



# Music and Medicine: The Tragic Case of Gershwin's Brain Tumor and the Challenges of Neurosurgery in the First Half of the 20th Century

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## Key words

- Auras
- Gershwin
- Music
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## INTRODUCTION

### The Onset and Development of Gershwin's Disease

George Gershwin (Figure 1) was born Jacob Gershowitz on September 26, 1898 in Brooklyn, New York (21, 34). At the age of 31 years, he had already gained notoriety with some of his compositions such as *Rhapsody in Blue* and *Concert in F for piano and orchestra*. The creativity of the American composer was such a burgeoning one that he reportedly said: "I had more tunes in my head, than I could ever put on paper". Over the years, Gershwin gained prominence, both as a composer and pianist (11, 28). Contrary to what is reported by some sources (11), Gershwin did not receive the Pulitzer Prize during his life; the prestigious award was assigned to George's brother, Ira, along with George S Kaufman and Morrie Ryskind, in 1932 for *Of Thee I Sing*. George Gershwin was awarded the Pulitzer Prize posthumously, several decades after his death. It is generally believed that things began to change during the last year of life of the American composer, after the onset of neurological symptoms due to the presence of a glioblastoma multiforme, a deadly kind of brain tumor that led him to death within a few months. Actually, the

■ **OBJECTIVE:** Although neurosurgery has gone through moments of great renewal in recent decades, at the beginning of the 20th century it was still dealing with the unfathomable mysteries of the nervous system and its disorders. Historical insight improves understanding of the great personalities of the past and allows us to look at the efforts of pioneering surgeons with greater awareness.

■ **METHODS:** The literature was reviewed using online databases, textbooks, and retrieved articles.

■ **RESULTS:** An overview of the case of Gershwin's brain tumor and its surgical resection is presented.

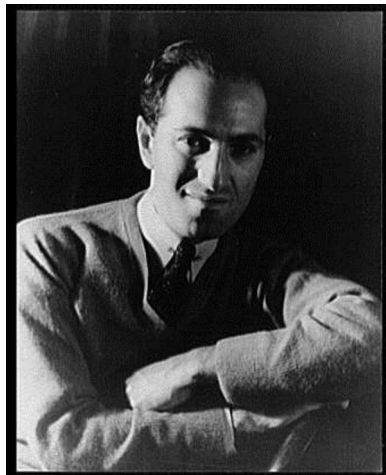
■ **CONCLUSIONS:** This article presents the tragic case of Gershwin's brain tumor. Through his story, it is possible to get an idea of the difficulties with which the great neuroscientists and surgeons of the past approached the human nervous system and its pathologic manifestations. The first part of this article deals with the evolution of Gershwin's disease over the years and the subsequent brain surgery. In the second part, general considerations on the most striking symptoms experienced by the composer are reported, as well as a description of the different hypotheses on the nature of Gershwin's tumor.

true story behind this tragic ending may be a different one.

George Gershwin was in analysis with Dr. Gregory Zilboorg, a psychoanalyst, from the spring of 1934 to the end of 1935 at a frequency of, at times, five sessions per week. Gershwin sought out analysis for a number of variously described reasons (21, 33, 34), including somatic problems. One was what he referred to as his "Composer's Stomach", a term he invented to describe vague but intense episodes of dyspepsia. He also complained of severe headaches. According to Zilboorg's opinion, these symptoms were just temporary somatizations of psychological distress (31). In 1935, after the mixed reviews following the opening of *Porgy and Bess*, which Gershwin considered his finest work, the composer himself set out on a voyage to Mexico. He was accompanied by Zilboorg and two other patients, Eddie Warburg, director of the American Ballet and board member of MoMA, and Marshall Field III, the department store heir (21, 24, 33). Each

of the analysts saw Zilboorg for an early morning analytic hour. There are different reports about the reasons which led Gershwin to interrupt analysis with Zilboorg after traveling in Mexico; the most likely explanation is that the composer had thought it was ineffective (24). George and Ira Gershwin left New York for Hollywood (they rented a home in Beverly Hills) in August of 1936 (24). For George, the following year would have been the last one. On February 9, 1937, Gershwin appeared to lose consciousness while rehearsing his *Concerto in F* with the Los Angeles Philharmonic; he would have fallen from the stage if Paul Mueller, Gershwin's valet and chauffeur, who was taking a picture of the composer, had not caught him. Gershwin recovered immediately, refused help, and continued the rehearsal.

Two days later, a second seizure occurred: the composer lost consciousness for a few seconds but remained upright, without spasmodic jerks (5, 11, 26, 38, 40, 43). Again, the composer



**Figure 1.** George Gershwin (26 September 1898–11 July 1937) was a composer and pianist. Photograph taken by American photographer Carl Van Vechten (1880–1964).

recovered quickly and resumed playing, missing only a few bars (26, 41). He also mentioned of having sensed a strong and unpleasant smell of burning rubber (11, 26, 41, 43). In particular, he told his friend, the pianist Oscar Levant, that he had already smelled something like burning rubber or garbage a number of times before (24).

A couple of weeks later, at the urging of family and friends, Gershwin underwent some sort of medical examination, that reportedly failed to turn up anything of a physical nature (24). In April, Gershwin lost consciousness for about half a minute, while he was sitting in a barber's shop in Beverly Hills, and sensed that very strong rubber smell again (11, 43). Moreover, the following month he developed an exacerbation of his headaches, especially during the morning (24, 43). In early June 1937, Gershwin called Zilboorg, who recommended a visit with Dr. Ernest Simmel, a co-founder of the Berlin Psychoanalytic Institute (then an advanced psychoanalytic training facility), and unquestionably the dean of Los Angeles psychoanalysis at that time. Dr. Simmel finally began suspecting that Gershwin's illness had an organic origin. He brought an internist, Gabriell Segall, onto the case on June 9.

An examination took place at Gershwin's home, on Roxbury Drive, with Simmel in

attendance and, again, there were no physical findings (24).

However, one day, the composer tried to throw Paul Mueller, his valet, out of their moving car; he could offer no explanation for his actions (11, 24, 43). Simmel decided to bring in a neurologist, Dr. Eugene Ziskind, who examined Gershwin on June 20th, finding only an impaired sense of smell on the right and wondering about papilledema. Ziskind admitted Gershwin to the Cedars of Lebanon Hospital in Los Angeles on 23 June (22, 24). There, Gershwin underwent further medical examinations (22, 40, 41) that proved negative. A lumbar puncture was planned but Gershwin was afraid of the pain and refused it (11, 43). The final verdict of the medical report was: "[...] mostly like hysteria" (5, 26, 40, 43). It has been reported that doctors had taken into account the possibility of a brain tumor, but there was simply no symptom to substantiate this suspicion (8, 24). After his discharge from Cedars of Lebanon, Gershwin's condition became even more serious: the attacks of headache were increasing in frequency and intensity; once, the pain was so violent that Gershwin had to run to his room and was not able to leave it for 2 days (11).

In addition, Gershwin developed photophobia and was often found, by friends, in his room, sitting in total darkness and with a glazed stare (11). Once, while walking, he stopped suddenly and was not able to continue. He sat down, held his head in his hands and said that the strong headache and the smell of burning rubber would make him crazy (11, 40, 43). A few days later, during dinner, his knife dropped from his hand; during another meal, he spilled the water in the glass when he was drinking. Once, he squashed chocolate between his fingers and used it like cream on his body (11, 21, 43).

Simmel attended him daily and, on July 4th, moved him to the house of "Yip" Harburg, a friend who was leaving for New York, and assigned a psychiatric nurse, Paul Levy, to be with him (in addition to the above mentioned valet, Paul Mueller) (24). On 9 July 1937, after the composer collapsed dramatically (he was never to regain consciousness), Gershwin was readmitted to Cedars of Lebanon Hospital (Figure 2) (11, 43). Gershwin

was examined by a young neurosurgeon, Dr. Carl Rand, who diagnosed left hemiparesis and papilledema and finally suspected that the composer had a brain tumor (11); a lumbar puncture was performed, showing a pressure of 400 mmH<sub>2</sub>O. The spinal fluid was colorless and contained 30 mg of protein. Also, 1 cell was found (11, 12). The intracranial pressure had to be lowered to 220 mmH<sub>2</sub>O. Gershwin's condition improved a little but worsened after a short time. He had increased deep tendon reflexes bilaterally, with clonus in both hands and bilateral Babinski sign.

### The Brain Surgery

Because of the seriousness of the case, they decided to call none other than Professor Harvey Cushing, who refused because he had retired from work (11, 43); he counseled the intervention of Dr. Walter Dandy, one of his best pupils. However, Dandy was vacationing on a yacht on the Chesapeake. Emil Mosbacher, a friend of Gershwin, then called a White House aid who, depending on which version of the story you prefer, called on either the Navy to send a destroyer or the Coast Guard to send a cutter to retrieve Dandy and take him to a base from where he was flown to Newark, New Jersey and prepared to fly immediately to Los Angeles. Gershwin's conditions continued to deteriorate and, consequently, they chose someone local: a prominent neurosurgeon, Dr. Howard C. Naffziger (Figure 3), from UCLA Medical School, who was vacationing on lake Tahoe; he was flown back to Los Angeles. The doctors called Dandy, then at Newark airport, and told him surgery could not wait so he halted the trip. Although Naffziger was the senior surgeon, Rand actually operated (24). The surgery began early in the morning of July 11. Family gathered in a waiting room with George Pallay, a friend, relaying information to them from the operating room. The skull was first trepanned and a ventriculogram was performed, which took about an hour and a half (6, 7, 22, 24); it showed a right temporal tumor (22, 26). A large cyst was found on the right side of the brain that compressed the left ventricle and shifted the right ventricle across the midline. The family was heartened by the news of a large cyst (as opposed to a tumor) that could be removed but no mention was

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