

Therapeutical researches on the *Demodex canis* infestation

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SUMMARY. Clinical and therapeutical studies were carried out on 10 German Shepherd dogs, property of the Military School for Dog Training Sibiu, within a period of 3 weeks, from 25th of July to 18th of August, 1995.

The systemic disease was noticed on 2 dogs (that is 20%), being clinically shown as a crust dermatosis, with pustulae, crevasses and edema of the subcutaneous tissue on the head and limbs. The animals also showed adynamia, lack of appetite and weakness.

The local disease was noticed on 8 dogs (that is 80%) and was clinically shown as rounded dermatitis with thin white-yellowish scales on the forelimbs and a well limited crust dermatosis with serohaemorrhagical folliculitis and hyperkeratosis on the inferior cervical region.

The treatment of the systemic disease was done with Avermectine (Grantelm - Virbac, Ivomec - MSD), in doses of 0.25 mg per kg body weight, on subcutaneous way, repeated 3-4 times, over a 7 days period. This general therapy was associated with a local one: an original anti-*Demodex* ointment. The combined therapy had a 50% efficiency.

In the local demodocosis, the same combined therapy (subcutaneous Avermectine and local ointment), together with a local application of acaricidal solutions (Neguvon 5‰) or acaricidal spray with piretine (Defendog - Virbac), had a 75% efficiency.

INTRODUCTION

Though the incidence of demodocosis is different in the nursery dogs than in the private persons dogs, the sternness of the disease and the difficulties of the therapy are the same. That is why this study was done on some dogs diagnosed with demodocosis, property of a Sibiu Nursery.

MATERIALS AND METHODS

The clinical and therapeutical researches in dogs' demodocosis were performed on 10 German Shepherds, within 6-8 months old and 20-30 kilos weight, bred in the Military School for Dogs' Training of Sibiu.

With a view to the begining of the infested dogs' therapy, we established a work protocol, with the subsequent objectives:

- setting up common actions to establish the incidence of parasitosis, depending on dog's age, by systematic checkings;
- we elaborated different therapeutic protocols for the main parasitoses which were diagnosed in the nursery;
- we analysed the different factors which encouraged the appearance and the evolution of those main parasitoses, in order to carry out some complex prophylaxis and therapy.

The subsequants were done for this last purpose:

- a) Clinical and microscopical examinations for tracing out the *Demodex* infestation, to the whole group of dogs, liable to catch demodocosis.
- b) The group of the reproduction females was clinically and microscopically verified before mating.

c) The alternative therapies were used to the diagnosed cases:

- acaricides from Avermectins group: Grantelm (Virbac) in doses of 0.2-0.3 mg per kg body weight, in subcutaneous way, repeated 3-4 times, every 7 days (depending on the clinical status);
- local therapy with an ointment containing acaricidal drugs, antibiotics, anti-inflammatory drugs and skin protectors;
- systemic therapy: immunomodulator drugs to stimulate the immune reactivity (Levamisol in doses of 3 mg per kg body weight, repeated 4 times every 3-4 days, on a 16 days period; autohaemotherapy).

Some characteristic actions were done in this therapy protocol, such as:

- antibiotics were given to the feverish animals;
- Levamisol (Decaris) and Mebendazol (Thelmin - Janssen) were given where there was an association of demodexosis with helminths;
- the leash and the dressing tools were disinfected with a chlorate solution;
- the dogs' kennels were disinfected with the help of an insecticide;
- the animals with clinical disease were isolated to block the contamination of the healthy dogs;
- the females were observed to study the transmissibility of *Demodex* through milk to the puppies or through placenta to the foetus.

During a 3 week period (25.05-18.06.1995), 10 dogs aged within 6-18 months and weighing within 20-30 kilos, were treated against demodexosis (2 cases had the systemic form of disease and 8 - the local form).

The systemic demodexosis (and particularly Rocky 1872, with lesions on all the four limbs) was treated with the subsequent alternative treatments:

First alternative

1. Grantelm, in doses of 0.5 ml per animal, on subcutaneous way, repeated after a 7 day interval;
2. original ointment with acaricidal, antiinflammatory, antimycotic and antibiotic drugs (Şuteu and Cozma, 1995):

Rp/ Neguvon pulvis - 1 g
Stamicin tablets no. IV
Tetracycline pulvis - 1 g
Anestezine pulvis - 1 g
Hidrocortisone ampulla no. I
Vitamine A ampulla no. I
Excipient (vaseline) - ad 100
M.f. ointment
D.S. external, 1 time daily, until recovery.

This ointment was applied on the first day on the forehalf of the body and the forelimbs. After 3 days it was applied on the hinder half of the body and the hinder limbs. Thus, the body was never completely covered with ointment and the cutaneous functions were never broke.

3. Decaris in doses of 75 mg, repeated 4 times every 4 days (this is a total period of 16 days).

Second alternative

1. Ivomec (MSD) in doses of 0.25 mg per kg body weight, on subcutaneous way, repeated after 7 days.
2. Neguvon solution 5‰, on frictions done on the last 3 days of the therapy (day 28, 29 and 30).
3. Lincospectin in doses of 2 ml, on i.m. way, was given to feverish animals.
4. Glucose and Polivitamines were given in order to support the dogs' lives.

In local demodexosis (Nob 1843, with round dermatitis on the forelimbs - benign local disease) we have done the following treatment:

- Grantelm in doses of 0.5 ml per animal, on subcutaneous way, repeated after a 7 days interval;

- Decaris in doses of 75 mg per animal, repeated once every 4 days, 4 times, during a 16 day period;
- Defendog (Virbac), spray, repeated after a 7 day interval.

RESULTS AND DEBATES

The combined therapy with Avermectine (Grantelm - Virbac, Ivomec - MSD), acaricidal solution (Neguvon - Bayer) and spray (Defendog - Virbac), ointment with antimycotic (Stamicin), antiinflammatory (Hidrocortisone) and antibiotic (Tetracycline) drugs led to the complete recovery of 7 dogs (this is 70%). The other 3 dogs died because of the overlapped wounds.

Among the 10 studied dogs, 3 are worth specifying, based both on their clinical condition and the therapeutical results.

Thus, Rocky 1872, with systemic demodexosis, had shown crust dermatosis with pustulae and thick folded skin on the head and limbs, crevasses with thick gray mould smelling crusts on flanks and general bad shape with adynamia, lack of appetite and weakening.

Nob 1843, with local demodexosis, had shown round dermatitis with limited thin white-yellowish scales on the forelimbs. Nasira 2083, with local demodexosis too, presented crust dermatosis and serohaemorrhagic folliculitis with hyperkeratosis in the inferior cervical region.

Based on these varied lesions, we considered natural to diversify the dogs' therapy as listed in Table 1.

One of the dogs with systemic demodexosis was saved (Rocky 1872). The result was pointed out by comparing the photos taken before and after the cure. Thus we can say that the treatment was 50% efficient. The therapy was carried out until no parasites were found on the skin curettages.

Among the dogs with local demodexosis, two died, the percentage of death being 25, less than in the systemic disease (50%). In this form of the disease, the death was due both to the overlapped wounds and to an increased immunosuppression. Among the animals recovered with our therapy, 6 (that is 85,7%) were completely restored in all respects (including the medical and labor aspect).

Just one of the dogs, though with local disease (with whitlow to every limb) could not be used anymore to the work he was meant to. The complete recovery is due both to the drugs used and to the strict abide to the protocol (Table 1).

Even if the new generations of drugs are highly varied and performant, especially the Avermectines, we can not talk about 100% recovery of demodexosis. That's because every organism is a distinct biological entity which reacts differently both to the environmental challenges and to the attempts of removing them.

We can see from this study that the local disease prognosis (75% success) is better than the systemic one (50% success).

The economic forecast is the same with the vital one on the complicated forms (which is 50%). That means that the restored dog is able to train. Among the animals with local disease, we recovered 83.3% for training.

Very important for the demodexosis treatment are: the use of acaricidal drugs with antibiotics (in a feverish animal), disinfection of the leash and dressing tools, use of the immunomodulating drugs and protectives of the skin.

The percentage of recovery in the systemic demodexosis (50%) is the same as the one that other authors had obtained too (Scott, 1995). It seems that the cure of the bacterial and fungal overlaps is very important for the recovery. On the other hand, using the Avermectine drugs shortened the period to the demise of Demodex in the skin curettages.

Our therapeutical performances, superior to other authors, in the treatment of local demodexosis (57%) is due part to the Avermectines and part to the local therapy with an original complex ointment.

CONCLUSIONS

The clinical and therapeutical studies carried out during a period between 25.07 and 18.08.1995, on 10 German Shepherd dogs with demodecosis, revealed the subsequent:

1. The systemic disease appeared on 2 cases out of 10 (that is 20%). It was clinically shown by a crust dermatosis, with pustulae, crevasses and edema of the subcutaneous tissue of the head and limbs. All the animals were adynamic, with lack of appetite and grown thin.
2. The local disease affected 8 dogs out of 10 (that is 80%), being expressed by round dermatitis, with thin white-yellowish scales on the forelimbs, and by well limited crust dermatosis on the inferior cervical region.
3. The therapy with Avermectine (Grantelm - Virbac, Ivomec - MSD), in doses of 0,25 mg per kg body weight, on subcutaneous way, repeated 3-4 times, every 7 days, associated with a local treatment with an original ointment, had 50% efficiency on the systemic demodecosis.
4. The therapeutical protocols based on Avermectine (given on subcutaneous way), associated with a local therapy with the same ointment as the one used on the systemic disease and with acaricidal solutions (Neguvon 5‰) or spray with piretine (Defendog - Virbac) had 75% efficiency on the local demodecosis.

REZUMAT

Cercetări terapeutice în infestația cu *Demodex canis*

Studiile clinice și terapeutice s-au efectuat pe 10 câini de rasă Ciobănesc german, proprietatea Școlii Militare pentru Dresajul Câinilor Sibiu, timp de 3 săptămâni, în perioada 25 iulie - 18 august 1995.

Boala cu localizare sistemică a fost observată la 2 câini (20%), manifestându-se clinic ca dermatoză crustoasă, cu pustule, crevase și edemul țesutului subcutanat pe cap și membre. De asemenea, animalele au prezentat adinamie, anorexie și slăbire.

Forma locală a bolii s-a evidențiat la 8 câini (80%), iar semnele clinice au fost: dermatită circulară cu solzi fini albi-gălbui pe membrele anterioare și o dermatoză crustoasă bine delimitată, cu foliculită serohemoragică și hipercheratoză în zona cervicală inferioară.

Tratamentul bolii sistemice s-a realizat cu Avermectină (Grantelm - Virbac, Ivomec - MSD), în doză de 0,25 mg/kg corp, subcutanat, de 3-4 ori, timp de 7 zile. Această terapie generală a fost asociată cu una locală: un unguent original anti-*Demodex*. Terapia combinată a avut o eficiență de 50%>

În demodecoza locală, aceeași terapie combinată (Avermectină subcutanat și unguent local), împreună cu aplicarea locală de soluții acaricide (Neguvon 5‰) sau spray acaricid cu piretină (Defendog - Virbac) a avut o eficiență de 75%.

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