των άκρων, ο θηλασμός των υφασμάτων (κουβερτών) και η αλλοτριοφαγία. Προσκομίστηκε στην Κλινική αρσενικός μη στερωμένος σκύλος, φυλής Doberman pinscher και ηλικίας 2,5 χρόνων, επειδή τους δύο τελευταίους μήνες μασούσε επίμονα την περιοχή του δεξιού κενεώνα αυτού. Ο σκύλος ήταν πλήρως εμβολιασμένος και ζούσε αποκλειστικά σε εξωτερικό χώρο (αυλή), μαζί με τη μητέρα του, η οποία δεν παρουσίαζε παρόμοιο πρόβλημα. Τα συμπτώματα πρωτοεμφανίστηκαν όταν ο σκύλος ήταν συνεχώς δεμένος με σχετικά κοντή αλυσίδα, προκειμένου να αποτραπεί η σύζευξη με τη μητέρα του που βρίσκονταν σε οίστρο. Από τότε, η παθολογική αυτή συμπεριφορά παρατηρούνταν αρκετές φορές την ημέρα, υπό μορφή κρίσεων, κατά τη διάρκεια των οποίων το ζώο διατηρούσε πλήρως τη συνείδησή του. Επιπλέον, σύμφωνα με το ιστορικό, ο σκύλος είχε την τάση να μασάει υφάσματα και παρουσίαζε αλλοτριοφαγία από νεαρή ηλικία μέχρι την προσκόμισή του. Κατά τη γενική κλινική και τη δερματολογική εξέταση, δε διαπιστώθηκε οτιδήποτε παθολογικό. Η συμπεριφορά του σκύλου ήταν φυσιολογική, χωρίς εκδηλώσεις άγχους, επιθετικότητας ή φόβου στη διάρκεια της εξέτασης και κατά την αιμοληψία. Όμως, κατά την παραμονή του στην αίθουσα αναμονής, ενώ ήταν ήρεμος, άρχισε αιφνιδίως να κυνηγά επίμονα το δεξιό κενεώνα και στη συνέχεια να τον θηλάζει για περισσότερο από τρία λεπτά, οπότε τον διέκοψε ο ιδιοκτήτης του. Η κύρια διαγνωστική πιθανότητα ήταν ο ψυχογενής θηλασμός του κενεώνα, αλλά η διαφορική διάγνωση περιλάμβανε επίσης την τριχούρωση, τις αλλεργικές δερματίτιδες και τις ψυχοκινητικές επιληπτικές κρίσεις. Τα αποτελέσματα των εργαστηριακών εξετάσεων (αιματολογική, βιοχημικές στον ορό του αίματος, παρασιτολογική κοπράνων με εμπλουτισμό, ορολογική για *Leishmania*) δεν έδειξαν παθολογικά ευρήματα. Η θεραπευτική αντιμετώπιση που προτάθηκε περιλάμβανε την από το στόμα χορήγηση ανθελμινθικού σκευάσματος (συνδυασμός πραζικουαντέλης, πυραντέλης και φεβαντέλης) επί 4 συνεχόμενες ημέρες και χλωμιπραμίνης σε δόση 1mg/kg σωματικού βάρους κάθε 12 ώρες, για μεγάλο χρονικό διάστημα, ενώ παράλληλα δόθηκαν οδηγίες για την αποφυγή των πιθανών εναυσματικών παραγόντων. Σε τηλεφωνική επικοινωνία ύστερα από περίπου δύο μήνες, ο ιδιοκτήτης ανέφερε ότι, αν και αποφάσισε να μη χορηγήσει τη χλωμιπραμίνη, είχε μεταφέρει το σκύλο σε άλλο χώρο όπου ήταν μόνος του και κινείτο ελεύθερα, με αποτέλεσμα να είχε σταματήσει η παθολογική συμπεριφορά. Όμως, όταν ο σκύλος επέστρεψε στο αρχικό περιβάλλον αυτού, όπου πάλι ήταν συνεχώς δεμένος με αλυσίδα, ο θηλασμός των κενεώνων επανεμφανίστηκε.

Λέξεις ευρετηρίασης: διαταραχή συμπεριφοράς, θηλασμός των κενεώνων, καταναγκασμός, Doberman pincher

INTRODUCTION

Flank sucking is a behavioural abnormality of compulsive nature that occurs almost exclusively in Doberman pinchers and is frequently accompanied by other abnormal behaviours, such as acral lick dermatitis, blanket sucking and pica. The aim of this article is to present, for the first time in Greek literature, a case of flank sucking in a Doberman pincher and its response to environmental modification.

CASE DESCRIPTION

An intact male, 2.5-years old, Doberman pincher, weighing 36 kg was admitted to the Clinic of Medicine, Veterinary Faculty, University of Thessaly, with a 2-month long history of sucking his right flank. The dog lived exclusively outdoors, in a big yard along with his mother and was up to date with vaccinations; it was provided with commercially prepared dry and canned dog feed along with homemade feed preparations. Two months earlier, the dog had been constantly restrained in a crate with a short chain, in order to avoid mating

with his mother that, at the time, was in oestrus; no further changes in the environment of the animal were reported. Flank sucking was first noticed soon after confinement, with progressively increasing frequency. According to the owner, the behaviour occurred most commonly late at night and early in the morning; these periods coincided with the time of the day when the owner had the opportunity to spend time with the dog and to observe the behaviour. Flank sucking bouts usually lasted for 3 to 5 minutes, during which the dog was fully conscious and immediately stopped this abnormal activity when commanded to do so. Finally, while still a puppy, the dog had shown blanket (fabric) sucking and pica, behaviours that, reportedly, were still occasionally present.

No abnormalities were evident during clinical examination; absence of skin and hair coat lesions was seen on the right flank. The dog was fully cooperative with normal behaviour; no signs of anxiety, aggression or fear were noticed during clinical examination and subsequent blood sampling.

At that point, the primary differential diagnosis



Fig. 1a. Doberman pincher with flank sucking in the waiting room of the Clinic: after chasing the right flank for about one minute he started sucking it.



Fig. 1b. Doberman pincher with flank sucking in the waiting room of the Clinic: dog is fully conscious and appears to be relieved by the activity.



Fig. 1c. Doberman pincher with flank sucking in the waiting room of the Clinic: large quantity of saliva present on the right flank.

was psychogenic flank sucking, whereas, additional possibilities included *Trichuris vulpis* infestation, allergic dermatitis (flea, environmental or food allergy) and psychomotor seizures. While staying calm at the waiting room, the dog, with no obvious reason, suddenly snapped, chased the right flank for approximately one minute and then sat on the floor and started sucking the flank (Fig. 1a). During the episode, the dog was fully conscious and seemed to be relieved by his activity (Fig. 1b). After approximately 3.5 minutes, the owner called his name and the dog released the flank and abruptly got up leaving saliva on his right flank (Fig. 1c).

Laboratory tests that were performed included complete blood count, blood serum biochemical examinations (total solids, albumins, urea nitrogen, glucose, alanino-aminotrasferase and alkaline phosphatase), serological examination for *Leishmania* and faecal examination after flotation. Results of all examinations performed were within the reference values or negative.

Final diagnosis of psychogenic compulsive flank sucking was based on the normal physical and laboratory evaluation and on the direct observation of the abnormal activity. The owner was instructed on how he could possibly modify the animal's environment and how to remove potential causative or triggering factors; he agreed to relocate the dog to another area, where he could live unrestrained. The owner appeared to have understood that he should not try to interrupt the abnormal behaviour, because this could act as a positive-reinforcement. In addition, an anthelmintic drug preparation (praziquantel, pyrantel pamoate and febandel; Drontal plus[®], Bayer) was prescribed for administration once daily for 4 consecutive days along with clomipramine (Anafranil[®], Novartis) at the dose of 1 mg/kg of body weight, for *per os* administration twice daily for a long time period.

One month later, the owner reported that he had complied with all treatment recommendations but the administration of chlomidramine. After relocating the dog to the new environment, the owner did not observe any further flank sucking bouts. However, after approximately one month the dog was reinstated to the original environment, where he was once more restrained, though this time with a longer chain. A few days later flank sucking reportedly reappeared.

DISCUSSION

Psychodermatology is a significant field of growing interest in human and veterinary medicine. Mind and skin are connected through various mechanisms and molecules, such as neuropeptides (endorphins, dopamine, serotonin, norepinephrin etc), cytokines and hormones and the mental state can significantly modulate immune responses and pruritus (Scott et al. 2001).

Canine psychogenic dermatoses are classified into primary psychiatric disorders (cutaneous manifestations being the direct result of a behavioural abnormality), psychophysiologic disorders (primary skin disorders complicated and perpetuated by a secondary behavioural abnormalities) and altered cutaneous sensational disorders (Virga, 2003). Flank sucking in dogs is considered to be a primary psychiatric disorder, considered to be compulsive in nature and, therefore, possibly analogous to human obsessive-compulsive disorders (Landsberg, 2001; Overall and Dunham, 2002; Luescher, 2004; Moon-Fanelli et al., 2007). Compulsive disorders are usually normal behaviours that appear repetitively and are performed in an inappropriate, excessive or out of context manner (Overall, 1997; Hewson et al., 1999; Landsberg, 2001).

Flank sucking, like most canine compulsive disorders, usually appears at a relatively young age (Overall and Dunham, 2002; Gnirs and Prélaud, 2005; Moon-Fanelli et al., 2007; Irimajiri et al., 2009), as was the dog in this case, which had first shown the disorder at the age of 2.5 years. Although there is no sex or neuter status influence (Moon-Fanelli et al., 2007), it usually appears in Doberman pinchers (Haupt, 1991; Landsberg, 2001; Scott et al., 2001; Luescher, 2004; Moon-Fanelli et al., 2007; Beaver, 2009; Irimajiri et al., 2009) and less often in dogs of Nordic breeds, Dachshunds and English bull terriers ((Hewson et al., 1999; Gnirs and Prélaud, 2005). Recently, a potential association of flank sucking in Doberman pinschers with a single nucleotide polymorphism of *CDH2* gene on chromosome 7 has been suggested as the genetic basis of the disorder in this particular breed (Dodman et al., 2010).

The history and clinical presentation of the animal was typical of flank sucking. This developed during a period of frustration (highly motivated to mate with a female dog, but unable to do so); frustration, conflict, displacement and redirection are considered the most common triggering factors of canine compulsive disorders (Hewson et al., 1999; Landsberg, 2001; Luescher,

2004; Gnirs and Prélaud, 2005). After the establishment of the abnormal behaviour, attention-seeking can further aggravate the problem due to owner's attempts to disrupt the animal's activity (Landsberg, 2001; Luescher, 2004; Gnirs and Prélaud, 2005). However, an attention-seeking component could not be established in this case, as, obviously, there was no information on presence of the disorder during absence of the owner. Although initially the problem occurred in a state of arousal, information (e.g., flank sucking late at night before sleep) and direct observations, while the dog was calm in the waiting room, of the abnormal behaviour, are in accord with previous reports indicating that flank sucking can also appear during periods of inactivity ((Moon-Fanelli et al., 2007). In addition, as in our case, most Doberman pinchers with flank sucking express this behaviour daily, each bout lasting from a few minutes to half an hour (Moon-Fanelli et al. 2007). No skin lesions have been found in 68% of the cases (Moon-Fanelli et al., 2007), although wet hair coat, hypotrichosis, alopecia, ulcers and lichenification may develop (Gnirs and Prélaud, 2005; Moon-Fanelli et al., 2007; Beaver, 2009). Finally, flank sucking can coexist with various other compulsive disorders, like fabric sucking and pica, which usually first appear at a younger age (Landsberg, 2001; Overall and Dunham, 2002; Luescher, 2004; Moon-Fanelli et al., 2007).

Besides typical historical and clinical findings, the differential diagnosis included trichuriasis (although there is no documentation to prove that it can lead to flank sucking), allergic dermatitis and psychomotor seizures (Scott et al., 2001; Landsberg et al., 2003; Gnirs and Prélaud, 2005). The usual approach to definitive diagnosis of a primary behavioural disorder is based on exclusion of all these possibilities (Hewson et al., 1999). In this case, trichuriasis was ruled out based on the absence of observation of parasite eggs in parasitological examination of faecal samples and the relapse of the problem, despite effective anthelmintic treatment. Allergic dermatitis was considered unlikely, because of the non-typical distribution of pruritus, the absence of skin lesions and the response to environmental modification. Finally, psychomotor seizures were excluded as they are usually characterised by loss of consciousness and inability to be interrupted and may be followed by generalized seizures and/or a post-ictal phase (Landsberg, 2001; Luescher, 2004; Gnirs and Prélaud, 2005). Scott et al. (2001) have recommended collection of skin biopsy samples from

dogs with flank sucking, in order to reach a diagnosis based on confirming normal histological appearance of the skin in the areas sucked. We believe that this may be unnecessary in typical cases of the disorder, as the one presented here, whereas it may also be misleading in dogs with psychogenic flank sucking and secondary self-inflicted skin lesions.

An alternative diagnostic approach would be based solely on the assessment of behavioural history and fulfilling standard diagnostic criteria (Hewson et al., 1999). In this case, the animal, fulfilled at least six (no abnormal findings in clinical examination, presence of flank sucking and pica, identifiable frustration when the problem started, appearance of the behaviour under different contexts with time, progressively increased frequency of the events, exclusion of seizure activity) out of seven criteria that have been proposed to diagnose

canine compulsive disorders (Hewson et al., 1999).

In general, treatment strategy should be multifactorial involving elimination of causative and triggering factors, desensitisation, counter-conditioning and pharmacological intervention (Landsberg, 2001; Overall and Dunham, 2002; Luescher, 2004; Tapp and Virga, 2012). In this case, all possible causative and triggering factors (confinement, inability to mate with a female in oestrus, attention-seeking) were removed by relocation of the affected dog and by instructing the owner not to try to disrupt the abnormal activity. The prompt response of the animal to the treatment along with a relapse when confinement was re-introduced, indicates the importance of environmental changes that may resolve the problem even without pharmaceutical treatment. ■

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