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MANAGEMENT OF JUVENILE STERILE GRANULOMATOUS DERMATITIS IN A GOLDEN RETRIEVER: A CASE STUDY

MANAGEMENTUL DERMATITEI GRANULOMATOASE JUVENILE STERILE LA UN GOLDEN RETRIEVER: UN STUDIU DE CAZ

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ABSTRACT | REZUMAT

Juvenile sterile granulomatous dermatitis, also known as canine juvenile cellulitis or juvenile acne, is an autoimmune condition believed to have genetic determinism in some breeds, particularly Golden Retrievers and their half-breeds. The onset of this condition has been reported to be between 3 weeks and 4 months of age. Usually, the diagnosis of this dermatitis is based on the appearance of specific clinical signs in puppies and it is an exclusion one. Immunosuppressive therapy should be initiated as soon as possible and, in some cases, systemic antibiotic therapy is recommended to keep secondary infections under control. Periodic rechecks are necessary to adjust immunosuppressive medication according to current clinical signs and body weight, considering the accelerated growth rate of this breed. To exemplify the main challenges of immunosuppressive therapy in these patients, the case of a 5-week-old Golden Retriever puppy will be discussed below. The patient was presented to the clinic with lethargy, a low body condition score, severe alopecia and oedema of the muzzle and periocular area. Hyperpigmentation, discrete crusting, ulceration, and mild painful tenderness, in the absence of pruritus, were also noted in these areas.

Keywords: canine juvenile cellulitis, autoimmune disorder, immunossupressive therapy

Dermatita granulomatoasă juvenilă sterilă, cunoscută și sub numele de celulită juvenilă canină sau acnee juvenilă este o afecțiune autoimună considerată a avea determinism genetic la unele rase, în special la Golden Retriever si la metișii lor. Debutul acesteia a fost raportat ca fiind între 3 săptămâni și 4 luni de viață. De obicei, diagnosticul acestei dermatite se bazează pe apariția semnelor clinice specifice la puii de câine și este unul de excludere. Terapia imunosupresoare trebuie inițiată cât mai curând posibil și, în unele cazuri, se recomandă antibioterapie sistemică pentru a ține sub control infecțiile secundare. Sunt necesare reevaluări periodice pentru ajustarea medicației imunosupresoare în funcție de semnele clinice și de greutatea corporală curentă, având în vedere ritmul de creștere accelerat al acestei rase. Pentru exemplificarea principalelor provocări asociate terapiei imunosupresoare la acești pacienți, cazul unui pui de Golden Retriever în vârstă de 5 săptămâni va fi discutat în continuare. Pacientul a fost prezentat la clinică cu apatie, scor corporal scăzut, alopecie severă și edem la nivelul botului și periocular. Tot pe aceste zone s-au observat si hiperpigmentație, cruste discrete, ulcerații și ușoară sensibilitate dureroasă, în absența pruritului.

Cuvinte cheie: celulită juvenilă canină, boală autoimună, terapie imunosupresoare

CASE HISTORY, DIAGNOSTIC TOOLS AND THERAPEUTIC MANAGEMENT

The dog came from a litter of nine siblings, but he was the only one showing this type of symptom. Also, the owner mentioned that this puppy was smaller and vastly underweight for his age compared to his littermates. The dog was fed with a wet commercial starter food and isolated from his littermates. The facial lesions had a history of one week before presenting to the veterinary clinic and five days of local treatment with antibiotic ointment without any visible improvement. The dog was neither dewormed nor vaccinated at the time of presentation.

Clinical examination revealed enlarged submandibular lymph nodes, alopecia of the muzzle and periocular area, oedema and hyperpigmentation. Slight pain, crusting, and ulcers were noted in the affected areas (Fig. 1). The body condition score (BCS) was 3/5, the temperature was normal, and no evidence of pruritus was noticed.

Cytological and parasitological exam: samples were taken from the affected skin for cytological examination, and the results showed granulomatous inflammation. A deep skin scraping was also performed, and demodicosis was ruled out.

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Blood tests: the complete blood count evidenced a mild leucocytosis with neutrophilia, and the biochemical parameters (creatinine, urea, glucose, alkaline phosphatase, aspartate aminotransferase, alanine aminotransferase, and total protein) were in the reference ranges.

Fig. 1. The appearance of the dog at presentation

The diagnosis of **canine juvenile cellulitis** was established in accordance with the clinical signs, the results of the investigations, and the signalments of the patient.

Case management: Immunosuppressive therapy was initiated as follows: prednisolone - 2 mg/kg/24h for 7 days and amoxicillin with clavulanic acid - 15 mg/kg/12 h for 10 days. Supportive liver medication and probiotics were also recommended. Considering the breed and the growing rate of the patient, a follow-up examination was planned for 7 days.

Fig. 2. The appearance of the dog on day 7 of treatment: mild improvement of the facial lesions

1st follow-up (day 7): The puppy was bright, alert with an increased BCS (4/5), and his body weight was almost double. The facial appearance has improved: the skin lesions were healing, and the alopecia was also reduced (Fig. 2). It was also recommended to decrease the prednisolone dose to 1.5 mg/kg/24h and to weigh the dog daily and administer prednisolone accordingly. External deworming was provided, and antibiotic therapy will be continued until day 10 of therapy. The next follow-up examination was planned for another 7 days.

2nd follow-up (day 14): the owner reported polyuria, polydipsia, and polyphagia. The dog was in good condition; the periocular alopecia was resolved, and the lesions of the muzzle were almost cured. Hair growth at this level has been noted, as well as hyperpigmentation of the muzzle and periocular skin (Fig. 3a). Severe abdominal enlargement as well as hyperpigmentation and alopecia were noted (Fig. 3b).

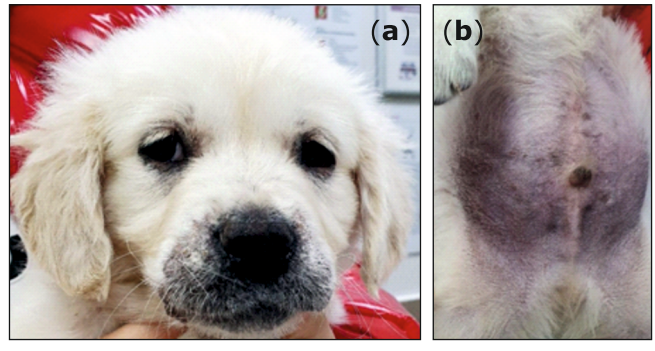

Fig. 3. The appearance of the dog on day 14 of treatment. Absence of alopecia in the periocular area and muzzle hyperpigmentation (a); severe abdominal enlargement, hyperpigmentation, and alopecia (b)

Due to the risk of iatrogenic hypercortisolism, the dose of Prednisolone has been reduced to 1 mg/kg/24h for 4 days and then 0.75 mg/kg/24 for 3 days until the next follow-up.

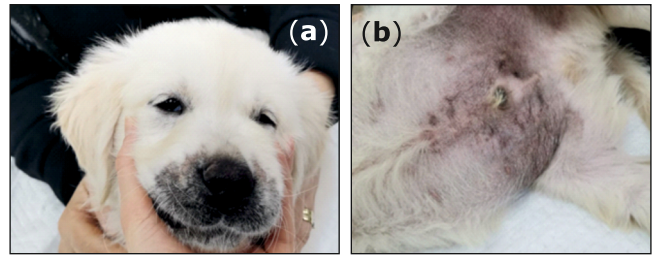

Fig. 4. The appearance of the dog on day 21 of treatment. Persistent hyperpigmentation of the periocular skin and muzzle (a); mild alopecia and hyperpigmentation of the abdominal skin (b)

3rd follow-up (day 21): The owner mentioned an improvement in polyuria, polydipsia, and polyphagia. The general condition of the animal was good, and the facial appearance was improved, even if hyperpigmentation of the periocular skin and muzzle was still present (Fig. 4 a).

Abdominal enlargement, alopecia, and hyperpigmentation were no longer so obvious (Fig. 4b).

The prednisolone dose was reduced to 0.5 mg/kg/48 h for the next 7 days.

4th follow-up (day 28): the owner mentioned that polyuria and polydipsia had improved, and the colour of the muzzle and periocular area had tended to become normal (Fig. 5). The puppy was completely cured 28 days after the initiation of therapy, and a dose of 0.25 mg/kg/48 was recommended for the next 6 days; the prednisolone discontinuation with a short taper was advised (0.25 mg/kg/72 h for 9 days).

OUTCOME: The dog was brought in for the first vaccine 90 days after completing corticosteroid therapy. The owner reported normal behaviour and the absence of hypercortisolism or other relapse signs during this time. The dog was considered to be of normal weight for his age and breed.

Fig. 5. Full recovery of the facial skin lesions on day 28 of treatment

RESULTS AND DISCUSSION

Juvenile sterile granulomatous dermatitis, also known as canine juvenile cellulitis or juvenile acne, is an autoimmune condition believed to have genetic determinism in some breeds, particularly Golden Retrievers and their half-breeds. The onset of this condition has been reported between 3 weeks and 4 to 6 months of age (6, 8), but it was also reported in adult dogs (4).

Its aetiology is not fully understood, but as the response to corticosteroids is very good, juvenile cellulitis is considered to be an autoimmune condition. Usually, the diagnosis of this dermatitis is based on the appearance of specific clinical signs in puppies and it is an exclusionary one (Demodex spp. or bacterial infections should be ruled out before the onset of the immunosuppressive therapy).

The skin biopsy is recommended for a definitive diagnosis, but in this case, it was denied by the owner.

The main clinical signs were: acute swelling of the face; mild submandibular lymphadenopathy; and vesicular, pustular, and crusting lesions. These facial lesions are generally oedematous, painful, but not pruritic, and sometimes could affect other areas like the pinnae, leading to otitis, or the genital area (3).

Immunosuppressive therapy should be initiated as soon as possible and, in some cases, systemic antibiotic therapy is recommended to keep secondary infections under control.

Periodic rechecks are necessary to adjust immunosuppressive medication according to current clinical signs and body weight, considering the accelerated growth rate of this breed.

As seen in the presented case, 2 mg/kg/day leads to signs of iatrogenic hypercortisolism.

Some dermatological lesions related to this condition were reported: focal or diffuse hyperpigmentation, thickening of the skin with loss of elasticity, telangiectasia, phlebectasia, seborrhoea, and comedones (2).

Our case showed transient signs of polyuria, polydipsia, polyphagia, focal hyperpigmentation, and seborrhoea which reduced in intensity after decreasing the dose of prednisolone (1 - 0.75 mg/kg/24 h).

Other protocols have been reported as being effective in keeping the lowest dose of prednisolone as possible. The combination of prednisolone with cyclosporine had good results, as reported by Bajwa J. (2022), but the prednisolone doses were higher than what we used in the presented case.

During the treatment, it is strongly recommended to weigh the puppy in order to avoid the possibility of corticosteroid depletion below the immunosuppressive or recommended dose. Methylprednisolone could also be chosen, being effective in other immune-mediated conditions, such as canine eosinophilic bronchopneumopathy (5).

Given the age of the animal, caution is recommended when carrying out prophylactic actions, bearing in mind that after corticotherapy it is not recommended to administer live attenuated-virus vaccines as virus replication may be augmented or a diminished immune response may occur after vaccination in these patients (7).

Another aspect to consider is the recommendation to remove these specimens from breeding because of the inherited transmission of this problem.

In general, the prognosis of a puppy strangle is favourable, with appropriate treatment and compliance from the owner leading to the definitive healing of the specific lesions. No evidence of relapse has been documented to date, and corticosteroid-associated signs have remitted after cessation of therapy in the presented case.

CONCLUSIONS

Signalments and clinical signs of the patient should be considered for the diagnosis of juvenile canine cellulitis. Ruling out a parasitic or bacterial disease is mandatory before starting puppy strangle therapy.

Therapeutic management is based on immunosuppressive medication, but this should be closely monitored due to the risk of iatrogenic hypercortisolism.

During treatment, weighing of the animal is strongly recommended to avoid the possibility of corticosteroid depletion below the recommended dose.

Hypercortisolism clinical signs usually subside with tapering or cessation of corticosteroid medication.

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