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Effects of neuraltherapy in post-traumatic paraplegia: A case study of significant and permanent improvement in a cat

Onur Jılta[1] , Mehmet Haşim Açanal[1] , Mahmut Velayi[1], Gülşen Yılmaz Jılta[2], Hüseyin Nazlıkul[3]

1.Bogazici Veterinary Polyclinic, Istanbul - Turkey. **2**. Istanbul University-Cerrahpaşa, Institute of Graduate Studies, Istanbul, Turkey. **3**. Naturel Sağlık, Istanbul - Turkey, Jilta O. ORCID https://orcid.org/0009-0005-4174-0472 , Açanal, H.A. orcid; https://orcid.org/0009-0003-4491-0567, Velayi, M. ORCID: https://orcid.org/0000-0002-9350-3234, Yılmaz Jilta ,G. orcid: https://orcid.org/0000-0001-8318-2417. Nazlıkul , H. orcid: https://orcid.org/0000-0002-9746-5220

Case Report

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ABSTRACT

Neuraltherapy is a treatment method that applied to regulate the autonomic (vegetative) nervous system by using very low doses of local anaesthetics such as procaine and/or lidocaine. Neuraltherapy, which is a treatment method that can be used in many diseases, means affecting the autonomic (vegetative) nervous system and thus activating the self- healing function of the body. The fact that this treatment method is an effective interference field treatment component, especially in human medicine under the name of holistic medicine practices and makes it indispensable in regulation therapy. In short, when this treatment method is evaluated in terms of regulation; it can be described as the art of returning the body to factory settings. In this case report, has been reported that a cat with posttraumatic paraplegia and urinary/fecal incontinence showed a significant – permanent improvement after neuraltherapy applied to certain points by injection. The patient, who had proprioceptive loss, advanced neurological dysfunction and urinary/fecal incontinence before treatment, was observed to be able to run and to be able to perform normal motoric functions with complete recovery at the end of the 4 – 5 sessions of neuraltherapy. The patient did not receive any corticosteroid treatment during the neuraltherapy treatment period. Injections were administered directly into the site of injury and into segmental zones associated with the affected area. This case report is the first published article on neuraltherapy in the field of veterinary medicine in Türkiye and is a pioneer for future studies.

Keywords: procaine, interference field, neural dysfunction, urinary/fecal incontinence, cat

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Introduction

Neuraltherapy is a treatment method that applied to regulate the autonomic (vegetative) nervous system by using very low doses of local anaesthetics such as procaine and/or lidocaine. This therapeutic approach with local anaesthetics is a method used in the treatment of pain, inflammation, chronic disease, hormonal irregularities, wound healing and some health problems that we can consider under the name of preventive medicine. In this treatment method, it is aimed to work with the stimuli of the nerve endings in the body and thus to provide healing. The body of mammals such as humans and animals is completely interrelated. This relationship is mediated by the neural network that called autonomic nervous system and the membranes that called fascia. Neuraltherapy provides stimulation and regulation of the vegetative (autonomic) nervous system, which has a very large electrical network structure in the body. Failure in any part of these structures causes effects on the entire system. All neuraltherapeutic methods either energise the impaired tissue or dissolve energy blocks. In addition, the anti-inflammatory effects of neuraltherapy, such as increasing circulation and providing lymphatic drainage, enable the homeostasis mechanism to work as a whole.

The mechanism of effect of neural therapy is based on restoring impaired body functions to normal through a holistic treatment method. This is achieved by stimulating the neurovegetative system using local anesthetic (LA) substances, leading to the re-regulation

*Corresponding Author: Onur Jılta
onur.jilta.oj@gmail.com

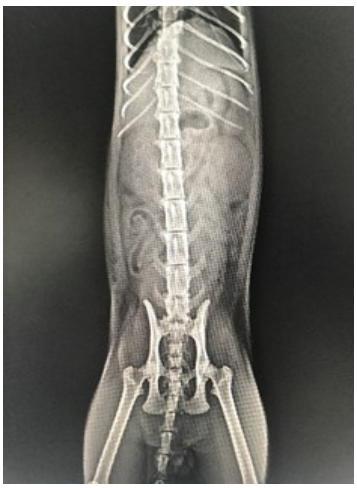
of the organism. Neuraltherapy is a regulation therapy using very low doses of local anaesthetic substances (0.5-1% procain or 0.5-1% lidocaine) (Nazlikul and Babacan, 2019).

Figure 1 and 2. Clinical appearance and posture of the patient before treatment.

In neuraltherapy, local anaesthetics (usually procaine or lidocaine) are applied to correctly defined areas of the body in order to ensure a positive circulation in the body. As a result, the body begins a self-healing process and the symptoms of the disease begin to resolve (Nazlikul, 2010).

To ensure a safe treatment in neuraltherapy, the local anaesthetic must be applied directly to the area of the body that is in pain and damaged or malnourished. To patients, this diagnosis and the use of this procedure seem understandable. However, the pain that occurs often has complex causes (Nazlikul and Babacan, 2019). The aim of neuraltherapy is to restore homeostasis. Achieving and maintaining homeostasis requires the functional co-operation of many cells distributed over a wide area in the system, and the ANS (Autonomous Nervous System) = VNS (Vegetative Nervous System) has a very important role in this co-operation (Nazlikul, 2009). If the functional cooperation between these cells is impaired or prevented for various reasons,

Figures 3. Radiographs (LL)



Figures 4. Radiographs (VD)
There is a slight increase in soft tissue intensity in the lower and lateral parts of the lumbosacral region (paraspinal area).

pathological stimuli transmitted by the VNS may cause dysfunction or disease (allostasis) in tissues and organs. Allostasis is a disease state.

The most important point of neuraltherapy is that local anaesthetics have an effect not only on the local painful or injured area but also on distant areas that may be the source of the complaint by using VNS connections. This effect is explained by neurovegetative connections. Therefore, excitable tissues such as nerve and muscle tissue show the ability to generate and transmit action potentials by changing the electrical properties of cell membranes against any stimulus (Egli et al., 2015).

LA's help to create a kind of "de-sensitisation" by breaking the vicious circle (circulus vitiosus) in pain conditions and functional disorders; in peripheral and central sensitisation areas, in tissues where neuroplasticity develops (Cassuto et al., 2006).
Pain pathways (especially their effects on WDR neurons that form pain memory) can be explained by neurogenic inflammation, the concept of interference focus/area revealed by the acute and chronic inflammation process, and the regulatory effects on the structures that form central pain memory that we encounter in acute and chronic pain syndromes (Bailey et al., 2018).

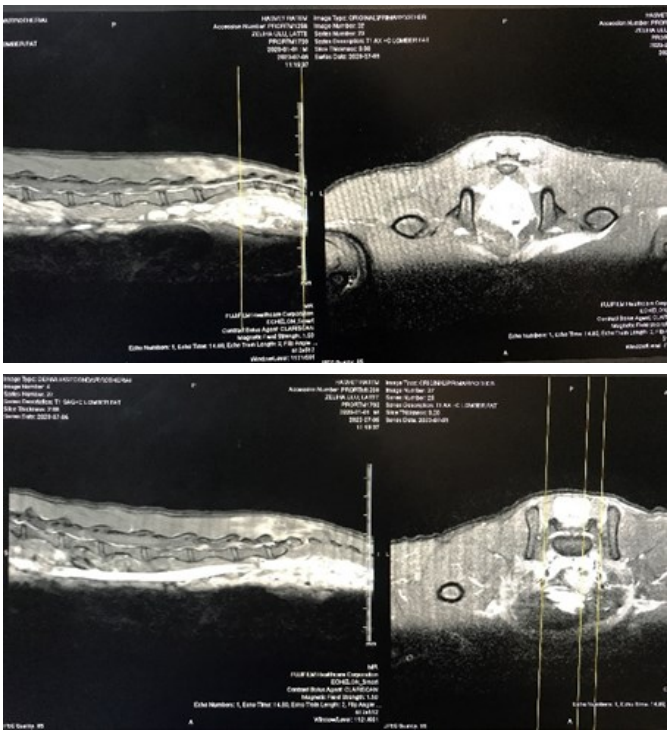
The basic logic in neuraltherapy is regulation. An anatomical deficiency, a genetic disorder table is not within the indications for neuraltherapy. Therefore, neuraltherapy provides regulation of the existing structure (Nazlikul, 2010).

In this case, 0.5% procaine injections were administered directly to the injury site and the associated segmental areas to facilitate the re-regulation of the autonomic nervous system in the relevant region. The application methods are detailed

Table 1. Laboratory findings

Complete blood count (CBC)	Lab. Value	Ref. Range
WBC (x 10^9/L)	15.33	5.5 – 19.5
Baso (x 10^9/L)	0.00	0.0 – 0.1
Baso (%)	0.00	0.0 – 1.2
Neu (x 10^9/L)	14.36	3.1 – 12.6
Neu (%)	93.7	38.0 – 80.0
Eos (x 10^9/L)	0.05	0.1 – 1.9
Eos (%)	0.3	1 – 11
Lymph (x 10^9/L)	0.65	0.7 – 7.9
Lymph (%)	4.3	12.0 – 45.0
Mono (x 10^9/L)	0.27	0.1 – 1.4
Mono (%)	1.7	1.0 – 8.0
RBC (x 10^{12}/L)	10.18	4.6 – 10. 2
HGB (g/L)	125	85.0 – 153.0
MCV (fL)	35.2	38.0 – 54. 0
MCH (pg)	12.2	11.8 – 18
MCHC (g/dL)	34.8	29.0 – 36.0
RDW– CV %	18.3	16.0 – 23.0
RDW – SD fL	28.3	26.4 – 43.1
HCT	35.8	26.0 – 47.0
PLT (x 10^9/L)	420	100.0 – 518.0
MPV (fL)	11.1	9.9 – 16.3
PDW (Quant.)	14.4	12.0 – 17.5
PCT (ml/L)	0.467	0.9 – 7.0
Biochemistry	Lab. Value	Ref. Range
ALB (g/dL)	2.8	2.3 – 3.5
ALB /GLB	0.74	0.4 – 1.1
ALP (u/L)	17	9.0 – 53.0
ALT (u/L)	218	22.0 – 84.0
AST (u/L)	1000	18.0 -51.0
BUN (mg/dL)	18.4	17.6 – 32.8
CRE (mg/dL)	0.52	0.8 – 1.8
GGT (u/L)	10	1.0 – 10.0
GLB (u/L)	3.8	2.8 – 5.1
Glucose (mg/dL)	189	71.0 – 148.0
TP (g/L)	6.6	5.7 – 7.8
CK (U/l)	****	0 – 250
Feline SAA (mg/dL)	91.8	0.0 – 5.0

ALB = Albumin, ALP = Alkaline phosphatase, ALT = Alanine aminotransferase, AST = Aspartate aminotransferase, ALB / GLB = Albumin - globulin ratio BUN = Blood urea nitrogen , CRE = Creatinine, GLB = Globulin, GGT = Gamma-glutamyltransferase, Glucose, TP = Total protein, Feline SAA = Feline Serum Amyloid A, CK = Creatine kinase, HGB = Hemoglobin, MCV = Mean corpuscular volume, MCH = Mean corpuscular hemoglobin, MCHC = Mean corpuscular hemoglobin concentration, RDW– CV = Red cell distribution width - coefficient of variation, RDW – SD = red cell distribution width - standard deviation, HCT = Hematocrit, PLT = Platelets, MPV = Mean platelet volume , PDW = , PCT = , WBC = White blood cells, Baso = Basophils, Neu = Neutrophils, Eos = Eosinophils, Lymph = Lymphocytes, Mono = Monocytes, RBC = Red blood cell count,



Figures 5 and 6: MRI Images. Edema and haemorrhage were observed in the bilateral psoas muscle at the level of L6 - L7 vertebral corpus.

Table 2. Session based clinical improvements

Sessions	Pain Control	Normalisation of Urinary / Faecal Incontinence	İmprovement in proprioception and ability to stand in a seated position	İmprovement of walking running and jumping
1st Session	+	+	-	-
2nd Seasion	+	+	-	-
3rd Session	+	+	+	-
4th Session	+	+	+	+

The treatment protocol was applied by leaving 3 - 7 day periods between sessions.

in the case section. The primary aim of this case presentation is to highlight the effectiveness of neuraltherapy, which has been practiced in human medicine for years, in the field of veterinary medicine as well.

Case

Our patient who was a 4-year-old, male tabby cat weighing 4 kg, was brought to the clinic with the complaint of not being able to step on his hind legs. Patients history; 3 days ago he was stuck in the vasistasis in the anterior part of the hip area and he tried to get out, but he could not get out and stayed there for a while. Before being brought to our clinic, the patient was administered Prednol (16mg) (sc) for 2 days in a different clinic, but there was no neurological improvement in the patient's symptoms.

On clinical examination the patient was observed to

be paraplegic and urinary / faecal incontinence was found. On kinesiologically examination, it was determined that the test was positive (+) for L3 and beyond. It was determined that there was a sacral canal blockage with marked nerve weakness especially in the lumbosacral area. The clinical appearance of the patient before treatment is shown in pictures 1 and 2.

Proprioception was negative (-) bilaterally in the hind legs and flexor retraction test was negative (-). Hind leg spinal reflexes (cranial tibial, patellar and gastrocnemius reflexes) were recorded as areflexia (0). Deep pain sign was positive (+) and superficial pain sign was negative (-).

In addition, bleeding in the digestive system and the presence of fresh blood in the faeces were determined after the use of corticosteroids. The patient's appetite was good and general condition was normal.

No abnormality was found in the bone structures on radiographic examinations (Figure 3 and 4).

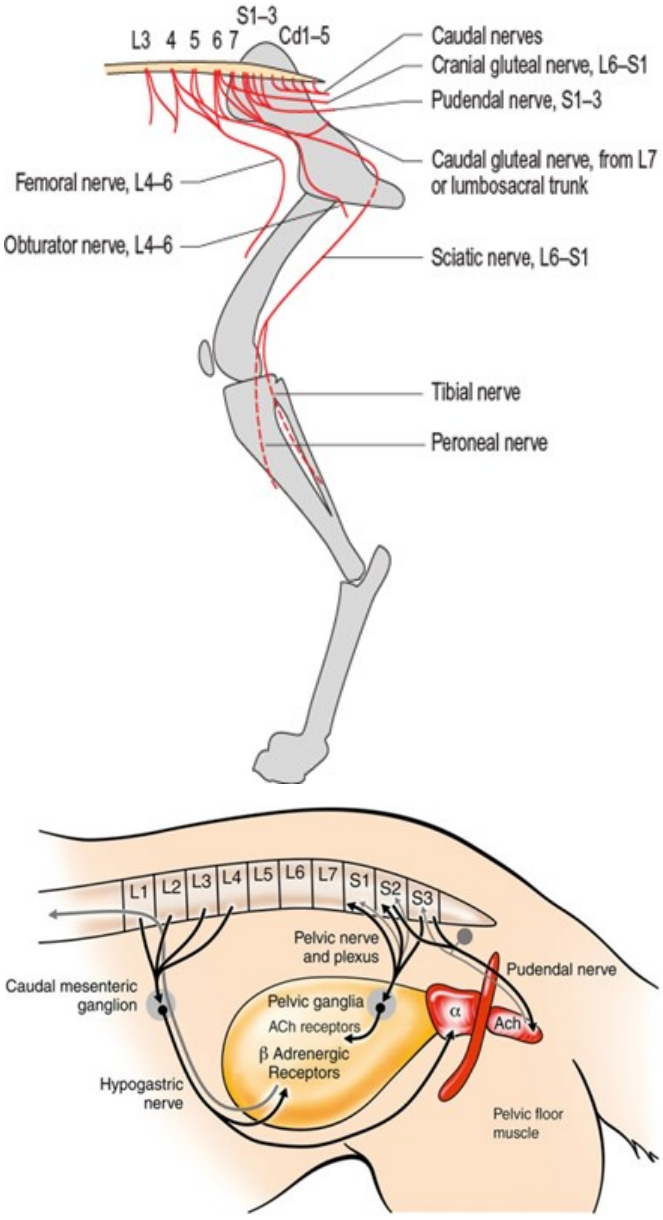
*** CK: Since it was well above the reference value, it was interpreted as a possible muscle damage due to its high level. All other laboratory findings are given in table 1. The patient was referred for MRI a few days later and MR images are shown in figures 5 and 6.

İn clinical findings the patient was found to have no spinal cord problem. It was concluded that one or more of the peripheral nerves of the hind leg (sciatic nerve, genito - femoral nerve, cranial and caudal gluteal nerve, pudendal nerve, pelvic nerve and obturator nerve) had nerve damage. In addition, in view of the way the accident developed, this also means that pressure was compressed on the inferior mesenteric plexus over a prolonged period of time, possibly compressing the aorta as well. Irritation of the autonomic nervous system, especially the sympathetic nervous system, also explains both paralysis of the lower limbs and urinary incontinence. Stimulus-induced increased sympathetic tone and concomitant hypoxia of both pelvic organs and lower extremities from arterial compression would explain the clinical manifestation after trauma. Due to the dense nerve network of the lumbosacral plexus, multiple nerve injuries are generally thought to occur in such cases. Anatomical diagrams showing the hind leg nerves and their innervation areas are shown in figures 7 and 8.

After a total of 4 sessions of neuraltherapy, the patient was able to climb stairs by stepping on his hind legs and a significant clinical improvement was noted.

In addition to neuraltherapy, the patient also underwent a single session of laser therapy and ultrasound therapy to the lumbo-sacral area and a single session of electrotherapy to the lumbar paraspinal area.

Application method, most of the injections and



Figures 7 and 8. Neural innervation areas of the lumbosacral plexus and its networks (Langfitt et al., 2017)

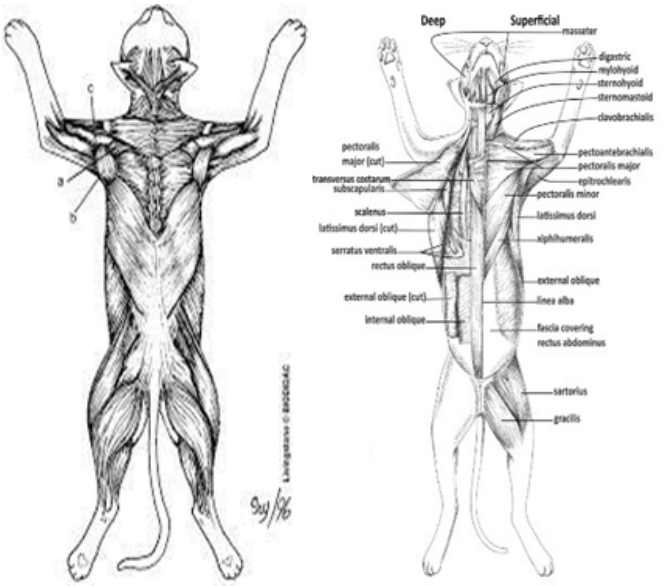
treatment protocols have been adapted to the field of veterinary medicine based on neuraltherapy applications in human medicine. Since the patient became aggressive during the injection, sedation was applied to the patient in some sessions for ease of administration. (Medetomidine + Atropine combination was applied for sedation). Neuraltherapy approaches applied to the patient are given below on a session basis.

1st Session : (Total 7.5 ml - 0.5% Procaine)

Lumbal and lumbosacral region paraspinal quadell and spinous process injection. Sacral canal injection. After the session; Gait - no significant improvement. Urinary and faecal incontinence - Significant improvement was noted.

2nd Session: (Total 7.5 ml - 0.5% Procaine) (Administered under sedation)

Lumbal and lumbosacral region paraspinal quadell and



Figures 9 and 10. Dorsal and ventral view of a cat showing anatomically superficial muscle groups.

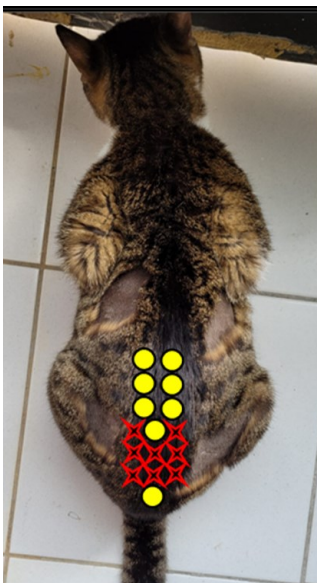


Figure 11. Injection points with dorsal approach. Description : In the table, quadell (intradermal) injection was applied to the points shown as circles and deep injection was applied to the points shown as X's.

spinous process injection. Sacral canal injection. After the session; No significant improvement in gait, paraplegia persists. Urinary and faecal incontinence was not observed. Significant improvement was noted in neural conduction. The superficial anatomical muscle groups in a cat are shown below (Figure 9 and 10) and the points (Figure 11) that were injected with a dorsal approach in sessions 1 and 2.

3rd Session: (Total 7.5 ml - 0.5% Procaine)

Injections were performed bilaterally on the medial surface of the hind legs by ventral approach. Deep injection into the obturator nerve branches and quadell to the obturator nerve dermatomes. Deep injection in the shape of an inverted letter "V" bilaterally along the femoral nerve line. Deep injection into the illipsoas muscle group and sciatic nerve branches. After the session; There was no significant improvement in gait, but it was noted that the patient could stand more comfortably in a sitting position. The picture and diagram showing the line of the femoral artery in the cat and the points injected in the 3rd session are shown in pictures 12, 13 and 14.

4th Session: (Total 7.5 ml - 0.5% Procaine)

Lumbal and lumbosacral region paraspinal quadell. Deep injection into obturator, sciatic and femoral nerve branches. Quadell to some dermatomes of the related region. After the session; significant improvement in gait was noted.

The neuraltherapy protocol, was applied within a period of 3 – 7 days interval between the sessions. The third and fourth neuraltherapy intervention consisted of injections directly at the site of injury. The recovery of the paraplegic condition after these sessions demonstrates the etiologic and clinical outcome of the neuraltherapy injections. The patient's gait and clinical appearance after neuraltherapy are shown in figures 15, 16 and 17.

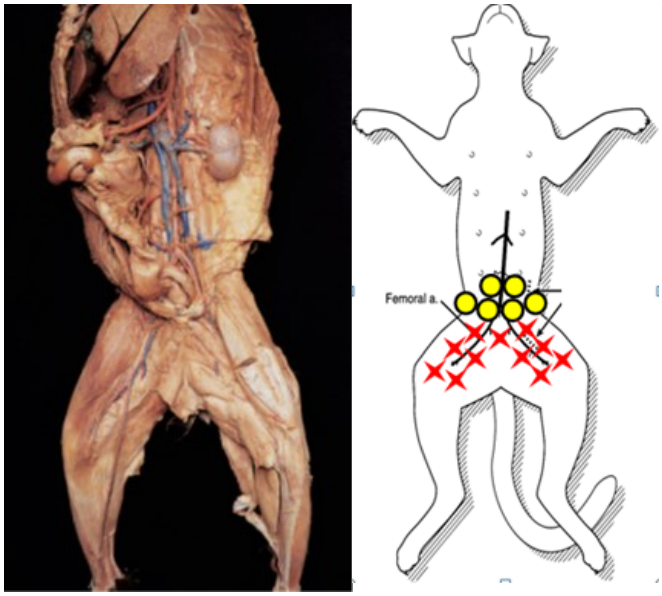
In addition to the complete return of proprioception, the patient showed increased mobilisation of the hind limbs to climb stairs and jump to high places such as couches.

Approximately 1 month after the last session, the patient re-presented to our clinic with the symptom of constipation. At the end of the examination and investigations, it was determined that there was a blockage in the parasympathetic branches responsible for the innervation of the sacral region formed after trauma.

It was observed that the blockage disappeared after a one-time procaine injection to some trigger points around the related area and sacral canal, and it was determined that the patient was able to defecate as before very comfortably approximately 2 days after the last session.

Discussion

Unfortunately, many patients are euthanised after such acute injuries in cats and dogs due to paraplegia, urinary/faecal incontinence and the necessity of care. As a result of our clinical experience, it has been observed that only 10% of such cases have a positive result and only 5 out of 100 patients can continue their lives as before. It is known that some of those who



Figures 12 and 13. Injection points and peripheral anatomical structures are shown in the diagram showing the line of the femoral artery in the cat.

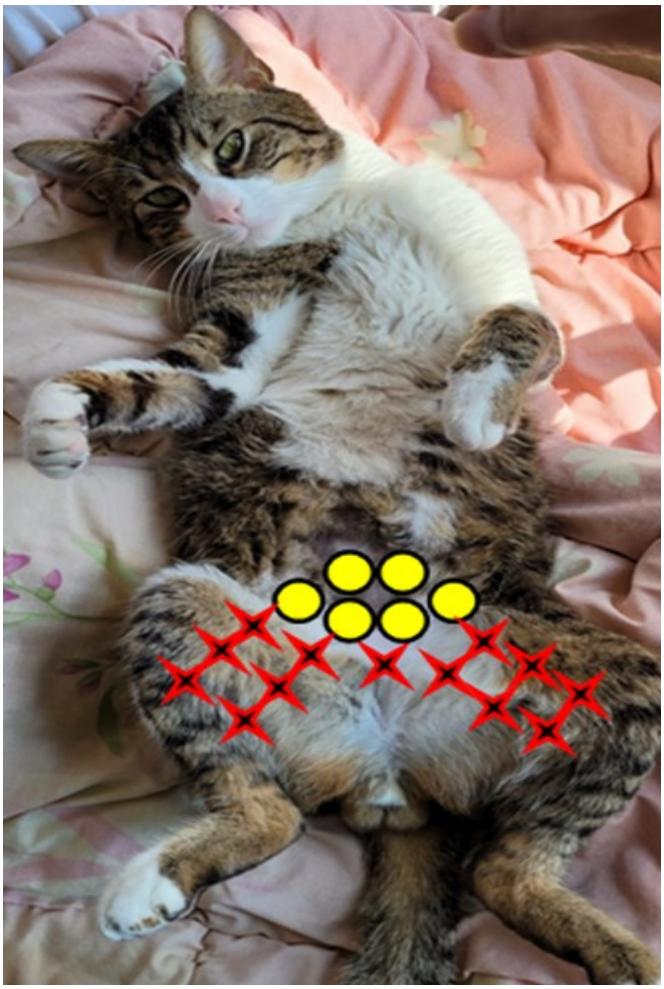


Figure 14. Injection points with ventral approach. Description : In the table, quadell (intradermal) injection was applied to the points shown as circles and deep injection was applied to the points shown as X's.

Figure 15, 16, 17. Clinical appearance of the patient after neural therapy.

faecal incontinence, and therefore, they face various chronic problems throughout their lives. With neuraltherapy applications, it has been observed that proprioceptive functions are recovered in the patient, and it has been noted that the problems related to urinary and faecal incontinence are eliminated without recurrence. It was observed that there was a significant benefit related to lymphatic drainage and blood supply with an increase in the neural conduction of the region. Application method, most of the injections and treatment protocols have been adapted to the field of veterinary medicine based on neuraltherapy applications in human medicine. Procaine was chosen over lidocaine as the local anesthetic due to its shorter half-life, reducing the risk of potential side effects and ensuring patient safety. Additionally, its wide safety margin and effects on inflammation were other factors influencing its preference.

In addition to all these benefits, it has been found that the concepts of interference field and trigger point

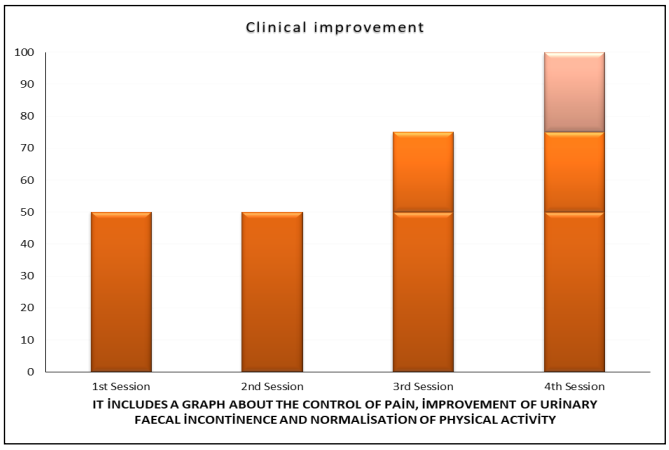


Figure 18. Session based clinical improvements.

(neuro-modular trigger), which distinguish neuraltherapy from all other branches of modern medicine, and serious success has been recorded in the patient in their treatment. Therefore, it is predicted that different problems that may develop in the future due to the interference field are prevented before they exhibit symptoms (Ural et al. 2017).

In addition, another situation that makes neuraltherapy advantageous from classical modern medical applications is that it has no or very limited side effects. The fact that the duration of the related side effects is very short (around 15 - 20 minutes) and reversible unless there is an overdose is considered to be very important for this treatment method. In this case, the presence of bleeding in the digestive tract after the use of high dose corticosteroids is an evidence of the importance of side effects.

In acute injury, trauma, pain and inflammation management requires a multidisciplinary approach. With the holistic approach of neuraltherapy, as a result of the effects of local anaesthetics used in the right place in preventing the progression of the disease, in the formation of wound health, in the management of pain and in the promotion of the patient's health, it is ensured that the blood supply of the tissues is increased with the effects on the sympathetic nervous system, regulating tissue hypoxia, which is the initial stage of inflammation, and relieving pain with the regression of inflammation (Özkan and Nazlikul, 2017).
The therapeutic application of LA's (neuraltherapy) can be used to intervene directly or indirectly in pathophysiological changes. It allows self-regulation of pain development systems by creating short-term interruption. Clinical observations suggest that it may also resolve the structural sympathetic-afferent coupling underlying the impaired VNS (Reuter et al., 2017).

LA's have been shown to reduce sympathetic sprouting in sympathetic spinal ganglia and inhibit the initiation of synaptic long-term potentiation by inhibiting extracellular signal-regulated protein kinase, which triggers chronic pain exacerbation. The effects of LA's on pain memory are mediated by modulation of plastic changes in neuronal centres through repeated LA applications to sensitised nociceptive afferent neurons (Tamam et al., 2017).

In many disease states, neuraltherapy can be applied alone. In other cases, it is a meaningful complementary treatment to conventional medical practice or other modulatory practices (Barop, 1996).
The systems in which neuraltherapy is particularly effective are the basic regulatory system and the autonomic nervous system. The widespread distribution of the basic system and the sympathetic system, as well as the role of the sympathetic system in pain, inflammation and circulatory disorders, leads to a wide variety of diseases that can be treated with neuraltherapy. The field of study of neural therapy includes painful conditions, wound healing, dysfunctions, neurogenic inflammations and regulation disorders of the immune system (Fischer, 2004).

Therapeutic local anaesthetics regulate microcirculation and increase lymphatic drainage by preventing local ischaemia with a regulatory effect on the sympathetic nervous system around the vascular and lymphatic structure. Regulatory effects of neuraltherapy can be explained by these mechanisms. All these studies indicate that the pharmacological profile of therapeutic local anaesthetics are molecules that continue to be investigated. The therapeutic favourable effects of LA's continue to be supported and revealed with new studies (Ural and Nazlikul, 2020).

In conclusion, neuraltherapy in the field of veterinary medicine appears to be an effective treatment method especially in terms of regulation of the autonomic nervous system when evaluated in terms of complete recovery of neural conduction and regaining of limb mobilisation in the patient with proprioceptive loss. As a result of our clinical observations, we consider that the efficacy of neuraltherapy is undeniable, but more studies on the subject are needed. Since this article is the first article written about neuraltherapy in the field of veterinary medicine in Turkey, it is meaningful in terms of being a pioneer for other studies to be carried out.

References

Bailey, M., Corcoran, T., Schug, S., & Toner, A. (2018). Perioperative lidocaine infusion for the prevantion of chronic postsurgical pain: a systematic review and meta-analysis of efficacy and safety. *Pain, 159*(9), 1696-1704.

Barop, H. (1996). *Lehrbuchund atlas der neuraltherapie nach Huneke.* Stuttgart, Almanya: Hippokrates.

Cassuto, J., Sinclair, R., & Bonderovic, M. (2006). Anti-inflammatory properties of local anesthetics and their present and potential clinical implications. *Acta Anaesthesiologica Scandinavica, 50*(3), 265-282.

Egli, S., Pfister, M., Ludin, S. M., Puente de la Vega, K., Busato, A., & Fischer, L. (2015). Long-term results of therapeutic local anesthesia (neuraltherapy) in 280 referred refractory chronic pain patients. *BMC Complementary and Alternative Medicine 27*(15), 200.

Fischer, L. (2004). *Neuraltherapie nach Huneke* HD. Stuttgart, Almanya: Hippokrates.

Langfitt, E., Prittie, J. E., Buriko, Y. & Calabro, J. M. (2017). Disorders of micturition in small animal patients: clinical significance, etiologies, and management strategies. *Journal of Veterinary Emergency and Critical Care, 27*(2), 164-177.

Nazlikul, H., & Babacan, A. (2019). Neuraltherapy and its role in injections. Babacan, A., (Ed). Pain and Injections. (110-117). Ankara, Turkey: Turkey Clinics.

Nazlikul, H. (2010). *Neuraltherapy*. İstanbul, Turkey: Nobel Kitabevi

Nazlikul, H. (2009). Treatment of 80 cases of lateral epicondylitis with neuraltherapy and manual therapy. *Barnat, 3*, 8-15.

Ozkan, N., & Nazlikul, H. (2017). Neuraltherapy and manual medicine approach in functional and degenerative low back complaints. *Journal of Scientific Complementary Medicine Regulation and Neural Therapy, 11*(3), 1-8.

Reuter, U. R. M., Oettmeier, R., & Nazlikul, H. (2017). Procaine and procaine-Base-Infusion: A Review of the safety and fields of application after twenty years of use. *Clinic of Resarch Open Access. 4*(1). 1-7.

Tamam, Y., Özdemir, H. H., Gedik, A., Tamam, C., & Nazlıkul, H. (2017). Efficacy of peripheral lidocaine application (neuraltherapy) in the treatment of neurogenic detrusor overactivity in multiple sclerosis patients. *Neurourol Urodyn 36*(7), 1832-1838

Ural, F. G., Öztürk, G. T., & Nazlıkul, H. (2017). Evaluation of neuraltherapy effects in patients with lateral epicondylitis: a randomized controlled trial. *Ankara Medical Journal 4*, 260-266.

Ural, F. G., & Nazlikul, H. (2020). *Neuraltherapy applications in locomotor system diseases.* Özlü, A. (Ed). Traditional and holistic medicine applications in musculoskeletal system diseases. (353-376). Ankara, Turkey: Akademisyen Kitabevi.