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## **Long COVID is an infectious encephalitis caused by SARS-CoV-2, but not exclusively. Report on a Young Woman.**

Report to the attending physician about a young lady suffering from Long Covid. Belgium April 2024

The following text is a pseudonymized reproduction of the report I sent to the patient's treating physician, who is the 150th individual I have encountered since July 2021 with this unnamed condition. This publication is made with the explicit and written consent of the young woman and her mother. I have no conflict of interest.

The complexity of the Long COVID phenomenon is highlighted, along with the despair and sense of abandonment felt by the patient and her family, as I have emphasized in another testimony.<sup>1</sup> This text also illustrates a presentation I made to an organization that helps brain-damaged patients and supports the Long Covid patients.<sup>2</sup>

Physicians are defeated by the patient. The doctor-patient relationship can never be established or does so belatedly. The peculiarities of the Belgian healthcare system are well highlighted: no cost restrictions, direct access to specialists, multiple hospital options, lack of synthesis function, and involvement of multiple concurrent stakeholders.

In my 50th year of practice as a family physician, the search for the best way to navigate uncertainty facing unusually exhausted patients led me to utilize an imaging technique considered obsolete but surprisingly reveals vascular blood flow disorders. Almost all patients have also agreed to participate in genetic, proteomic, and transcriptomic research made possible by the Human COVID Genetic Effort network (<https://www.covidhge.com/>) launched by Professors Casanova and Su. In Belgium, Dr. Van Weyenbergh, a senior immunologist at the Rega Institute Immunology Laboratory in Leuven, conducts transcriptomic studies. These studies are currently on hold due to a lack of research funding. Blood samples are also analyzed at the Brodin Lab in Stockholm and Necker Hospital in France, under Casanova's supervision.

My clinical experience with this fluctuating disease and international research converge on the hypothesis of a chronic viral infection. It is conceivable that Long COVID-19 will change its designation and become chronic COVID-19.

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<sup>1</sup> Jamouille, M. (2024). The Persians of Eschylles, the Long Covid and ChatGPT. ORBi-University of Liège (multiple languages). <https://orbi.uliege.be/handle/2268/312695>.

<sup>2</sup> Jamouille, M. (12 April 2024). Ethics, epistemology and Long Covid. Belgique 2021-2024 [Paper presentation]. Scientific meeting, Gembloux, Belgium.(in French and English) <https://hdl.handle.net/2268/316216>

To the attending physician

## About

Female 21 years. Carol (pseudonym)

Dear colleague

Miss Carol has consulted me for advice on a health problem that has been evolving since October 2022 at the age of 18. Miss Carol was a student of artistic humanity, intending to become a photographer and a student jobber. She was in good health. She sometimes had a form of gastro-oesophageal reflux and some abdominal pain. She was the youngest of three siblings. The parents are separated. She lives with her mother. The following analysis is conducted following a detailed study of the documents available on the Walloon Health Network and the meeting with the young woman and her mother.

## Vaccination COVID

She was vaccinated once on 24/07/2021 (Comirnaty). The vaccine was well tolerated with only a little pain at the injection site.

## COVID acute

Miss Carol did her first COVID on 28/11/2021 with PCR + test but without any severity character. She had a second COVID on 06/09/2022 with PCR + test. The second acute Covid was accompanied by fever, fatigue, loss of taste and smell, and a headache for ten days. On the whole, the attack was not very serious.

## Long COVID

At the end of October 2022, problems appear in the form of vertigo. It was more a question of instability. The patient didn't know where to put her feet, and walking was difficult. She also experienced malaise, extremely low blood pressure, abdominal pain, nausea, and inappetence. She loses her appetite, and from November to February 2023 she loses 9 kg. The stomach ache becomes severe. There is nausea, sweating, pain in the throat, and difficulty swallowing. But the chest pain and tachycardia (180 beats per minute) are worrying, and the anguish of being ill becomes apparent. She has also had obstructive rhinitis since the acute COVID. Exam stress is mentioned, and she is advised to see a psychologist. Psychosomatic complaints and anxiety-depression are mentioned.

On February 23, the patient, who is 1.61 m tall, weighed just 37 kg. She was in a wheelchair. She was hospitalized for severe malnutrition, all sensations of hunger having disappeared, with serious problems swallowing even water. Hospitalized at the CHIREC facility in Brussels. One speaks of anorexia. As the gastric tube is rejected, parenteral nutrition is required. The girl regains some weight. The patient is helped by her mother, a physiotherapist who moves heaven and earth to understand what is happening to her daughter. The ultra-detailed focus shows nothing. An aorto-mesenteric pinch is suggested. A neurologist was consulted, but could not understand the sensation of discharge that the patient felt on her thighs, to the point where she thought she was urinating on herself. Similarly, she experiences a loss of perception of the need to urinate. She leaves the hospital weighing 42 kg, with no precise diagnosis. She receives anti-vomiting medication (ondansetron). She only drinks water through a straw, to avoid a false route.

On March 3, 2023, she was hospitalized at the Clinique St Luc in Brussels due to a recurrence of symptoms. She is kept in temporary hospitalization. Two psychiatrists and three psychologists see her. The emergency doctor and the internist are aggressive with her, raising their voices at the patient and her mother with words such as "*Your daughter has a mental illness*". "*Your daughter has an imaginary illness*". Yet the psychiatrist's report does not conclude that the patient is mentally ill. The patient was then referred to Erasme Hospital, where she experienced a serious side-effect of medical practice, with thrombophlebitis of the arm. The discharge report speaks of

*"Chronic recurrent digestive picture: postprandial abdominal pain, persistent nausea, significant weight loss. Etiology: - possible psychosomatic component after psychological evaluation with reactive anxiety-depressive affects...Denutrition with weight loss, BMI 16.4 kg/m2. Induced deep thrombophlebitis of the left brachial vein on central KT*

The girl left the hospital without a diagnosis and on discharge. The mother decided to stop working to devote herself to her daughter. The extended family helps out. Consultations are also held at the UZ-VUB hospital in Brussels and the Clinique St Pierre in Ottignies. She is hospitalized several more times (six in all) without any precise diagnosis.

Through social networks, the mother sought help and ended up traveling to Reims, France, with her daughter, where she consulted Dr D, a specialist in functional medicine. Dr D. was the first to mention the possibility of a vagus nerve disorder and advised her to consult Dr V. at the Free University of Brussels.

Meanwhile, her attacks of digestive pain remained incapacitating. She was hospitalized at the CHIREC facility in early June 2023. The emergency physician synthesized the problem without judgment. The initial neurological examination appeared normal.

*"Chronic abdominal pain not understood despite exhaustive workup Mesenteric clamp syndrome probably secondary to weight loss Suspicion of vagus nerve dysfunction Involuntary weight loss and severe undernutrition Status post deep brachial thrombophlebitis on picc-line"*

In July 2023, Miss Carol experienced an acute appendicitis crisis that was promptly operated on, with explicit pathological examination and no residual sequelae.

In August 2023, the young woman underwent electrostimulation treatment (Dr V - ULB) with some success. Tinnitus and dizziness have disappeared. Hypotension problems are reduced. The patient was able to start physical therapy. She then did hyperbaric chamber sessions in Vesale Hospital without success.

In January 2024, the patient experienced a recurrence of abdominal pain. She was treated in an algology unit and given lidocaine ketamine infusions, which reduced her pain from 10 to 3 on a pain scale of 1 to 10.

She also suffers from gastroparesis, and osteopathic sessions help with gastric emptying. A cardiologist mentions postural tachycardia syndrome (PoTS)

In April 2024 the patient answers the questionnaire I submit to her. The questionnaire, published by the ComPaRe<sup>3</sup> initiative, includes a list (in French) of the most frequent symptoms observed in Long COVID patients. So many responses were received that the completed questionnaire is reproduced in the appendix. Symptoms experienced in the past are ticked off. Those still present are underlined.

This young woman presented with an almost complete picture of Long COVID-19, with very severe abdominal involvement. A brain SPECT-CT was requested and performed at Brugmann on April 18, 2024. Flow disorder is clearly shown. Sars Cov 2 infectious encephalitis was no longer in doubt.

### **Functional status (Patient Related Outcome Measure), early April 2024**

The patient fills in a self-assessment grid called COOP-Charts, a validated tool for overall health evaluation currently used in Family Practice<sup>4</sup> (results are expressed in points. 5 points per question, 6 questions. The patient is in excellent shape with 6 points in total, his condition is very poor with 30 points) The patient obtains 23/30 in the test on February 09, 2024.

- general state of health quite poor: 4
- physical fitness; can only walk at a leisurely pace: 4
- emotions; very affected by her condition: 4

<sup>3</sup> Tran, V.-T., & Ravaud, P. (2020). Collaborative open platform E-cohorts for research acceleration in trials and epidemiology. *Journal of Clinical Epidemiology*, 124, 139–148. <https://doi.org/10.1016/j.jclinepi.2020.04.021>

<sup>4</sup> van Weel, C., König - Zahn, C., Touw - Otten, F. W., van Duijn, N. P., & Meyboom - de Jong, B. (2021). *Measuring functional health status with the COOP/WONCA Charts. A manual*. Northern Centre of Health Care Research, Groningen University, The Netherlands.

- ADL; great difficulty in performing daily activities: 4
- social activities are quite limited: 5
- state of health unchanged; 3

With a score of 24 out of 30, the patient's general state of health is profoundly affected. In my cohort of 150 patients, no one with a score of 20 or more out of 30 can hold down a professional activity..

## **BRAIN IMAGING**

Cerebral perfusion tomoscintigraphy with CT fusion (SPECT-CT)(HMPAO-Tc99m), performed on 18/04/2024 (Prof H, Institut Brugmann)

*On fused tomographic images with diagnostic CT, moderate heterogeneity of perfusion is observed, asymmetrically favoring the left side. Hypoperfusion is noted in the left frontal lobe, left insular and peri-central regions, and left thalamic and parahippocampal regions. Hypoperfusion of the brainstem is also observed.*

*On images without attenuation correction (NoAC), perfusion appears overall homogeneous on the right side. On the left side, discreet hypoperfusion is observed in the insular region, basal nuclei, parahippocampal region, and brainstem. Perfusion is generally unremarkable, however, in the peri-central and frontal lobe regions.*

*Quantitative analysis, compared to a database of normal subjects, confirms significant asymmetry favoring the left side, with involvement of peri-central, insular, and basal nuclei on the left, as well as the brainstem. Significant findings are only observed in the basal nuclei, parahippocampal region, and brainstem regions.*

*Conclusion: Significant perfusion anomalies in the left peri-central and insular regions, as well as left deep structures and brainstem. Significant perfusion asymmetry favoring the left hemisphere. Perfusion/metabolic abnormalities in the brain, relatively typical of long COVID encephalopathy, have mainly been described in the early stages of the disease. Patterns observed in the subacute/chronic stages are less well characterized.*

## **Summary**

The clinical syndrome of long COVID-19 with encephalopathy is beyond doubt, although the techno-medicine we use, including biology, is of little use in demonstrating the problem. We are therefore faced with a set of medically unexplained symptoms, whose constellation and temporality effectively correspond to Post Acute Covid Syndrome and cannot be confused with mental pathology or any other disease. The main attack by Sasr Cov 2 was characterized by an episode of anosmia and dysgeusia, and the long-term consequences are particularly dramatic, with multiple cerebral and particularly hypothalamic damage, explaining the unusual symptomatology. The satiety center was affected by hypoxia, and organic anorexia set in, accompanied by a procession of parasympathetic symptoms. Miss Carol is therefore suffering from Long Covid with a series of neurological and abdominal symptoms.

## **Discussion**

We, therefore, highlight a post-COVID syndrome called long Covid with a marked hypothalamic component and great abdominal suffering.

Post Acute Covid Syndrome (PASC) has already been perfectly described in June 2021 by Dr. Proal<sup>5</sup> and her publication provides a descriptive table of the symptoms experienced by the patient. The situation is dominated by central (here mainly hypothalamic) and peripheral neurological damage and abdominal pain. Long Covid is known to induce vascular endothelitis, accompanied by platelet pathology that is difficult to detect with our usual technologies.<sup>6</sup> It is therefore a case of vascular neuroinflammation. Cerebral hypoxia has already been demonstrated by technetium scintigraphy

<sup>5</sup> Proal AD, & VanElzakker MB. (2021). Long COVID or Post-acute Sequelae of COVID-19 (PASC): An Overview of Biological Factors That May Contribute to Persistent Symptoms. *Frontiers in Microbiology*, 12. <https://doi.org/10.3389/fmicb.2021.698169>

<sup>6</sup> Turner, S., Khan, M. A., Putrino, D., Woodcock, A., Kell, D. B., & Pretorius, E. (2023). Long COVID: pathophysiological factors and abnormalities of coagulation. *Trends in Endocrinology & Metabolism*, 34(6), 321-344.

(SPECT-CT) in a large number of patients.<sup>7</sup> Decreased vascular flow is a near-constant feature of Long Covid severe. It has induced cortical symptoms, loss of energy, loss of speech, and loss of procedural memory. The altered course of life post-COVID has certainly induced a sense of abandonment and distress in the patient, but she is determined to face up to her health problem.

The existence of anosmia and dysgeusia should raise suspicions of subsequent brain damage, as

11/2021	acute CovidPCR+
09/2022	acute CovidPCR+ with anosmia
03/2023	eating disorder imaginary patient mentally deranged
04/2023	mesenteric clamp syndrome
04/2023	abdominal pain in a psychosomatic context
04/2023	undernutrition with a psychosomatic component reactive anxiety-depressive affect
05/2023	vagus nerve damage
06/2023	chronic abdominal pain not understood involuntary weight loss and severe malnutrition
07/2023	Long Covid
07/2023	Vagus nerve dysautonomia
08/2023	Acute appendicitis
11/2023	severe denutrition
01/2024	anorexia due to vagus nerve dysautonomia
04/2024	Sars Cov 2 Infectious encephalitis
Table 1 Temporal evolution of diagnostic assessments	

demonstrated by the work of Brasseler et al.<sup>8</sup> The relationship between insomnia, dysgeusia, and

subsequent eating disorders has been established.<sup>9</sup>

The use of technetium brain scintigraphy is one of the only examinations readily available in Belgium in routine practice to examine cerebral perfusion. The PET scan shows the consumption of labeled glucose, which is more expensive and less eco-friendly, and may also be contributory, but its use is not admitted by the Belgian insurer in the COVID-19. The reliability and reproducibility of SPECT-CT are questionable due to inter-observer variation (Prof Hambye, personal communication) in cases of simple perfusion heterogeneity, but in this particular case, hypoperfusion is visible and indicates localized cerebral hypoxia, which accounts for the various neurological symptoms presented. The importance of the digestive pain syndrome in this patient must be emphasized. The mechanisms underlying gastrointestinal involvement in long COVID are complex and include viral persistence, mucosal and systemic immune dysregulation, microbial dysbiosis, insulin resistance, and metabolic abnormalities.<sup>10</sup>

It is also intriguing to note the extent to which the SARS-CoV-2 virus challenges our healthcare system. Indeed, all imaging and laboratory tests are consistently negative in this patient, which has confounded a significant number of healthcare providers. A review of the list of diagnostic statements found in medical records or reported by the family is highly instructive.(see table 1)

It is striking that the cardinal symptom, anorexia, was immediately viewed from a behavioral perspective, while other symptoms of Long COVID were not reported. At no point was it considered that this could be a neurological issue, even though numerous signs suggest at least some brain involvement (deactivation of the satiety center, gait disturbances, abnormal perceptions, urinary dysfunction, swallowing difficulties, etc.). It wasn't until the report from the physician overseeing the hyperbaric chamber treatment that a comprehensive account of Long COVID symptoms was provided.

The diagnostic and relational challenges between physicians and patients have generated significant mutual frustration and led to seeking assistance from numerous physicians across multiple hospitals, along with a high number of paraclinical and laboratory examinations. (see fig.1 below))

<sup>7</sup> Jamouille M, Kazenzeza-Mugisha G, Zayane A. (2022) Follow-Up of a Cohort of Patients with Post-Acute COVID-19 Syndrome in a Belgian Family Practice. *Viruses*. 2022;14(9):2000. doi:10.3390/v14092000

<sup>8</sup> Brasseler M, Schönecker A, Steindor M, et al. Development of restrictive eating disorders in children and adolescents with long-COVID-associated smell and taste dysfunction. *Front Pediatr*. 2022;10. doi:10.3389/fped.2022.1022669

<sup>9</sup> Chaaban N, Høier ATZB, Andersen BV. A Detailed Characterisation of Appetite, Sensory Perceptual, and Eating-Behavioural Effects of COVID-19: Self-Reports from the Acute and Post-Acute Phase of Disease. *Foods*. 2021;10(4):892. doi:10.3390/foods10040892

<sup>10</sup> Meringer H, Wang A, Mehandru S. The Pathogenesis of Gastrointestinal, Hepatic, and Pancreatic Injury in Acute and Long Coronavirus Disease 2019 Infection. *Gastroenterol Clin North Am*. 2023;52(1):1-11. doi:10.1016/j.gtc.2022.12.001

## Arrangements to be made

- Updating the summarized electronic health records (SUMEHR) on the hospital medical data network (RSW)
- A declaration of the Long Covid care path must be made to the patient's mutual insurance company by encoding the code 400013 on the care benefit by the doctor holding the patient's file (DMG). This code must be sent every six months and entitles the patient to free benefits. See explanations on the website of the Belgian national insurer INAMI.<sup>11</sup>
- Requesting a neuropsychologist's opinion and treatment as part of the Long Covid program
- Drawing up a request for physiotherapy treatment for Long Covid
- Drawing up a request for dietetic treatment for Long Covid
- Drawing up a request for ergotherapy treatment for Long Covid. The ergotherapists at Vivre Mieux <https://vivremieux.be/> have developed expertise in this field.
- Drawing up a request for the usual labs specific to Long Covid
- From a therapeutic point of view, there are no antivirals already on the market for what appears to be chronic virosis at Sars Cov 2. However, some symptomatic treatments can be proposed. Some experts recommend broad anticoagulation, adding aspirin and clopidogrel because of the presence of platelet microaggregates.<sup>12</sup> The decrease in vascular flow is almost constant in the Long Covid severe, and cerebral ischemia may be responsible for the neurological symptoms observed. Piracetam 1.2 gr is taken morning and evening for one month. It will then be continued depending on the effect on cognition. Given the rhinitis that has developed since COVID was first taken, mast cell activation syndrome may be suspected. The antihistaminic already taken will therefore be continued.
- Abdominal pain is a difficult issue to deal with. Abdominal pain syndrome appears to be a form of inflammatory bowel disease.<sup>13</sup>
- The patient must continue her intellectual and physical activities. She must, however, be very aware of her limits and observe her state of fatigue. Her reserves must not be depleted. The same applies to physical activity.
- A neurological opinion can be sought from Dr W. at William Lennox Hospital.
- Neuronation application can be used to maintain and develop cognitive capacity <https://www.neuronation.com/>
- The patient is to be considered brain damaged, and as such will be eligible for assistance from the society Le Ressort. <https://www.leressort.be/>
- She can certainly get support by contacting the Association Long Covid Belgique. [longcovidbelgium@gmail.com](mailto:longcovidbelgium@gmail.com)

## Research in progress

One of the reasons Miss Carol consulted me was the immunological research carried out on my patients at the REGA Institute at the KUL.<sup>14</sup> This research has already shown the persistence of viral RNA in many patients. The working hypothesis is a chronic fluctuating and disabling virosis. The patient will come to Leuven to have her blood sample taken for transcriptomic and proteomic analysis in an attempt to identify the organism's response to attack by SARS COV 2 and the possible presence of viral RNA. We are also attempting to locate the biopsy of the appendice sample to proceed with a

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<sup>11</sup> Trajet de soins Long Covid [Long Covid care path] in French ; <https://www.inami.fgov.be/fr/themes/soins-de-sante-cout-et-remboursement/maladies/covid-long-remboursement-des-soins-en-cas-de-symptomes-covid-19-persistants>

<sup>12</sup> Pretorius E, et al (2022). Prevalence of symptoms, comorbidities, fibrin amyloid microclots and platelet pathology in individuals with Long COVID/Post-Acute Sequelae of COVID-19 (PASC). *Cardiovascular Diabetology*, 21(1). <https://doi.org/10.1186/s12933-022-01579-5>

<sup>13</sup> Elmunzer BJ, Palsson OS, Forbes N, et al. Prolonged Gastrointestinal Manifestations After Recovery From COVID-19. *Clinical Gastroenterology and Hepatology*. Published online November 22, 2023. doi:10.1016/j.cgh.2023.11.009

<sup>14</sup> Menezes, S. M., Jamouille, M., Carletto, M. P., Van Holm, B., Moens, L., Meyts, I., Maes, P., & Van Weyenbergh, J. (2024). Blood transcriptomics reveal persistent SARS-CoV-2 RNA and candidate biomarkers in Long COVID patients. *COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv*. <https://doi.org/10.1101/2024.01.14.24301293> (accepted Lancet/Microbe)

transcriptomic study of the specimen. If a colonoscopy is to be performed, it would be worthwhile contacting Johan Van Weyenbergh of the Rega laboratory in Leuven beforehand to arrange transcriptomic analysis of the biopsies taken. The technology for visualizing micro-clots is not yet available in Belgium (see @putrinolab et @resapretorius) but it is possible to assay SNfL and GFAP proteins, a marker of cerebral inflammation.<sup>15</sup>

Sincerely yours

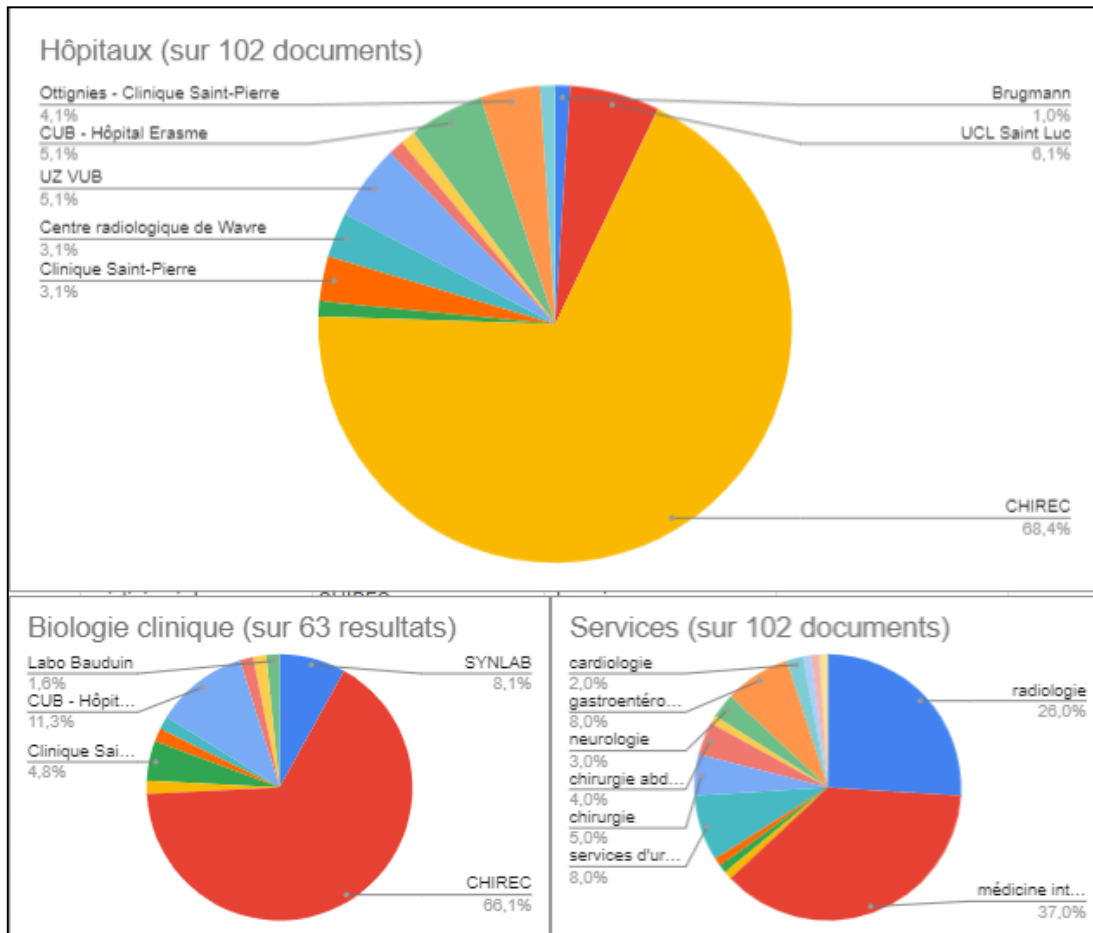


Fig 1. 18-year-old patient with severe anorexia after a second episode of acute Covid. Over 14 months, the distribution of hospitals and medical services involved and clinical biologies were performed. Source; Réseau Santé Wallon (Belgium), between 05/11/2022 and 11/01/2024. Covid acute twice in 11/2021 and 10/2022. Long covid diagnosed on 10/07/2024. Sars Cov 2 encephalitis was diagnosed by SPECT-CT on 11/04/2024 at Brugmann.; 7 hospitals or facilities quoted, 5 different laboratories, 8 specialties, 46 different doctors involved)

<sup>15</sup> Plantone D, Stufano A, Righi D, et al. Neurofilament light chain and glial fibrillary acid protein levels are elevated in post-mild COVID-19 or asymptomatic SARS-CoV-2 cases. Sci Rep. 2024;14(1):6429. doi:10.1038/s41598-024-57093-z

## Annex 2 pages

Source of the questionnaire ; ComPaRe Covid long. ComPaRe - Communauté de Patients pour la Recherche. Published March 9, 2023. Accessed April 21, 2024. <https://compare.aphp.fr/covid-long/>

ComPaRe questionnaire sent by email prior to the consultation, completed by the patient at home. Past symptoms are checked, current symptoms are underlined

## Vos symptômes

Mais cela m'aiderait aussi que vous répondiez au formulaire joint qui permet de détailler les symptômes (Formulaire Compare)

Comme indiqué , cocher les symptômes que vous avez eu et souligner ceux que vous avez encore. source: <https://compare.aphp.fr/> (Symptômes repris du questionnaire Compare)

- cocher ce que vous avez eu
- souligner ce que ressentez pour le moment

### Neurologique

- Céphalées / Mal de tête
- Brouillard mental / Difficultés de concentration
- Sensation de vertige / Malaise
- Paresthésies (sensations anormales, picotements, brûlures, etc.)
- Troubles de la mémoire
- Modification ou perte d'odorat
- Modification ou perte du goût
- Manque du mot (difficulté à trouver ses mots)
- Hypoesthésie (baisse de la sensibilité au toucher)
- Tremblements
- Trouble de l'équilibre
- Aucun de ces symptômes

### Symptômes généraux

- Fatigue
- Frissons avec ou sans fièvre
- Insomnies / troubles du sommeil
- Humeur changeante, irritabilité, baisse de moral
- Courbatures
- Perte de poids / Amaigrissement
- Perte d'appétit
- Sueurs
- Somnolence
- Sensibilité au chaud ou au froid
- Bouffées de chaleur
- Aucun de ces symptômes

### Thorax

- Dyspnée (gêne respiratoire)
- Tachycardie / Arythmie / palpitations
- Douleurs / brûlures thoraciques
- Toux



- Oppression thoracique
- Douleurs de la cage thoracique
- Aucun de ces symptômes

## Locomoteur

- Douleurs musculaires
- Douleurs osseuses et articulaires
- Douleurs cervicales, dorsales ou lombaires
- Jambes lourdes /oedemes des membres inférieurs
- Aucun de ces symptômes

## Digestif

- Inconfort / douleurs abdominales
- Diarrhées
- Nausées / vomissements
- Aucun de ces symptômes

## ORL

- Douleurs / brûlures gorge, difficultés à avaler
- Acouphènes (bruits anormaux dans les oreilles)
- Rhinorrhée (nez qui coule) / Nez bouché
- Douleurs auriculaires (douleur d'oreille)
- Hypoacousie (baisse de l'audition)
- Aucun de ces symptômes

## Peau et cheveux

- Perte des cheveux
- Eruptions cutanée (rash, boutons, plaques)
- Sécheresse cutanée / désquamation
- Doigts et doigts de pieds blancs/rouges/violacés gonflés
- Aucun de ces symptômes

## Yeux

- Sécheresse / irritation /larmolement des yeux
- Baisse de la vision / flou visuel
- Photo/phono phobie (insensibilité à la lumière et au bruit)
- Aucun de ces symptômes

## Vaisseaux et ganglions

- Troubles de la circulation, veines gonflées
- Hématomes spontanés
- Anomalies de la tension artérielle
- Ganglions gonflés et douloureux
- Aucun de ces symptômes

## Génito urinaires

- Symptômes gynécologiques
- Symptômes urinaires
- Aucun de ces symptômes