

CASE STUDY – FULLY RECOVERED AFTER 3.5 YEARS OF LONG COVID

Helga Gielen

Belgium

ABSTRACT

The purpose of this paper is to explain the path this Long Covid patient took to become 100 % cured from Long COVID.. Certainly in the early years of the Covid 19 pandemic, Long COVID was not yet well known and there was no recognized treatment for Long COVID. Even today, there are no validated effective treatments.

This women was healthy prior to the infection and did not suffer from chronic conditions. Long COVID turned out to be a rather neurological/immunological disorder in this Post-Long COVID patient (from the end of Feb. '20 to Oct. '23). Promising positive results, via a new 'soft trial approach' of the autonomic nervous system out of balance, have led to a cure for the Long COVID symptoms with, among other things, PEM. This after 3.5 years. Since then, until today, September 2024, there has been no relapse. She has been 100% active again since the summer of 2023 as she was before the first Covid infection.

KEYWORDS

Long COVID, explicit dysfunction of autonomous nervous system, PEM, persistent extreme high antibody titer, increased cholesterolemia.

1. INTRODUCTION

1.1. WHAT IS LONG COVID?

Corona or COVID-19 is an infectious disease. Most people recover within a few days or weeks. But there is also a large group of people who still have (serious) complaints after three months or longer. These are often complaints such as fatigue – PEM/post-exertional malaise – migraine-like headaches, muscle pain, nerve pains, shortness of breath, forgetfulness, inability to concentrate properly, loss of taste or smell.... These long-term corona symptoms are called Long COVID or post-COVID. A total of more than 200 symptoms have been described.

“Long COVID represents the constellation of post-acute and long-term health effects caused by SARS-CoV-2 infection; it is a complex, multisystem disorder that can affect nearly every organ system and can be severely disabling. The cumulative global incidence of long COVID is around 400 million individuals, which is estimated to have an annual economic impact of approximately \$1 trillion—equivalent to about 1% of the global economy. Several mechanistic pathways are implicated in long COVID, including viral persistence, immune dysregulation, mitochondrial dysfunction, complement dysregulation, endothelial inflammation and microbiome dysbiosis”(1).

According to estimates, there are about 100000 patients in Belgium, but it is unclear what those figures are based on. Patients are not registered anywhere in Belgium.

Vaccinations protect people from hospitalization, but not from a new Covid infection. A mild Covid infection can still cause Long COVID (LC). LC symptoms can worsen with a new Covid infection or also after the vaccinations.

1.1. Recommendations

“Several mechanistic pathways are implicated in long COVID, including viral persistence, immune dysregulation, mitochondrial dysfunction, complement dysregulation, endothelial inflammation and microbiome dysbiosis. Long COVID can have devastating impacts on individual lives and, due to its complexity and prevalence, it also has major ramifications for health systems and economies, even threatening progress toward achieving the Sustainable Development Goals.” (1)

More scientific knowledge by education is urgently needed among doctors in Belgium to be able to give LC patients an 'LC diagnosis'. There is plenty of scientific research going on abroad. An 'I don't know' is no longer enough today. And there is also a need for more willingness to listen empathetically to the various specific complaints per LC patient. Acknowledging through an LC diagnosis and taking into account the specific LC complaints per patient are essential to be able to propose an 'appropriate tailor-made trial treatment', even if it is initially only a symptom treatment.

It would be even better to test such trial treatments with monitoring of biomarker panels. To measure their effectiveness. Which in turn requires biomarkers and budget! Biomarkers are gradually becoming available.

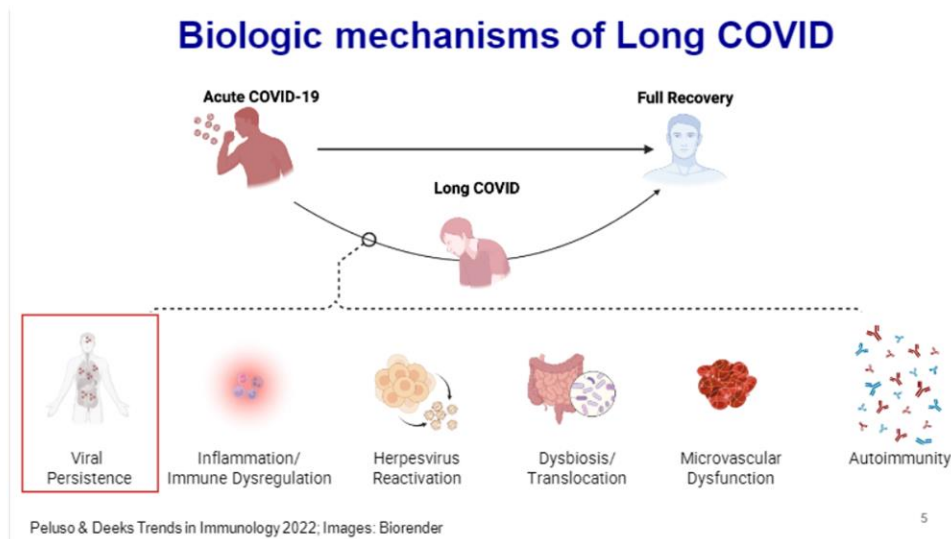
Through cases of the practical experiences gained with trial treatments, people can then learn from each other.

1.2. Long Covid Vs Unexplained Conditions

Sticking their heads in the sand and waiting for a real treatment to be found through comprehensive examinations abroad does not help all the current LC patients in Belgium today. Sending the LC patients to psychiatry because of 'inexplicable condition' is a very unfortunate thing. Calling Long COVID symptoms as purely psychosomatic because there is nothing to see on the various tests is wrong. Wrong because the diagnosis of "psychosomatic" or "stress" should never be an exclusionary diagnosis, but should be made positively, with psychosocial factors actually being substantiated. And also because doctors then prematurely stop looking for physical causes. And furthermore, because mental symptoms can have purely physical causes. And finally, because wrongly labeling the problem as "psychosomatic" can actually cause psychological problems in someone who is physically blown away from one day to the next.

Through the normal tests, nothing is seen. Quite frustrating for LC-patients! But other tests, such as PET scans, turned out to be absolutely not an option here, as this LC patient experienced after asking for a PET scan in the UZ Leuven for 2 years. In Long COVID today, hundreds of research publications support that both the physical and mental symptoms are caused by three mechanisms, either separately or combined: chronic inflammatory responses, chronic autoimmune responses, and microclots in the blood. These phenomena have been demonstrated in just about all organs, from the nose with smell and taste problems to the brain and muscles, with chronic fatigue, for example. Most likely, these phenomena are caused and maintained by fragments of viruses that the immune system cannot remove. The mental symptoms, such as frustration, despair, and depression, can be caused by suffering from a very serious chronic

condition for which there is no treatment. Or caused or exacerbated by the lack of recognition by doctors, bureaucrats, family, friends, colleagues, and employers.



(COVID 19 Clinical forum March 2024)

2. CASE STUDY ‘THE ROAD TO HEALING’, SUMMARY

2.1. Introduction

This Post-Long COVID patient, a 63-year-old woman, was before the first Covid infection at the end of Feb. 2020 completely healthy. She has also never suffered from typical burnout symptoms, such as lethargy, severe fatigue, being tired but unable to sleep, unhealthy behavior, extreme sensitivity to light and sound.... Her cortisol levels were also tested and were normal. In her case, Long Covid was not caused by stress. Fortunately, she never got depressed. All the tests at the University Pain Center and conversations with 3 different psychologists refuted this hypothesis. She wanted to, but the explosion of all kinds of Long COVID symptoms since spring 2020 prevented her from leading a normal life. She has always refused to go to the psychiatrist – in 2020 it was still thought that Long COVID was 'a psycho-somatic disorder' – .

She has been looking for solutions in all kinds of ways.

She eventually managed to make a full final recovery through all kinds of new 'soft' trial treatments for Long Covid.

An important step forward in this search process was the LC recognition! Only 2.5 years after the first infection at the end of Feb. 2020 and after a second infection in April 2022, she received an official Long COVID diagnosis at UZ Leuven by the pneumologist: "*The high persistent antibody titer (SARS-CoV-2 IgG anti-S: > 40 000.0 AU/mL < 50.0) is put forward as one of the hypotheses (pathophysiology) for Long COVID*". And increased cholesterolemia (new since COVID).Diagnosis: "*Post-acute sequelae of COVID-19(Long COVID),explicit dysfunction of the autonomic nervous system, PEM*".

Through the question: "*What has helped you so far?*"asked by the pneumologist,she continued experiments on the path of ‘soft’ trial treatments she had already taken.

2.2. Trialand Error

She couldn't take medication, even the smallest dose caused a toxic reaction. She also never did physical rehabilitation due to severe relapse after a few attempts in that direction, which later turned out to be 'PEM' (3). But on the other hand, she has taken a gentle approach on the advice of her physiotherapist. This is done through about 40 sessions of 'Fascia therapy', which is connective tissue massage by this physiotherapist with additional specialization in fascia therapy. This gentle, painless treatment aimed to calm the nervous system and promote blood flow to the tissues/organs. Because she suffered badly from crates connective tissue (in steadof a flexible, stretchy fascia), due to the unwelcome presence of unnecessary proteins. Thanks to the fascia therapy, she was still able to keep moving/walking around.

However, the first two vaccinations in 2021 caused a severe recurrence of Long COVID symptoms, as did the 2nd Covid infection in April 2022. Fascia therapy was no longer sufficient. After an official LC diagnosis at UZ Leuven, she was advised to follow 'Neural Therapy', to get the autonomic nervous system back in balance/to calm the immune system. Her extreme blood levels required immediate action. Only when all muscle and nerve pain, taste distortion and cognitive problems had disappeared due to the 8 sessions of Neural Therapy plus another 10 sessions of fascia therapy, she spent 6 weeks in a spa with 'Thermal water' in Austria. Through daily swims, she strengthened her muscles and managed to walk around again without sticks. This period meant a real boost to her mitochondria, the energy factories in the muscles. The flat-battery feel was completely gone.

To get rid of the last tissue pains and the remnants of virus, she followed two weeks of 'Hyperbaric oxygen therapy' at the Military Hospital, also as part of a pilot project. Since the summer of 2023, she has been completely symptom-free. Healing was confirmed by the UZ Leuven in Oct. 2023. In the summer of 2024, she dares to speak freely of a definitive cure, she has 100 percent of her entire former life back, since the summer of 2023.

Healing through a gentle, soft approach with various trial treatments is possible, as this case demonstrates. But this Post—Long COVID patient has been pure luck to meet the right people who recognized Long Covid and proposed a certain trial treatment at the right time....For 3.5 years since the first covid infection at the end of Feb. 2020, this Long COVID patient had mainly a neurological/immunological disorder. Apparently, her intestinal tissue and nerve tissue were affected by the virus, causing the system of neurological signal transmission in the nervous system to be disrupted, resulting in neurological complaints and immunological reactions (wave of inflammation throughout the body).

2.3. A Pet Scan was Refused Several Times

Long COVID, initially considered an unexplained condition, had a clear biological cause in her. She asked during years for a PET SCAN. It was always refused. Only now are studies appearing that can also prove Long COVID via PET scans (4).

People with Long COVID often have (biologically explainable) symptoms such as intestinal problems, tissue cramps (coffin connective tissue due to the presence of bad proteins), (low-grade) inflammation everywhere, not visible on normal tests, obstruction of normal blood flow, nagging muscle pain, severe, stabbing/burning nerve pain (damage to nerves), severe migraine-like headaches, eye migraines, fatigue after exercise (PEM), hair loss, capillary problems (damaged vascular walls, purple spots on legs), concentration or memory disorders, confusion of tongues, loss of smell or taste distortion, POTS, general malaise... (there is a list of more than 200 symptoms, divided into clusters).

The persistent and drastic symptoms of Long Covid started in her intestines, and became mainly neurological/immunological in nature. Some of the symptoms were clearly brain or nerve related: she experienced cognitive impairments such as blackouts, memory and attention problems, and long-term taste distortion since the initial infection. But also PEM, post-exertional malaise (3), a kind of relapse of the Long COVID symptoms after even a slight physical or mental effort or emotion, was apparently the result of nerve disorders in the autonomic nervous system. This controls automatic processes, such as breathing, digesting food and other organ functions.

Dysfunction of the autonomic nervous system due to poor blood flow to the brain tissue can lead to a whole range of complaints. In people with neurological covid symptoms, the immune system can be activated specifically in the central nervous system, resulting in inflammatory responses. Many macrophages, a type of immune cells, are mobilized, which attack everything and produce cytokines in the process, which cause a lot of damage and can cause persistent inflammation in the brain.

A gentle approach helped her, in which ‘Neural Therapy’ played an important key role.

2.4. Conclusion

The following 2024 study provides evidence for two factors contributing to Long COVID: persistent SARS-CoV-2 RNA and abnormal T cell activation (4). Tissue-based T cell activation and viral RNA persist for up to 2 years after SARS-CoV-2 infection. Using positron emission tomography (PET) imaging with a marker specifically for activated T cells, it appears that individuals with Long COVID have certain tissues with higher amounts of activated T cells compared to those without Long COVID. In particular, the intestines show significant T-cell activation. Gut biopsies from these individuals reveal the presence of SARS-CoV-2 RNA. This indicates that viral RNA persistence in tissues may contribute to long-term immune system activation.

She never received a PETscan. But the good news is that, once these 2 factors are eliminated by the ‘soft’ trial treatment, full recovery, admittedly after a long period of time, is possible according to the experience of this Post-Long COVID patient.

3. LONG COVID SYMPTONS VERSUS ME/CFS SYMPTONS

3.1. Similarities

During 3.5 years of Long COVID, this Post-Long COVID patient was never officially diagnosed with ME/CFS, although there were many similarities with ME/CFS symptoms. It's not really clear to her whether Long Covid and ME/CFS are quite the same. Or can Long COVID degenerate into ME/CFS after a while?

3.2. Differences

In any case, there are many similarities in the symptoms, but she did fully recover from Long COVID after 3.5 years, from March 2020 to summer 2023, which is apparently more difficult with ME/CFS so far.... But in addition to the possibility of complete healing, there are also other important differences, such as: the biological cause of Long COVID is now known yet, but one think is indisputable: Long COVID can occur after a COVIC 19 -infection.

Literature on similarities between Long COVID and ME/CFS(5)
See Table 3: Comparison of symptoms, ME/CFS and Long COVID

Symptom	ME/CFS	Long COVID	Symptom	ME/CFS	Long COVID
Fatigue	✓	✓	Poor appetite	✓	✓
Post-exertional malaise	✓	✓	Orthostatic intolerance	✓	✓
Headaches	✓	✓	Palpitations	✓	✓
Sleep disorder	✓	✓	Breathlessness	✓	✓
Impaired reasoning	✓	✓	Nausea and diarrhea	✓	✓
Impaired memory	✓	✓	Chills	✓	✓
Impaired attention	✓	✓	Cough	✓	✓
Secondary depression	✓	✓	Decreased smell and taste		✓
Secondary anxiety	✓	✓	Rash and hair loss		✓
Reduced activity	✓	✓	Painful lymph nodes	✓	
Myalgia/arthralgia	✓	✓	Chemical sensitivities	✓	
Muscle weakness	✓	✓	Tinnitus	✓	
Hot and cold spells	✓	✓			

ME/CFS, myalgic encephalomyelitis/chronic fatigue syndrome. Adapted from: Wong DJ (17).

3.3. Similarities in this Post-Long Covid Patient

Fatigue/fatigue: no continuous exhausting fatigue.

Post exertional malaise/PEM: yes, debilitating PEM attacks after physical or mental exertion

Headache: not an ordinary headache, but attacks with very heavy pressure on 1 side of the head, seeing green flashes - "eye migraine" cf. eye specialist -, spreading pain through the back of the head over the whole body with all kinds of low-grade inflammation - see blood tests - as a result.

Sleep disorder: no sleep problems, only few sleepless nights due to severe muscle and nerve pains.

Impaired reasoning/memory/attention: yes, temporary cognitive problems, "some deficits due to mild frontal hypofunctioning" cf. neuro-psychologist. "No dementia", cf. neuro-psychological tests and neurologist.

Secondary depression: no, see tests in pain clinic of UZ, score 1 out of 20 for depression and "no depression" cf. conversations with 3 psychologists.

Anxiety: only concern because no one wanted to believe her, because the symptoms kept getting worse, because there was no treatment available, from the question: "Where is this all leading?"

Reduced activity: yes, during PEM attacks that could last for several weeks. With uphill/downhill courses as a result. And muscle weakening.

Myalgia/muscle pain and arthralgia/joint pain: muscle pain only with PEM attacks, joint pain led to walking with canes and brace.

Muscle weakness: EMG after 1st infection was ok, yet as time went by (after first two vaccinations and some additional covid infections) feeling of reduced strength in arms, e.g. opening jam jar did not go or almost collapsed to the knees.

Hot and cold spells: yes, feeling of broken thermostat.

Poor appetite: not at all, only in case of taste distortion, due to bitter taste no pleasure from food.

Orthostatic intolerance: no, no problems standing upright from a lying position, no palpitations.

Blood pressure: always ok.

Palpitations: no.

Breathlessness/shortness of breath: only in case of acute covid infection and then after climbing stairs in a violent sprint (Had three pneumological and 3 cardiological examinations, always ok).

Nausea: yes, especially in the morning, was accompanied by very bitter taste, the taste distortion only disappeared via Neural therapy after almost 3 years of Long COVID.

Diarrhea: only in the acute Covid infections, for a while. Then done completely and definitively until next infection. Not an irritable bowel syndrome after all, a diagnosis that was initially made in 2020, albeit with some question marks, even then.

Cough: sometimes unclear whether it was a new covid infection or a cold....

Chills and fever: no, never had a high fever.

Decreased smell and taste: no smell distortion, but bitter taste from onset of first Covid infection at the end of Feb. 2020 to 2nd session of neural therapy at the end of 2022.

Rash and hair loss: yes, very explicitly.

Painful lymph nodes? painful muscle knots during PEM attacks, especially in the neck.

Chemical sensitivities: total intolerance to medications (e.g. toxic reaction to Gabapentin, intolerance of statine against cholesterol, severe reaction to Inderal). Taking medication gave the feeling of poisoning.

Tinnitus: a drill was heard with a lot of noise in the right ear, but this was not possible, there was no drill in the vicinity at all. That was very confusing...

3.4. Differences

LC Diagnosis: *'Post-acute sequelae (Long COVID), explicit dysfunction of the autonomic nervous system due to Covid and PEM'* by UZ Leuven. High persistent antibody titer, see blood tests - virology serology over the years (2020-2023), SARS-CoV-2 IgG > 40 000.0, AU/ml, max. <50.0. Elevated cholesterol, new since first COVID infection in 2020, up to 296 (see blood tests). Persistent pain in intestinal tissue, on the left side, where 'panniculitis mesenterica' - inflammation of fatty tissue around intestines - was detected during ultrasound in 2020 after 1st covid infection. Persistent pain in brain tissue, on the left side.

In case of 1st covid infection, sudden feeling of drowning, a lot of water in the mouth, sitting upright all night to be able to continue breathing (no lung problems cf. 3 different pneumologists).

Dizziness when walking, once fallen backwards in public. Results of three MRIs: *'some scattered white matter lesions, limited signs of periventricular leukoencephalopathy'*, and *'irritation of occipital nerve major and/or minor'*, cf. 1st neurologist. *'Possible dementia'*, cf. 2th neurologist, *'because Covid is a disease of the lungs'* (corrected later). Still later, cf. 3rd neurologist: *'Do nothing at all, no injections against the pain, because we don't know what exactly is going on, it is about more than irritation of the occipital nerve'*.

Angioedema attacks in Covid infections (cf. blood tests NO allergy, cf. pneumologist in EMERGENCY UZ: 'angioedema'). The first time with hives, the next times without hives.

Black Yeast Infection: Due to Weakened Body? Fortunately, three months of medication (with many side effects) helped. Explicit neuropathy, horrible unbearable stabbing/burning nerve pains in limbs (feeling of knitting needles in arms, small needles in fingers) to electric shocks throughout the body, right foot eventually became a numb lump. Connective tissue coffin: not visible on ultrasound and CT scan, but felt by GP and physiotherapist, sometimes spasmodic tissue pains. Several purple-pink spots on the body, especially on bust and legs, fortunately painless, a sign of damaged capillaries. Alcohol intolerance: after a glass of alcohol half unconscious, the right corner of the mouth hung down explicitly, gibberish out, after 20 minutes back ok. Wounds only heal after a very long time. Disruption of communication between brain and limbs, arm/leg refused a command. As if a giant octopus with tentacles up to feet and hands had taken over the management of the body.

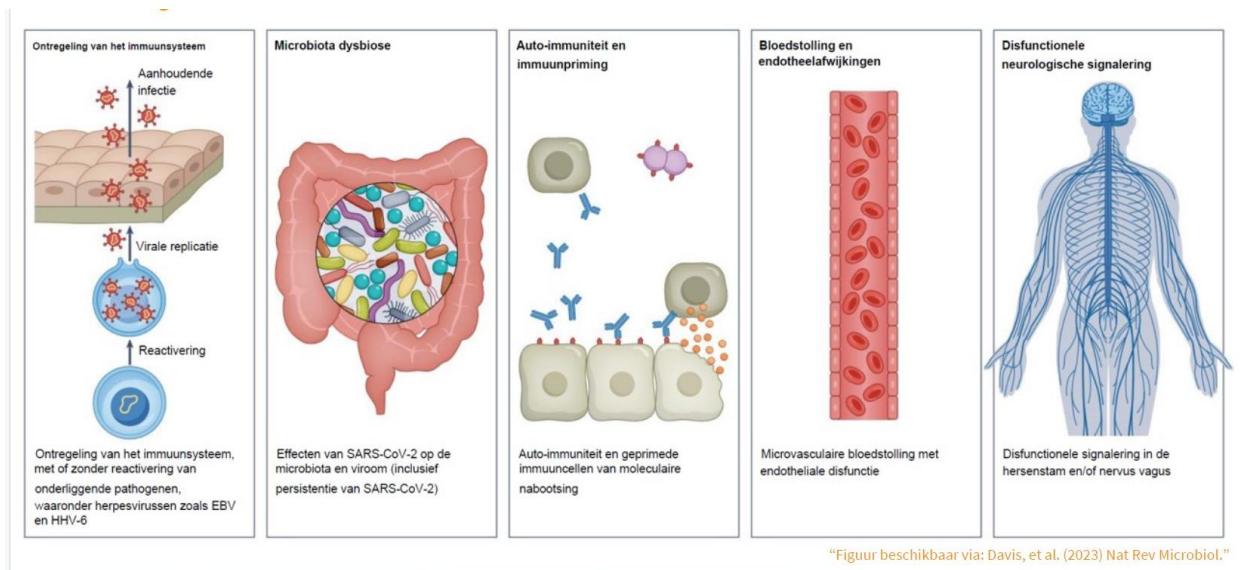
4. DETAILED CASE STUDY

4.1.State of Play at the End of 2023

According to the WHO, some 36 million people in Europe suffered from long- or post-covid in 2023 (1 in 30), acquired during the first 3 years of the pandemic. These people suffer from long-term cognitive and physical complaints after infection with COVID-19. (During 2022, 1% will be fully recovered, during 2023 3%, according to a scientific study by C-Support in the Netherlands).

In people with neurological Covid symptoms, the immune system can be activated specifically in the central nervous system, resulting in inflammatory responses. Many macrophages, a type of immune cells, are mobilized, which attack everything and produce cytokines in the process, which cause a lot of damage and can cause persistent inflammation in the brain.

4.2. Five Theories (1)



LC patients are in desperate need of insights, recognition, and most importantly, help. However, research into the cause and cure of post-COVID is still in its infancy. However, it is becoming

increasingly clear that various biological processes are involved. For example, researchers from Amsterdam UMC and VU University Amsterdam showed that people with post-COVID (Long COVID) have greater damage to muscle tissue after physical exertion than people without post-COVID. There are also indications of disturbed blood flow and dysregulation of the immune system. In fact, a recent study in Science found evidence for a distinctive fingerprint of proteins in the blood in people with post-COVID (6).

In terms of causes, the most likely theory today is "viral persistence" (2024). Studies have shown that the SARS-CoV-2 virus or particles of it can persist in the tissue of some individuals for a long time. The resulting sustained exposure to the spike protein can continue to cause microclot-related damage (7).

Long COVID diagnosis: This patient finally received the following diagnosis of "*Long COVID*" by the pneumologist at the UZ Leuven in the fall of 2022 after 2.5 years LONG COVID-symptoms (autumn 2022):

*"The high persistent antibody titer (SARS-CoV-2 IgG anti-S: > 40 000.0 AU</mL < 50.0) is put forward as one of the hypotheses (pathophysiology) for Long COVID. And increased cholesterolemia (new since COVID)".*Diagnosis: "*Post-acute sequelae of COVID-19 (Long COVID), explicit dysfunction of the autonomic nervous system, PEM*".

4.3. Gentle Approach To Autonomic Nervous System Out Of Balance

This lady, 63 years old, got a so-called 'mild' Covid-19 infection at the end of February. 2020. This first infection began with taste distortion and inflammation of the fatty tissue surrounding the intestines. '*Panniculitis mesenterica*', cf. the radiologist, something he saw in several Covid patients. But the infection soon felt like a poisoning of the whole body. In the end, it turned out to be a 'Trojan horse', resulting in several long-term LC complaints. Previously, she was perfectly healthy, sporty, had no complaints, did not take any medication and was the manager of an HRM consultancy firm. After more than 3.5 years of Long COVID – she only received an LC diagnosis by the UZ Leuven pneumologist in the autumn of 2022: "*Post-acute sequelae of COVID-19 (Long COVID), explicit dysfunction of the autonomic nervous system, PEM*" - she became completely symptom-free in August 2023. In October, 2023 was declared cured by the UZ, and she remained symptom-free to this day.

This final result was achieved by the following GENTLE APPROACH to the autonomic nervous system that had become unbalanced. So no heavy physical rehabilitation (8) as long as she had muscle pain, no medication and certainly no more booster shots after the first two basic vaccinations.

4.3.1. Fascia Therapy or Connective Tissue Massage (2020-2022)

She was initially given an anti-inflammatory for several days with the initial covid infection with intestinal problems throughout the spring of 2020. By halving the dose in consultation with the gastroenterologist, she was able to keep this up, but for the nagging muscle pains and stabbing and burning (neuropathic) nerve pains, she really couldn't tolerate medication.

Neurology:

Gabapentin, prescribed for the neurologist for the neuropathic pain, gave a severe toxic reaction after a few days.

General practitioner:

Redomex (prescribed by my GP to try something) gave unbearable side effects.

Gastroenterology:

"Irritable bowel syndrome ?????". Later it turned out to be a Covid infection.

Physical Medicine:

"Picture of non-specific post-viral myalgias and neuropathic pain complaints. No arguments on EMG for neurogenic or myogenic suffering". Advice: physical exercise with physiotherapist.

ENT diseases:

"Limited arguments for Burning mouth syndrome." (Only because of rashes/inflammations in the face and also in the nose and mouth)

Physiotherapist:

Physical rehabilitation for these muscle pains did not work at all, she always got a relapse, only after a few days, that could last for weeks - later it turned out to be 'PEM'. So the slightest physical effort afterwards caused muscle pain, severe cramps and severe fatigue. Consultations with various specialists, where she initially met with disbelief, always resulted in a recurrence of the LC complaints.

After six months, cognitive problems were added, such as blackouts, loss of concentration - reading a book was no longer possible -, slips of the tongue and memory problems - it seemed as if a screen temporarily descended between her and the brain in which the necessary information was stored, a kind of brain fog.

Also the dizziness with even falling backwards in public, nausea, and the regularly recurring bitter taste made normal functioning difficult. The abnormal reaction for about 20 minutes to a glass of alcohol on New Year's Eve, with a crooked mouth, half unconscious, producing a kind of unintelligible gibberish instead of speaking, was also disturbing.

Fascia therapy/connective tissue massage from physiotherapist:

Only a walk every day was still possible thanks to several sessions of 'connective tissue massage' (fascia therapy) with the physiotherapist to calm the nervous system and promote blood flow to organs and tissues. The physiotherapist felt that her connective tissue had become confined, which could be the cause of the terrible pain cramps in the abdomen. For example, when the stomach expands a bit after a meal, the connective tissue no longer stretches, which causes severe pain. However, the connective tissue could not be seen on ultrasound or CT scan, despite the fact that one day the family doctor clearly felt a hard protrusion and immediately referred her for an ultrasound and CT scan.

This Long COVID patient had therefore very quickly, after a few failed attempts to do physical rehabilitation, in the autumn of 2020, on the advice of her physiotherapist, completely changed course. She has completely stopped taking medication or physical exercises as prescribed by various doctors/specialists. It is precisely because of these PEM symptoms that she switched to fascia therapy (= connective tissue massage) with this physiotherapist who specializes in fascia therapy.

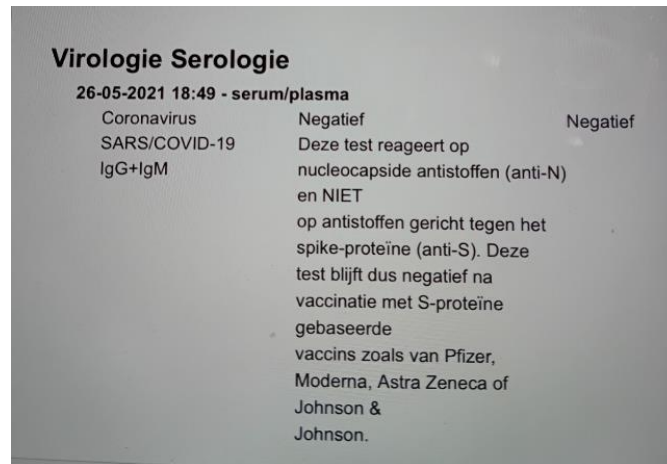
So this was a GENTLE APPROACH to calm the autonomic nervous system and to deal with the extortionate connective tissue around the intestines and elsewhere in the body by promoting blood flow to the tissues (including intestinal and brain tissue) and organs.

Fascia is a connective tissue that is woven around all our muscles, bones, organs and joints. The inner layer is the skeleton, the outermost layer is the skin.

Fascia ensures that all parts of the body are connected to each other. You can compare fascia to a sliced orange: then you can also see the skeleton of skins/pellets that encompass the thick pieces. According to fascia specialists, fascia is more than just packing material for your muscles, bones, joints and organs. It is an organ, just like a liver, heart and lungs. The difference is that it spreads like a spider's web in your body. Because it responds to physical and psychological stress, it is involved in many different forms of 'non-optimal functioning'. Fascia is a kind of sponge that physical, emotional and mental stress can inscribe itself on. It can stiffen or become more fluid again. After more than a year, things got better thanks to the many weekly sessions of fascia therapy. She was also able to keep walking because of this.

Neurological problems, however, increased.

Due to the first two vaccines in the spring of 2021, with another blow to her autonomic nervous system, she suffered a severe relapse. With a total of (up to that point) of about 50 sessions of fascia therapy, she has recovered reasonably well. In addition, her family doctor had given her six B-12 injections, which helped with the muscle pain, hair loss and cracking nails. And he had also prescribed a medicine for a black yeast infection, which, despite all the side effects, she continued to take for three months despite the side effects, on the strong recommendation of the family doctor.



26/05/2021 Chemistry blood, Helga Gielen, UZ Leuven

Neurology:

MRIs didn't show much. Previously on a first MRI in 2020 some scattered vascular white matter lesions, an MRI of the spine was ok. Due to the stabbing headache on the left, a new MRI was carried out in 2021, with "*limited signs of periventricular leukoencephalopathy*", no problem according to neurologist at the regional hospital, and "*limit inflammatory changes in the maxillary sinus on the right more than on the left and in the mastoid on the right*".

A second neurologist from the same hospital had first suggested 'Inderal' in the summer of 2021 for severe headaches, in combination with other medications and a Statin for high cholesterol. But she really couldn't tolerate these medications, on the contrary, they led to a kind of excruciating migraine-like pains, an eye migraine and gastrointestinal complaints.

The first neurologist at the regional hospital then suggested 'dry-needling', given what she considered to be '*persistent irritation of the occipital nerve major and/or minor*' since 2020.

On the other hand, the neurologist (specialized in neuroinflammation) at the UZ advised us not to do anything at all, because we don't yet know what exactly is going on: *"Not all your complaints are explained by Irritation of the Occipital Nerve"*.

Given the different opinions of the three neurologists and the additional pain that dry-needling would cause, continuing with fascia therapy seemed to be the only/best option according to this patient.

The psycho-neurological tests in 2021 stated:

"Impairment in the recall of verbal information from immediate memory, but with intact long-term consolidation. In addition, we see only mild executive failure. Presumably, these gaps are due to mild frontal hypo-functioning."

Cf. the clinical neuropsychologist *"Could the measured deficits fit within the cognitive correlate of a so-called long COVID syndrome"*.

His therapeutic recommendations were: *"Dosing activities and supporting working memory with aids"*. 2021 was mainly a year of uphill-downhill experiences, but she was always able to get back on her feet.

4.3.2. Neural Therapy (2022-2023)

A 2nd covid infection in April 2022 (positive PCR test) again gave a heavy blow to her autonomic nervous system, this time with much worse consequences. She had frequent seizures from the head (swelling brain tissue), with enormous pressure in the left head. Through a painful, stiff neck and problems with the neck muscles, she developed inflammation throughout the body and also horrible stabbing, sometimes burning nerve pains. She felt needles sticking in her fingers, knitting needles in her arms, and also a gnawing pain in her right leg - as if a rat was gnawing on the leg. She got tendonitis, joint pain, she walked on air cushions, her feet sometimes became numb clogs. She felt electric shocks and even an electric shock throughout the body, with loss of muscle strength, it was no longer possible to open a jam jar, she also dropped all kinds of things from her hands.

Technische onderzoeken

Vorige

Vanaf 29/09/2021: nieuwe eenheid.

LDH	190	U/L	135 - 250
Ferritine	230	µg/L	13 - 150
Cholesterol	245	mg/dL	≤ 190
Triglyceriden	132	mg/dL	≤ 150
↳ Nuchter afname <150 mg/dL, Niet-nuchtere afname <175 mg/dL			
HDL-Cholesterol	73	mg/dL	≥ 45
Non-HDL-Cholesterol	172	mg/dL	≤ 130
berekend			
↳ Therapeutisch doel: zeer hoog risico: < 85 mg/dL, hoog risico <100 mg/dL, laag tot matig risico <130 mg/dL			
LDL-Cholesterol	146	mg/dL	≤ 100
berekend			
↳ Therapeutisch doel: zeer hoog risico: < 55 mg/dL, hoog risico < 70 mg/dL, laag tot matig risico <100 mg/dL			
LDL-Cholesterol	159	mg/dL	≤ 100
↳ Therapeutisch doel: zeer hoog risico: < 55 mg/dL, hoog risico <70 mg/dL, laag tot matig risico <100 mg/dL			
CRP	2.7	mg/L	≤ 5.0

Stolling

25-10-2022 17:26 - bloed

Protrombinetijd (PT)	11.0	s	9.4 - 12.5
Protrombinetijd (PT)	102.0	%	70.0 - 150.0
Protrombinetijd (PT)	0.9	INR	
↳ Resultaat voor patiënten behandeld met vitamine-K-antagonisten: therapeutische antistolling bij INR = 2 - 3. Enkel bij mechanische hartkleppen en bij sommige patiënten met het antifosfolipidensyndroom wordt intenser geanticoaguleerd: INR = 2,5 - 3,5.			
APTT	28.4	s	25.1 - 36.5
Fibrinogeen	3.68	g/L	2.00 - 3.93
D-dimeren	265	µg/L	≤ 500

Virologie Serologie

25-10-2022 17:26 - bloed

SARS-CoV-2 IgG anti-S	> 5680.0	BAU/mL	
SARS-CoV-2 IgG anti-S	> 40000.0	AU/mL	< 50.0
SARS-CoV-2 IgG anti-S	positief		

Deze test spoort antistoffen op die kunnen uitgelokt worden door natuurlijke infectie of vaccinatie.

25/10/2022 Chemistry blood, H. Gielen, UZ Leuven

In addition, she developed numb red/purple spots on her legs due to burst capillaries/vascular wall damage. The UZ pneumologist finally made the diagnosis at the end of 2022: "*Post-acute sequelae (Long COVID), explicit dysfunction of the autonomic nervous system, PEM*".

Furthermore, there was also the diagnosis of '*angioedema*', swelling of the neck tissue with hives, fear of a new infection, sky-high Covid antibodies (> 40,000 at a normal maximum of 50) and high cholesterol.

Virology Serology, 25/10/2022 blood

SARS-CoV-2 IgG anti-S: > 5680.0 BAU/mL

SARS-Cov-2 IgG anti-S > 40 000 AU/mL <50.0, positive

Apparently, the dysfunction of the nervous system led to a dysregulated immune system. With persistence of the virus in the nervous system - the virus can hardly be removed from the nervous system by the immune system - making the disease chronic....

Gamma GT	25	U/L	≤ 40
Bilirubine totaal	0.28	mg/dL	≤ 1.18
Cholesterol	296	mg/dL	≤ 190
Triglyceriden	108	mg/dL	≤ 150
L. Nuchter afname <150 mg/dL, Niet-nuchtere afname <175 mg/dL			
HDL-Cholesterol	82	mg/dL	≥ 45
Non-HDL-Cholesterol berekend	215	mg/dL	≤ 130
L. Therapeutisch doel: zeer hoog risico: < 85 mg/dL, hoog risico <100 mg/dL, laag tot matig risico <130 mg/dL			
LDL-Cholesterol berekend	193	mg/dL	≤ 100
L. Therapeutisch doel: zeer hoog risico: < 55 mg/dL, hoog risico < 70 mg/dL, laag tot matig risico <100 mg/dL			
CRP	7.8	mg/L	≤ 5.0
Stolling			
28-02-2023 18:08 - bloed			
Protrombinetijd (PT)	11.0	s	9.4 - 12.5
Protrombinetijd (PT)	101.0	%	70.0 - 150.0
Protrombinetijd (PT)	0.9	INR	
L. Resultaat voor patiënten behandeld met vitamine-K-antagonisten: therapeutische antistolling bij INR = 2 - 3. Enkel bij mechanische hartkleppen en bij sommige patiënten met het antifosfolipidensyndroom wordt intenser geanticoaguleerd: INR = 2,5 - 3,5.			
APTT	28.7	s	25.1 - 36.5
Fibrinogeen	4.69	g/L	2.00 - 3.93
Endocrinologie			
Calciummetabolisme			

het antifosfolipidensyndroom wordt intenser geanticoaguleerd: INR = 2,5 - 3,5.

APTT	28.7	s	25.1 - 36.5
Fibrinogeen	4.69	g/L	2.00 - 3.93

Endocrinologie

Calciummetabolisme

28-02-2023 18:08 - bloed

25-OH-vitamine D	27.9	µg/L	11.0 - 60.0
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L. streefwaarde: > 20 µg/L

Immunologie Allergologie

28-02-2023 18:08 - bloed

Totaal IgE	112	kU/L	≤ 114
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Virologie Serologie

28-02-2023 18:08 - bloed

SARS-CoV-2 IgG anti-N negatief

Deze test spoort geen antistoffen op die uitgelokt worden door het Pfizer, Moderna, Curevac, Janssen of AstraZeneca vaccin.

SARS-CoV-2 IgG anti-S > 5680.0 BAU/mL

Deze test spoort antistoffen op die kunnen uitgelokt worden door natuurlijke infectie of vaccinatie.

SARS-CoV-2 IgG anti-S > 40000.0 AU/mL < 50.0

Deze test spoort antistoffen op die kunnen uitgelokt worden door natuurlijke infectie of vaccinatie.

SARS-CoV-2 IgG anti-S positief

Deze test spoort antistoffen op die kunnen uitgelokt worden door natuurlijke infectie of vaccinatie.

28/02/2023 Chemistry blood, H. Gielen, UZ Leuven
 SARS-CoV-2-IgG anti-S > 40 000.0 AU/mL <50.0
 SARS-CoV-2 IgG anti S: positive

IgG anti-s: Anti-Spike antibody determination: these antibodies are formed after a SARS-CoV-2 infection, but also after vaccination.

(First covid infection at the end of Feb. 2020, 2 vaccinations in 2021, second Covid infection in April 2022, no more booster shots since then)

The UZ pneumologist suggested that Neural Therapy (NT), a safe method, be tried by a doctor specialized in Neural Therapy. This was still new in long covid patients. NT helps to reset the autonomic nervous system, to get it back into balance. So again a SOFT APPROACH, but faster working and in line with what DID already work for her. From now on, booster shots after the first two vaccinations were not recommended by the UZ.

Neural therapy is a regulatory therapy. The autonomic nervous system controls all automatic functions. Certain functions are impaired, resulting in complaints, due to disturbances in the electrical charge of the cells and the cell environment. The cells are depolarized. With injections of procaine, NT helps to restore the cell charges, allowing the cells to regain their self-healing capacity. The cells repolarize. Neural therapy can best be compared to repairing a flat battery in the car: with the help of another battery, the flat battery is recharged. Injecting procaine that itself has an electrical charge of 290 mV works as an external battery to recharge the cell battery. This only works if the cell itself and the cell battery are not too badly damaged.

So for a total approach, it seemed logical to start from the neuro-fascial system (combination fascia therapy and neural therapy) in this situation.

The fascia is our largest organ and therefore has the most nerve fibers and sensors (more than 250 million). Neural therapy, via syringes of procaine anywhere in the body, especially in nerve nodes, can therefore have a major impact on the fascia and therefore on the entire body. NT helps restore, upregulate or modulate the communication capacity and efficiency of the neuronal networks, improve the electrical flow to weakened areas (organs, tissues, cells, mitochondria or to quantum, nano, microlevels).

Especially through this neural therapy, the stranglehold of a kind of octopus with many tentacles in which her nervous system was held, was broken: the taste distortion disappeared definitively after the 2nd session, which was specifically aimed at the taste nerve, among other things. Also the nausea/dizziness, the cognitive problems, the inflammations, the nagging muscle pains and especially those horrible stabbing/burning nerve pains and electric shocks disappeared completely. In the event of a PEM relapse, an additional session of neural therapy helped to stop this relapse immediately, the pain from the axis of intestinal tissue – brain tissue no longer spread in the form of a storm of inflammation from the back of the head/neck throughout her body.

4.3.3. Swimming in Thermal Waters (Spring 2023)

Only when those muscle and nerve pains had stopped due to this resetting of the autonomic nervous system through - a total of 8 sessions - neural therapy, she could finally start working on the condition of her body in the spring of 2023. She stayed twice for three weeks in a spa in Austria in the spring of 2023 (Badgastein/Austria, thermal water with minerals and Edelgas Radon). The mild, natural radioactivity helps to rebalance the immune system and promote blood flow.

There she learned to walk back step by step in the pool every day, to exercise and strengthen her muscles, and to give her body the chance to recover. This cure gave an enormous boost to the mitochondria, the energy factories of the cells. The nerve pains in her hands and feet disappeared completely. She also went back to work, first a few days, and started exercising again.

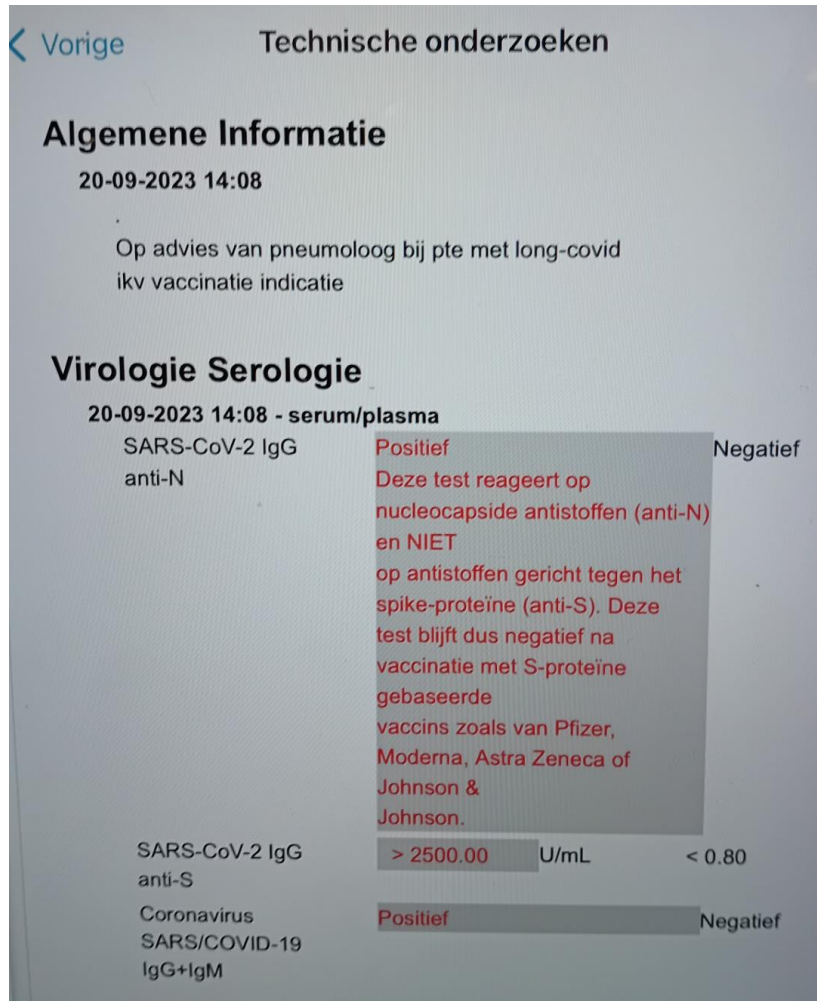
After a 3rd covid infection in May 2023, she was immediately able to avoid the flare-up of Long COVID symptoms through neural therapy. Another attack was stopped. What also helped was that after the recovery period she was clearly much more confident, she had developed more resistance and the nervous system and immune system had calmed down.

4.3.4. Hyperbaric Oxygen Therapy (End of Spring 2023)

For the most persistent pain in her tissues - tissue around intestines and brain tissue - which she had already had since the spring of 2020, she then followed another two weeks of hyperbaric oxygen therapy at the Military Hospital. Hyperbaric oxygen therapy aims to do the same as fascia therapy, but is much more intense. The pain in her tissues worsened during the first week (she received the higher dose of oxygen in this pilot project), but disappeared completely in the 2nd week. These last tissue pains have therefore also finally disappeared after more than three years due to better blood flow to intestinal tissue and brain tissue. And the pains have definitely stayed away. So again because of that GENTLE APPROACH (Hyperbaric oxygen therapy apparently causes new capillaries to form in the tissues). After this 3.5-year trajectory, her body's recovering capacity is now doing the rest, with a new 4th covid infection in the summer of 2023 she hardly had any problems, she only had a last attack of angioedema.

The only problem remained the extremely high covid antibodies (more than 40,000 covid antibodies in autumn 2022 and in spring 2023, the max. after vaccination is 2500, normal value is <50, she hoped that these would normalize with time. In new blood tests in the fall of 2023, the covid antibodies were back >2500 (still high antibody titer but no longer so extremely high). She keeps her cholesterol under control with cholesterol-lowering drugs, which is the only medication she still takes.

Unfortunately, she never got an explanation of what all those blood results mean. She didn't dare to ask questions anymore, the classic answer was always "You ask too difficult questions".



20-09-2023 Chemistry blood, H. Gielen, UZ Leuven
Antibodies in the blood: IgG (type of antibodies against COVID-19) and IgM

Since the summer of 2023, she is working again as she was before Feb. 2023. 2020, she is back to sports (tennis, mountain hiking, long bike rides), she is back to working 100% as she did before the Covid period, is traveling back, is completely pain-free and she no longer experiences PEM relapses. She can finally stop fighting and leave everything back to her body's ability to recover properly. The cure was confirmed by the pneumologist of the UZ in Oct. 2023. She remains completely symptom-free until today (September 2024)!

It seems as if the last virus particles have disappeared from her body - blown out by the hyperbaric oxygen therapy? According to the pneumologist at the Military Hospital, this is possible for bacteria, but she did not know if this was possible for viruses.

In case of new 5th Covid infection at the beginning of Jan. In 2024, she had ultrasounds of all the Long Covid symptoms she experienced for a while (f.i. unable to take cholesterol medication for two weeks), but otherwise she has had little trouble with them. The same for a 6th infection later on in 2024 (tinnitus and shortness of breath during a week).

5. CONCLUSION— A PATH TO RECOVERY FROM LC

In the case of an explicit dysfunction of the autonomic nervous system due to Long Covid and PEM, this patient avoided the methods experienced as very aggressive by the autonomic nervous system out of balance, such as: medication, physical rehabilitation for muscle pain or nerve pain and booster shots after the first two vaccinations.

Regarding the Care Pathway in Belgium for LC patients: her physiotherapy had already started before the Care process was started, physical exercise always gave a heavy relapse (this later turned out to be 'PEM'). Her physiotherapist immediately switched to 'fascia therapy' (55 sessions in total over a few years). She has walked or cycled for at least an hour every day for the past three years - with an electric bike, admittedly - thanks to the positive impact of fascia therapy.

Her new GP didn't know the new Care pathway at first, heard in their GP practice that it didn't work in the practice, they didn't understand Long COVID by the way. As a result, they did not want to start the Care process. She then contacted Domus Medica, they called her new family doctor and convinced her. After further insistence by this lady, the Care process was finally started, but fascia therapy was not an option. By the way, the physiotherapist didn't know anything about this Care process. She also didn't get any info from the physiotherapists' association for the correct code. In the end, this lady obtained the code for kine herself through CM. Plus she also had a disagreement with CM, they said that the counter of physiotherapy sessions was reset to zero every year, which was denied by RISIV. She then had a whole discussion with both parties, eventually CM relented. But she got a new heavy relapse of the LC complaints because of all that unwillingness and misery and then the whole issue of 'Care trajectory', it turned out to be very disappointing for her, then she classified vertically the whole package.

What has helped her to become completely symptom-free and eventually recover, is a GENTLE APPROACH to the autonomic nervous system, with:

- Understanding among fellow LC patients in the various Facebook patient groups in Belgium and the Netherlands, in contrast to the disbelief in the medical world.
- Fascia therapy, about 50 sessions of 'connective tissue massage' in total (for a better blood flow to tissues and organs and calming of the nervous system).
- Six B12 injections (helped against hair loss, brittle nails and muscle pain).
- Finally a doctor who did listen to her, showed empathy, recognized Long COVID for the first time and proposed a trial therapy 'Neural Therapy' that built on what DID already help her (NT for a resetting of the autonomic nervous system).
- Only afterwards (when all muscle and nerve pains had disappeared) six weeks of daily swimming in a spa with thermal water, to strengthen and activate the muscles again (this was a real boost for the mitochondria/energy factories of the cells).

- Finally, the trial therapy 'hyperbaric oxygen therapy' for 2 weeks that could replace the connective tissue massage of the physiotherapist with a more intense treatment (and create new capillaries in the tissues).
- And also the refusal of all booster shots, after the first two vaccinations.

Quite a relief after about 10 consultations with different specialists in different hospitals: *"It's all psycho-somatic"*, *"It's noci-plastic"* and about 30 tests: *"Nothing to see on the tests, you are perfectly healthy ma'am"*. And always, *"Wouldn't you go to the psychiatrist?"* (for which this LC patient has always thanked kindly, it is not because the medical specialists did not initially know Long COVID that she had to go to the psychiatrist). Of course, other possible causes had to be ruled out through all kinds of tests, but the inability/lack of knowledge and/or willingness among physicians to look at the total picture was very frustrating. Just waiting for the Long COVID symptoms to go away did not work with this Long COVID patient. Due to the cumulative course of LC complaints, a quick, correct trial treatment, adapted to the specific LC complaints, is very important. The PEM relapses also evolved in this lady, initially she got nagging muscle pain in the arms for several weeks after minimal physical exertion (e.g. swinging arms a few times overhead) and cognitive problems. But after the 2 basic vaccinations and 2nd Covid infection, the PEM attacks became heavier and lasted much longer. In her case, this was due to repeated blows to the autonomic nervous system, which became more and more sensitive and unbalanced with each blow. As a result, the immune system also became more and more dysregulated and reacted more violently (with all kinds of inflammations, e.g. due to joint problems, she could only walk with two canes and a brace and she feared disability).

The only solution was to completely reset the autonomic nervous system through a trial treatment (Neural Therapy). That was the key to starting a process that led to her full recovery! At the time, she was already very close to a 'point of no return', a possible transition from Long COVID symptoms to ME/CFS? So the issue of the autonomic nervous system being out of balance was central to this lady. The virus hid mainly in the intestinal epithelium and there was a bidirectional impact/gut-brain axis, through the blood and the vagus nerve. The successive series of gentle trial treatments has led to her healing, in which neural therapy really played a key role. But it would have been even better to test such trial treatments with monitoring of biomarker panels. To measure their effectiveness.

A PET scan, requested out of concern for the condition of her T cells, was refused again and again at the University Hospital of Leuven. Apparently, the blood tests were sufficient for the UZ, but they didn't say anything about her T-cells...

Her suggestion to take a drug that suppresses the immune system (cfr blood test "extremely high antibody titers", which was accompanied by inflammation everywhere) was resolutely rejected because of a medication that was too heavy for her with side effects. A new booster shot, even with Novax, was also discouraged in her specific case. Fortunately, she did follow this justified advice.

Given the fact that she has become permanently completely symptom-free (since June 2023) and is back to exercising and working as she did before Feb. 2020, the UZ in Oct. 2023 declared that she is cured. '100% back to a normal life', that was the essence for her and she achieved it in her 4th year of Long COVID.

6. LEARNING FROM REAL_LIFE CASES

So curing Long COVID was indeed possible in this case, this practical case may once again underline the seriousness of this new systemic disease and at the same time give hope to other

Long COVID patients with a diagnosis: '*Post-acute sequelae (Long COVID), explicit dysfunction of the autonomic nervous system due to Covid and PEM*' .

This lady really hopes that soon the scientific reports on these pilot projects (Neural therapy in a group of Long COVID patients with already encouraging results in 10 LC patients and Hyperbaric Oxygen therapy in 100 LC patients in Military Hospital) will be published. So that, in the event of positive results, others can also benefit from it. In the meantime, it seems a good idea to take a look at Long COVID patients with the same diagnosis who have also recovered, and try to analyze what helped them. This may also give us valuable tips.

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AUTHOR

Helga Gielen; Born: Bree2/11/58 (Belgium);Post - Long COVID patient.

- Master in 'Archaeology and History of Art' (Old Near East), Catholic University of Leuven.
- Trainer/consultant - own company JONAC (Human Resources consulting services), since 1996.
- City guide Leuven, Museum guide (BOZAR, LA BOVERIE, KBR, PARKABDIJ), Travel leader R.O.C and Governing board member (Secretary) of the academic NIA Club in Leuven.

