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## Was Frédéric Chopin's illness actually cystic fibrosis?

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**ABSTRACT** Since Chopin's death 140 years ago, no one has questioned seriously the theory that he died of tuberculosis, in spite of the knowledge that many of the physicians who treated his illness considered tuberculosis an unlikely cause of his chronic respiratory disease, which was of at least 24 years' duration. Although 170 cm in height, Chopin weighed less than 45 kg throughout his life. He was noticeably emaciated and had a marked tendency to lose weight after respiratory infections and with dietary indiscretion. His exercise tolerance remained far below that of his peers throughout his lifetime. He was affected by a debilitating chronic cough, which was often productive and was worst in the morning. This cough persisted from before 15 years of age until his death of cor pulmonale at 39 years of age. Chopin suffered multiple acute, severe respiratory infections of both the upper and lower respiratory tracts which worsened in winter. He had haemoptysis for 18 years. In later life he grew markedly barrel-chested. He may also have been infertile. Chopin's autopsy revealed gross cardiomegaly and changes in his lungs which were not consistent with cavitating tuberculosis. These features suggest that cystic fibrosis may have been the cause of his ill-health and death. Chopin's sister Emily, died at 14 years of age, possibly also of cystic fibrosis.

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**T**uberculosis, or "consumption" as it was known to 19th century persons, was something more than just a disease. It was said to have some benefits for its sufferers, as "consumptive" patients were renowned for an enhanced creativity, hopefulness and sensitivity which belied their delicate condition. An eminently fashionable disease, it was a disease of artists and poets. The personality of Violetta in Verdi's *La Traviata* is an example of the then contemporary idea of the *spes phthisica*. Famous "consumptive" persons included Marie Duplessis, the Brontë family, Vincenzo Bellini and Carl Maria von Weber.

However, the most famous of all was Frédéric Chopin, the pianist who entranced Paris with his delicate piano-playing and beautiful compositions. At Chopin's untimely death there was an unprecedented display of grief by Parisian society, and a moving funeral at the Madeleine — a public event of the first magnitude. Soon after his death, books and pamphlets that described his life and sufferings appeared. The books concentrated mostly on the social and artistic scene that was created by Chopin's life and death. However, their accounts of his disease were influenced heavily by the contemporary knowledge of tuberculosis, and many symptoms which a modern physician would strive to elicit are not mentioned. None the less, they provide sufficient information to make the diagnosis of tuberculosis extremely doubtful.

### Physical appearance

Chopin had the unusual physical appearance that is characteristic of sufferers of cystic fibrosis. His frailty and emaciation were remarked on from his teen-age years.<sup>1</sup> Although 170 cm in height, he weighed even less than 45 kg in 1840, nine years before his death. In his later life Chopin grew markedly barrel-chested. This feature of his physical appearance can be seen clearly in a caricature which was executed by his friend, Pauline Viardot, in 1844.<sup>2</sup> Almost all observers remarked on the unusual slenderness of his limbs. When he travelled in horse-drawn carriages, Chopin feared that he would fracture his frail limbs. Perhaps this is unremarkable for a concert pianist, but, when seen in the context of his illness it may have significance. During the terminal phase of Chopin's illness, he also developed severe pain in his wrists and ankles which was relieved partially by massage. This may have been due to pulmonary hypertrophic osteoarthropathy.

### Physical fitness

From his late teen-age years it was observed that Chopin had a very

poor level of exercise tolerance, so much so that it was remarked on constantly by his peers. In 1828, when Chopin was 18 years of age, he held an audience entranced by his spontaneous improvisations at the piano at an inn in Sulechów. However, after this performance, he was so exhausted that he had to be carried to his coach. This cannot be regarded as normal for a young man who was accustomed to playing the piano. Chopin was unable to produce a true forté, even on the light-actioned pianos of his day. He seldom played above mezzo forté. However, in 1826, Chopin undertook a series of adventurous walks in the Silesian countryside in spite of being puffed out and exhausted. Because his health was so delicate, most of his daily affairs were managed by his Parisian friends, to the extent of shopping for him and buying wallpaper and furniture for his house. In 1838 his mistress, George Sand, tried to cease sexual relations with him because she feared the toll on Chopin's health.<sup>3</sup>

### Dietary habits

There is considerable evidence to indicate that Chopin suffered pancreatic insufficiency which is associated with cystic fibrosis. The most telling evidence was his extreme emaciation. Careful study of his dietary habits shows that he had a preference for a high carbohydrate diet, and avoided fatty foods assiduously. We know that he subsisted on bread and confectionery, which were supplemented with fish or lean chicken; this was not the staple diet of the people of northern Europe. When Chopin lost a great deal of weight after a respiratory illness at 15 years of age, his doctor found that a high carbohydrate diet enabled Chopin to regain weight.

Chopin developed a polyphagia for carbohydrates.<sup>3</sup> George Sand related that one of the unfortunate consequences of the isolation of the couple on the island of Mallorca was that they could not find the correct food for Chopin.<sup>4</sup> At one stage the only food that could be found for Chopin was pork from which he developed diarrhoea and abdominal pain immediately.<sup>4,5</sup> To overcome this problem Sand prepared most of Chopin's food herself and forbade their servants to use pork fat in the preparation of his food because it upset his digestion so much. In the last year of Chopin's life he suffered from intractable diarrhoea either because of cor pulmonale or pancreatic insufficiency. Chopin often wrote to his family that he was "watching his diet" to prevent indigestion and diarrhoea.<sup>3</sup>

### Infertility

Chopin never fathered a child in spite of frequent sexual liaisons, especially during his early years in Paris. He wrote to many of his mistresses discussing the possibility of having children<sup>1</sup> as he had a deep love of children and of family life. His protracted relationship with George Sand did not produce any children. Sand had had many lovers but had no children after she left her husband, by whom she had had two children. Therefore it is likely that she may have practised some form of contraception. However, one wonders if the couple did consider having children during their many years together. No speculation about "natural" children who were fathered by Chopin has ever reached us. Thus, there is good reason to think that Chopin may have been infertile.

### Salt depletion

An invariable characteristic of persons with cystic fibrosis is a tendency towards salt depletion. It is difficult to isolate this symptom in Chopin's symptomatology. However, the most telling evidence that salt depletion occurred was Chopin's prostration after exercise<sup>1,4,6</sup> and prostration and hyperhidrosis during hot weather.<sup>1,4,6,7</sup> Chopin found his heavy sweating very distasteful and

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demanding that his clothes be changed and washed frequently so that they did not become soiled.<sup>4</sup>

### Pattern of respiratory symptoms

The most convincing evidence that Chopin had cystic fibrosis was his long history of suppurative lung disease. From an early age Chopin suffered from a chronic cough which was often productive. In fact, from 15 years of age, the composer was never without some evidence of respiratory disease. Chopin's correspondence reveals an obsession with the weather conditions, as foggy or wintry weather provoked both respiratory disease and paroxysms of coughing.<sup>2,7</sup> During the winter, Chopin often left Paris to avoid the adverse weather conditions. The famous haemoptyses of Chopin's later years were preceded by a chronic cough of many years' duration. For the last 10 years of his life, Chopin took opium on sugar to suppress this intractable cough.<sup>4</sup> However, a cavitating lesion was not disclosed on auscultation of Chopin's chest.<sup>4</sup>

### Chopin's respiratory illnesses

Let us now review the long history of respiratory disease which beset Chopin. Biographers of Chopin are emphatic that his illness began long before his trip to Mallorca. Franz Liszt recounted that Chopin's illness was present from the latter years of his childhood.<sup>9</sup> He described the young composer as:<sup>9</sup>

sickly and delicate; the attentions of his family were always concentrated upon his health [...] The little fellow was indeed seen to be suffering but was always trying to smile and to all seemed happy.

Liszt also said that Chopin "lacked normal muscular development" — an obvious reference to early emaciation. Most major biographers agree that Chopin's illness was well established by 1830 but that in correspondence to his family, the composer and his friends scarcely wrote about his ill health in order to allay their justifiable anxiety.<sup>1,3,8-10</sup>

Each year Chopin experienced some manifestation of respiratory illness. In 1826, Chopin had an illness which was marked by frontal headache and cervical lymphadenopathy which lasted six months. In 1830, in Vienna, his nose swelled up embarrassingly with a prolonged cold, and forced him to cancel his concerts. In Paris in 1831, at 21 years of age, he had an episode of coughing up blood and a fever. His boyhood friend, Dr Jan Matuszynski, recommended several weeks of bed-rest. Chopin recovered his health quickly and resumed his hectic life of teaching and composition. At the time he was not labelled as "consumptive", and haemoptysis was a new condition which occurred occasionally with winter chest infections.

It was in 1832 in Paris that John Field, an Irish composer-pianist, remarked about Chopin — "He is a sickroom talent".<sup>1</sup> The chronic stigmata of Chopin's disease obviously were apparent by this stage.

In 1835, Chopin had a bout of bronchitis and laryngitis and although the laryngitis resolved, it recurred often. (These early bouts of recurrent suppurative laryngitis cast considerable doubt on the diagnosis of tubercular laryngitis that was made at the time of Chopin's death.) As a result, his correspondence was interrupted for two months and he was actually reported as dead in Warsaw.<sup>4</sup> These symptoms recurred in both 1836 and 1837.

Chopin consulted Dr Pierre Gaubert, an allopath, who was a friend of George Sand. Chopin was worried that he was "consumptive" as he had a family history of respiratory disease. Dr Gaubert assured Chopin that he was not "consumptive" and recommended the warmer climate of the south. Chopin, George Sand and her two children, Solange and Maurice, left Paris to escape the winter of 1838. They set out for Mallorca, and arrived in November 1838.

At the outset, the trip was a great success. Chopin wrote rapturously:<sup>4</sup>

Here I am in Palma in the shade of the palm trees, cedars, aloes, oranges, lemons, fig trees and pomegranates. The sky is of a turquoise blue [...] the mountains of emerald, the air is as it must be in heaven! Everybody goes about in summer clothes and it is hot [...] in short a delicious existence.

The trip was marred only by a bout of heat exhaustion (an accepted manifestation of cystic fibrosis) on Chopin's part. The couple rented a villa several miles outside Palma, and although local society were suspicious of the eccentric group, the pair were happy because both Chopin and Maurice enjoyed such good health.

However the weather broke in early December and with it Chopin's health. The summer house that they had rented was ill-equipped to withstand the winter rains. Chopin's respiratory symptoms worsened, he began to cough blood-flecked sputum, and became febrile and breathless. Sand sent for doctors and three arrived. The doctors became preoccupied by Chopin's sputum. Chopin recorded the experience satirically:<sup>1,3,4,7</sup>

I have been sick as a dog these two weeks, the doctors — the best on the island — have examined me. One sniffed at what I spat, another tapped at the place whence I spat it, the third poked and listened while I spat. The first said I would die. The second, that I was dying, and the third said I was dead already!

Sand wrote that Chopin now coughed up sputum "by the bowlful".<sup>4</sup>

Chopin refused to submit to the doctors' recommendation to bleed him. He was cynical of this aggressive treatment, as he had seen no therapeutic benefit in the case of his sister Emily, who had died of a respiratory illness at 14 years of age. The doctors also recommended milk which could not be found in any quantities on the island. Chopin's treatment *in toto* consisted of the application of plasters at various intervals during the day.

Spanish law required that cases of tuberculosis be notified to the proper authorities. The doctors complied with this law. While in Paris tuberculosis was not regarded widely as an infectious disease, attitudes and medical opinion differed widely in relation to tuberculosis between northern and southern Europe. In northern Europe, where the population density was greater, it was noted that tuberculosis tended to occur in the same house and family. Therefore, Chopin's physicians all held the view that tuberculosis was a hereditary disease.

However, in Mallorca, Chopin and Sand had trouble with the Spanish people because they believed in the infectious nature of tuberculosis. Chopin was ostracized by the islanders. George Sand wrote that they had become objects of "horror and terror for the local population".<sup>11</sup> Life became difficult in Palma, particularly after Chopin haemorrhaged badly all over the pavement and the couple withdrew to a sombre charterhouse at Valldemosa where Chopin composed some of his preludes. However they left Mallorca in February 1839, for Marseilles, where Chopin regained much of his strength, stopped coughing up blood and started to gain weight. For the next few years Chopin continued to suffer from a chronic cough, with dyspnoea and intermittent fevers. Sand wrote that Chopin was "never quite well" and there was a slow, progressive decline in his health.<sup>1</sup> After he returned from Mallorca, Chopin was examined by many doctors who were well-versed in the use of René Laënnec's stethoscope; they reassured him that he did not have a discrete lung lesion that was consistent with tuberculosis although he was often wheezy.<sup>4</sup>

For the last four years of his life Chopin lived as an invalid. He became so dependent on his friends that George Sand now referred to him unmaliciously as her "son". Chopin employed a servant to carry him upstairs, and conducted his piano lessons while reclining on a couch. His mornings were interrupted by bouts of productive coughing and his sputum was streaked with blood. Chopin's cough became so severe that even heavy doses of opium were of little value in its suppression.<sup>1</sup> He experienced ghastly nightmares and nocturnal disorientation, probably due to the emergence of respiratory failure.<sup>4</sup>

Chopin's health underwent a precipitous decline after his estrangement from Sand in 1847. This was exacerbated by the cold weather and fog during a disastrous trip to Scotland in 1848. Chopin entered into another relationship — which again was characterized by both dependency and resentment — with Jane Stirling, a Scottish heiress. However, his creativity diminished and he could no longer



compose. During this trip he suffered a bout of deep depression which compounded his medical problems. When the idea of marriage was broached, Chopin replied that it would be unfair on Stirling to marry "a cadaver".<sup>2</sup> Chopin returned to Paris in November 1848, prostrate with exhaustion. He had only 11 months to live.

### Chopin's final illness

In February 1849, it became apparent that Chopin's health was failing. Pauline Viardot wrote, "His health is slowly declining, with fairly good days he can go out in his carriage. There are other days during which he coughs blood and suffers spells of coughing which choke him".<sup>4</sup>

By early July his ankles had become grossly swollen, and his weight loss and cachexia accelerated alarmingly. On July 25 he wrote that he could no longer walk, even with assistance. He had already sent for his family in Poland, and on June 25 he wrote to his sister Louisa, in Warsaw:<sup>6</sup>

My dearest, if you possibly can please come. I am very weak and no doctor will do me half as much good as you will. If you are short of money borrow some. When I am better I shall easily make enough to pay back whoever will have lent it to you.

Dr Frenkel, one of Chopin's physicians, prescribed emetic agents in an effort to release the bad humour from Chopin's body. In Chopin's words to his friend Wojciech Gryzmala, he "did not spare them", and offered little practical advice. Chopin suffered badly under Frenkel's regimen of emetic drugs.

Unhappy with this treatment, Chopin consulted Dr Jean Cruveilhier, who was widely considered to be Paris' foremost expert on "pulmonary phthisis".

Cruveilhier recommended what amounted to a placebo with rest and a light diet, and stopped Frenkel's aggressive treatment. Chopin, who was impressed with the physician, became more optimistic in his outlook and Louisa, who arrived in Paris in August, added to Chopin's happiness. However, Cruveilhier told the Chopin family what the other doctors had been loathe to say — that Chopin was, in fact, "consumptive".

Chopin's deterioration was irreversible and he died suddenly after a bout of coughing on October 11, 1849, at 2 a.m.

Before his death, Chopin's apartment was the scene of great social activity. Pauline Viardot remarked that, "all the great ladies came to his room to faint".<sup>1</sup> A photographer was refused permission to photograph Chopin on his deathbed. A contemporary cartoon of a weeping woman was captioned, "The Only Countess in Whose Arms Chopin Did Not Die".

Chopin's final illness was characterized by increasing weakness and cachexia, *diarrhoea and gross oedema of the lower extremities*. His face was so congested before his death that his features were almost unrecognizable, due probably to venous hypertension from lying in a horizontal position. However Liszt remarked that Chopin's face returned to its usual appearance soon after his death.<sup>9</sup> Gavard noticed that Chopin's face was "blackened", which suggests central cyanosis. The possible presence of pulmonary hypertrophic osteoarthropathy has also been commented upon.

The accounts of Chopin's final illness which exist are the observations of three authors — Chopin's pupils, Adolf Gutman and Charles Gavard; and Franz Liszt. Neither Gutman nor Liszt were eyewitnesses to Chopin's death. There is some evidence that their accounts were influenced by discussion with contemporary medical practitioners. Franz Liszt consulted Jane Stirling for first-hand information, and we know that she discussed the case extensively with Jean Cruveilhier.

All three accounts relate that Chopin remained conscious and able to vocalize until he died. There were no rigors and Chopin had no disorientation that would have suggested the presence of an acute brain syndrome, which would be expected if he had had tuberculosis. Indeed, he was conscious and alert, and able to answer questions and talk to his friends although his voice was painfully weak. Thus, the diagnosis of tubercular pneumonia and laryngitis

is unlikely.

However, because 19th century doctors thought that laryngitis could actually cause tuberculosis<sup>7</sup> — a view which is now discredited — Chopin's biographers wrote of his laryngitis as highly significant. However, they do not mention any dysphagia, which is a prominent symptom of tubercular laryngitis, in spite of the episodic bouts of laryngitis. Chopin's weak voice was due probably to respiratory failure.

### Post-mortem controversy

After Chopin's death all Paris clamoured to know the cause of his untimely demise. Even Chopin had asked that his body be opened. Cruveilhier performed an autopsy and the body was embalmed afterwards. The cause of death was given as, "tuberculosis of the lungs and larynx and cachexia".

However, a considerable amount of controversy has surrounded the issue of the autopsy report which was produced allegedly by Cruveilhier. It has certainly not been seen in modern times, and was described as being "destroyed in a fire", in spite of being quoted from frequently in the medical literature that pertains to Chopin.<sup>11</sup> Jane Stirling, in response to a letter from Liszt, quoted Cruveilhier as saying that "Chopin's lungs were affected less than his heart".<sup>12</sup> This statement has been regarded by medical biographers as an attempt to disguise the fact that Chopin had pulmonary tuberculosis, which is an infectious disease.

However, a letter also exists from Chopin's friend, Gryzmala, which supports the view that Chopin's autopsy did not disclose pulmonary tuberculosis and, indeed, that Chopin's disease was one that had not been encountered previously by medical science. He wrote to Auguste Léo from Paris in October 1849:<sup>7</sup>

He [Chopin] gave instructions for his body to be opened, being convinced that medical science had never understood his disease and that in fact it was found that the cause of death had been different from what was thought but that nevertheless he could not have lived.

Historically, the post-mortem diagnosis of tuberculosis was based on the characteristic lesions of secondary tuberculosis in the lung.<sup>3</sup> Indeed, if Chopin's "tuberculosis" had been severe enough to cause cor pulmonale, then a vast amount of tissue destruction would have been present in the lungs. By contrast, the lesions of cystic fibrosis or bronchiectasis often manifest themselves less obviously. His gross cardiomegaly was consistent with death due to cor pulmonale. Bronchiectasis, which previously had been described by Laënnec, was not at that time a recognized complication of primary tuberculosis. Thus, if Chopin's illness at 15 years of age were indeed primary tuberculosis and bronchiectasis developed as a consequence of this, then the fact that his tuberculosis was inactive would have escaped Cruveilhier's attention.

It has also been well documented that sufferers of cystic fibrosis could survive to a reasonable age in the pre-antibiotic era. Also, the disease is variable in its clinical presentation. Marks and Anderson have reported the case of a patient with cystic fibrosis, who was born in 1913, who died at 66 years of age.<sup>13</sup>

### Family history

Chopin's sister, Emily, died at 14 years of age of an illness that resembled cystic fibrosis. Her illness, which lasted for more than one year, was characterized by severe weight loss, recurrent haemoptyses and terminal pneumonia. Emily also had a long history of frequent respiratory infections. Earlier medical biographers of Chopin dismissed Emily's illness as miliary tuberculosis and noted only her final, catastrophic decline. They also stated that Chopin acquired his infection from his sister. This is unlikely as miliary tuberculosis is not infectious usually and secondary (cavitating) tuberculosis is comparatively rare in children.

### Differential diagnosis

Cystic fibrosis is more likely than simple bronchiectasis as the cause of Chopin's chronic lung disease because he did not suffer from



metastatic infection or from symptoms that could have been caused by systemic amyloidosis. The immotile cilia (Kartagener's) syndrome is unlikely because of the absence of middle-ear disease and chronic sinusitis. Chopin did not have dextrocardia but this is true of 50% of patients with this syndrome. Finally, the diagnosis of an agammaglobulinaemia is unlikely because Chopin did not suffer from disseminated infections.

However, patients with long-standing cystic fibrosis, bronchiectasis or tuberculosis show "clubbing" usually. Whether or not Chopin showed clubbing remains a contentious issue, as most portraits of Chopin, and the famous photograph by Louis Bisson, fail to show his fingertips in spite of the convention of 19th century portraiture that showed the pianist's hands. However, Chopin's penchant for wearing gloves is well known, and it must be noted that Marks and Anderson's patient who had cystic fibrosis did not exhibit digital clubbing when he presented at 46 years of age.<sup>13</sup>

### Conclusion

Many of Chopin's biographers have been unjustly unkind to the composer. He has been labelled as overly fastidious, hypochondriacal and a "dandy". The medical evidence does not favour such a conclusion. With a serious physical handicap he was an invalid at an early age, and his fastidiousness in his physical appearance was an attempt to compensate for, and to disguise, his disability. Chopin resented deeply his dependency on others, which was a necessary consequence of his disease, and made every attempt possible to maintain his independence. In addition to this, he also made a profound and unique contribution to the arts and his music continues to enthral people the world over. Chopin's life is a paradigm of

what can be achieved in spite of serious disease.

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