

NONSURGICAL COMBINED THERAPY AND RECOVERY PROCESS IN 12 YEARS OLD DOG WITH LUMBOSACRAL SPONDYLOSIS DEFORMATIONS AFTER 8 MONTHS OF PARAPLEGIA, MUSCLE ATROPHY AND SPINAL CORD COMPRESSION SYNDROME: A CASE STUDY

TERAPIE NECHIRURGICALĂ COMBINATĂ ȘI PROCES DE RECUPERARE DUPĂ 8 LUNI LA UN CÂINE DE 12 ANI CU SPONDILOZĂ LUMBOSACRALĂ DEFORMANTĂ, PARAPLEGIE, ATROFIE MUSCULARĂ ȘI SINDROM DE COMPRESIE A MĂDUVEI SPINĂRII: STUDIU DE CAZ

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ABSTRACT | REZUMAT

Spinal cord compression syndrome with paraplegia consecutive lumbosacral spondylosis is a common problem in dogs after 8 years of age. A non-surgical treatment especially in very old dogs with multiple pathologies is the best choice for recovering their health and mobility back to have a normal life again as much as possible to avoid other consecutive complications. The combined therapy follows 5 different aspects: 1. Anti-inflammatory therapy and pain therapy with paravertebral injections; 2. Recovering of the mobility; 3. Neurological recovery and therapy; 4. Recovery of the muscular mass; 5. Physiotherapy especially for long-time paraplegic syndromes with swimming, massage, and electro muscular stimulation. All of these are meant to be a solution in the many situations when the surgery procedures are impossible to make. After all combined therapies and efforts, we succeeded to recover the patient neurologically and make it to walk and run again. The motility and sensitivity of the nerves function again after 8 months of paraplegia with no neurological reaction. The recovery was long but with the help of the combined therapy, the complete motion on the back part of the body was done.

Keywords: dog paraplegia, spondylosis, physiotherapy, combined therapy

Sindromul de compresie a măduvei spinării cu paraplegie consecutivă spondilozei lombosacrale este o problemă frecventă a câinilor cu vârsta de peste 8 ani. Tratamentul non-chirurgical, în special la câinii foarte bătrâni și cu patologii multiple, este cea mai bună alegere pentru recuperarea sănătății și mobilității, pentru o viață normală de lungă durată și pentru evitarea complicațiilor ulterioare. Terapia combinată urmărește 5 aspecte diferite: 1. Terapie antiinflamatoare și terapie a durerii cu injecții paravertebrale; 2. Recuperarea mobilității; 3. Recuperarea și terapia neurologică; 4. Recuperarea masei musculare; 5. Fizioterapie, în special pentru sindroamele paraplegice îndelungate prin înot, masaj și stimulare electro-musculară. Toate acestea sunt menite să fie o soluție în numeroasele situații în care procedurile chirurgicale sunt imposibil de realizat. După toate terapiile și eforturile combinate, s-a reușit recuperarea neurologică a pacientului, care a început să meargă și să alerge din nou. Motilitatea și sensibilitatea nervilor funcționează din nou după 8 luni de paraplegie fără reacție neurologică. Recuperarea a fost lungă, dar cu ajutorul terapiei combinate s-a redobândit mobilitatea completă a trenului posterior.

Cuvinte cheie: paraplegie la câine, spondiloză, fizioterapie, terapie combinată

Spinal cord compressions due to spondylosis deformans with paraplegia among the old dogs are very frequent these days (4). It affects all dog breeds and especially old dogs, long-backed breeds (e.g., Dachshunds), female dogs who have had many pregnancies, female dogs who have been neutered very early and have excessive abdominal scarring, many large and giant dogs. Most dogs who are affected by spondylosis deformans were very active dogs in their first years of life and made a lot of physical effort like running, jumping, swimming in cold water, and playing excessively

with their owners. These dogs with ageing begin to lose muscle mass and because of the weakened joints, dehydration of intervertebral discs (disc desiccation) they develop bone spurs of spondylosis deformans between the vertebrae to re-establish the stability of the vertebral column. These new conditions generate inflammation and spinal cord compression and paraplegia with severe muscle atrophy. Paraplegia in dogs' changes dramatically their quality of life and if is not treated at the time, it may generate severe other complications like permanent paralysis and back limbs injuries (10). In this case study, we describe a long-term combined therapy applied in a cross-breed female dog, 12 years old, with spondylosis deformans who stayed 8 months with paraplegia, severe muscle atro-

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phy, without neurological reaction, and who could no longer walk or stand.

MATERIALS AND METHODS

Case presentation

Cross-breed female dog, 12 years old, 27 kg weight, white-brown coat, and neutered 10 years ago. The patient has a history of 8 months of paralysis in the back half of the body, inability to move on the back legs, inability to stand (the dog is in lateral decubitus and cannot stand on paralyzed hind limbs). Lumbar-sacral dorsal muscles, croup, and hind legs muscles with severe atrophy, sores, and ulcers which have occurred as a result of the dog laying down all of the time and dragging the legs when trying to move. Intermittent faecal, and urinary incontinence. Body temperature: 38.2 °C. The neurological reaction was absent at the pinching of the extremities. Absent reaction to deep pain. The suspected cause of the lesions was spondylosis deformans.

X-Ray examination

Several ventral bone spurs between the lumbar and sacral vertebrae (Fig. 1, 2), which changed the local anatomic lines, support the suspicion of spondylosis deformans and inter-vertebral arthrosis with osteophytosis (4, 7).

Treatment

Period of the treatment: 15 April 2020 - 10 March 2021.

Nonsurgical treatment was required and based on a combined therapy which follows various aspects to obtain the best we can do at the present moment in the present conditions with all possibilities that we have without producing any more other injuries or lesions do not generate other affections considering the old age of the female dog-12 years.

The combined therapy follows the next aspects:

1. Anti-inflammatory therapy using a previously described protocol (3);
2. Antibiotics in first 10 days for resolving infections in the decubitus ulcers;
3. Neurological treatment, neuro-stimulant medications;
4. Specific diet;
5. Topical lumbar-sacral area gel /ointment medication;
6. Chondroprotective drugs;
7. Physiotherapy;
8. Electroacupuncture electro-neuro-muscular stimulation;
9. Massage;
10. Increase the muscle mass and body force using veterinary steroids;
11. Swimming.



Fig. 1. The paraplegic 12 years old patient X-Ray Spondylosis deformans with osteophytosis



Fig. 2. Xray negative view spondylosis deformans 12 years old dog inter-vertebral arthrosis with osteophytosis

Anti-inflammatory therapy

Paravertebral local intramuscular injections on the lumbar-sacral area with Dexamethasone 4 mg + Xilina (Lidocaine) 40 mg + 5 ml NaCl solution, 1 administra-

tion at 3 days first 4 weeks and 1 administration at 5 days another 4 weeks.

Antibiotics

Tsefalen 500 mg(Cefalexin)/12 h, PO, 10 days. Neocaf spray (oxytetracycline) and Mibazon (tetracycline, erythromycin, neomycin, prednisolone) ointment local apply 3 times a day.

Neurological neuro-stimulants

Vitamin B12 (50 µg/ml), 2 ml once a week, 4 injections, SC; Vitamin B1 (100 mg/ml) and vitamin B6 (50 mg/ml), 2ml/48 h, 14 days, SC; Karsivan, 1/2 tab/12 h, 30 days, PO; Neurovet, 2 caps/12h, 30 days, PO; Salmon Oil, 12 ml/day, 60 days, PO; Vitol-140, 0.5ml/day, SC.

Specific diet

A specific diet with high contains different essential amino-acids and essential fats and phosphorus: 7 Quail boiled eggs/day, 2 teaspoons of honey, 200 grams roasted meat of chicken, turkey, beef, 100 grams liver - all roasted, 200 grams roasted fillet fish, 100 grams unsalted cheese all divided in 2 meals per day. The dog didn't eat industrial pet-food.

Topical gel /ointment medication on lumbar-sacral area

Massage on lumbar-sacral with Osteocicatrat TR local apply 3 times /day (Romvac, Romania), Rumak Gel local apply 3 times/day (Montero, Romania), Eqvigel Forte local apply 3 times/day (Farmavet, Romania), Vanogel local apply 3 times /day (Vanelli, Romania).

Chondroprotective drugs

Megaflex (Rx Vitamins, USA) 4 caps/day for 90 days combined with Vetriflex Pro (VetriScience Laboratories, USA) 1caps/day for 90 days.

Physiotherapy

A very important part of the treatment where we made a lot of physical effort was suspending the back part of the dog body with a textile "Dog Lift Harness with Handle Support for Injured Back Legs Adjustable Pet Recovery Assistive" (Heywean, UK) helped of 1 assistant and another assistant helps the dog to make steps in a program of 30 seconds than a break of 120 seconds this program repeated of 5 times a day with 10-15 exercise every time but avoiding physical exhaustion of the dog. This harness helped also to suspend the female dog in the swimming pool to learn again to swim. This type of harness "Dog Lift Harness with Handle Support for Injured Back Legs Adjustable Pet Recovery Assistive" can be found on the internet in online stores or Amazon and E-bay too.

Electro-neuro-muscular stimulation

Using Zepter Vital System Electro-Acupuncture and Neuro-Stimulator every day for 5 to 7 minutes on the paws surface, back legs, and the lumbar-sacral dorsal area. This stimulates the feedback response in the sensory nerves and motor nerves which creates muscular contractions stimulating blood vessels and improving blood circulation in that area. This tech-

nique is frequently used in human medicine too.

Increase the muscle mass and body force using veterinary steroids

Myodine, 1 ml at every 3 weeks, 3 administrations, IM.

Swimming

The dog was suspended with the harness almost all the time in a warm water bath (36-38 °C) to be able to stay at the surface and swim most with the front legs. Because using all the body muscle it began to move the back muscles of his spine little by little and the back legs muscles. After 6 weeks of almost daily practice succeed to swim lonely without any help (3).

RESULTS AND DISCUSSION

Today we have the possibility of treating nonsurgical and non-invasive spondylosis deformans that affects many dogs, especially active dogs, long-backed breeds, obese dogs, female dogs after many pregnancies, big and giant dogs (8, 9). For old dogs (a 12 years old female dog in our case study), the restoration of the nervous system and muscle mass with the complete recovery of the functions of the spinal cord and the functions of the vertebral column physiology cannot be realized in a short time. Especially for an old female dog who suffered from paraplegia for 8 months. Early diagnostic and treatment combined with physiotherapy are essential. As much time as muscular atrophy is developed the chances of recovering decrease very much (2). Early intervention has been shown to enhance neurologic recovery in several animal studies (1, 5). A very important effect in the treatment had the paravertebral injections with inflammatory and local anaesthetic drugs which demonstrate to be very efficient in many cases of old and very old dogs suffering of paraplegia. These combined with neurostimulant medications like Karsivan, Canergy, B12, B1-B6, Vitol-140, Mega-flex, Salmon Oil, and Myodine which improve fast the recovering of muscle mass lost in the time of 8 months of paraplegia and recover the complete neuron's functions. Massage significantly helps to improve or manage the symptoms of spondylosis deformans in affected dogs having many benefits: a) viable and natural form of pain management in spine spondylosis; b) addresses all areas of protective muscle splinting; c) reduces the areas of overcompensation; d) relieves all areas of chronic pain; e) relieves stiffness; f) creates and improves flexibility; g) maintains and increases all joint movement; h) restores muscles strength to the spine by addressing areas of myofascial pain and trigger points which are commonly known to mimic symptoms of disease; i) helps to improve posture and gait.

Another very important factor was the ideal daily combination of swimming and massage with veterinary ointments, creams, gels, and physiotherapy. Without all these three, the results surely would have been certainly poorer. The most important fact in the

swimming therapy is the immense help of the natural survivor instinct of the dog who tries to keep his body upper the water surface does not drown itself and this activates a powerful psychological motivation which determines the entire neurological system to use all body strength and re-sources to move all muscles to succeed to swim (3). It can be observed after every swimming session that all the body became more functional than before and in better shape.

It is not as nimble as a healthy young dog but it walks and runs well enough recovering her normal life back. The sites of spondylosis, the modified distance between vertebrae, and sites of intervertebral disc disease may be coincidental or associated with vertebral column biomechanics without existing an MRI or CT scan of the spine (3, 10). Swimming, massage, and physiotherapy are linked to the medication and diet. Without them, the results would be very different. This method of treatment is non-invasive doesn't create any other lesions or deformation of the vertebral column but it helps to recover as much as possible the original form and correct position of the vertebral column and all body. Also, allow all the natural biomechanical musculoskeletal movements.

An important recovering factor in paraplegic dogs is the electroacupuncture electro-neuro-muscular-stimulation using a dedicated Zepter Vital System machine, also used in human medicine (2).

The combined therapy presented here, we used in many other similar cases (>200 dogs) during 17 years of work where we succeed to make many paraplegic dogs to walk and run again and to enjoy their life for another few years. The other affections and injuries resulting from spondylosis deformans with paraplegia can hurry the death of these dogs with few years earlier because many complications which may appear.

Drugs administration without physiotherapy is not so efficient. Physiotherapy combined with swimming increase the recovery considerably. Administration of veterinary steroids (Myodine) proved to increase rapidly the muscle mass and also the force of moving the back legs and all the body. Local administration and massage with veterinary ointments, creams, and gels provide their revulsive and anti-inflammatory effects bringing more circulating blood in the specific area where are applied. Many dog owners may continue and apply at home constantly this combined therapy described here (with massage, ointments, swimming, oral treatment, diet, and neurological supplements with a minimum of efforts on long term this help to not interrupt the treatment and therapy (6). After the recovery process, any dog with spondylosis deformans or IVDD has to visit the veterinarian at least every 2 months and keep taking neurological supplements and continue physiotherapy periodically.

CONCLUSIONS

The efficiency of treatment is proved to be good and the results obtained are encouraging. All parts of this combined therapy proved to be very important. The female dog was never used for breeding and this doesn't confirm the theory that especially multiparous female dogs are affected of spondylosis deformans. Owners of pets with paraplegia caused by the spondylosis deformans should be informed about the long period of treatment (at least 1-2 months) and patients' chances of recovery.

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