Did Mozart Die of Kidney Disease? A Review from the Bicentennial of His Death

Edward N. Guillery

E.N. Guillery, Division of Pediatric Nephrology, Department of Pediatrics, University of Iowa Hospitals and Clinics, Iowa City, IA.

ABSTRACT
There has been a tremendous interest in the circumstances of Mozart’s death. Theories of head trauma, poisoning, heart disease, and most prominently, renal failure have all appeared recently in scholarly musicology publications, the lay press, and the medical literature. The purpose of this article is to present the evidence behind each of these theories. Although this review cannot be considered comprehensive, with the overview provided, it will be shown that few conclusions can be drawn.

Key Words: Mozart, renal failure, poisoning

Wolfgang Amadeus Mozart died in 1791 at the age of 35 yr following a 2-wk illness. Public interest in Mozart was raised during the just-passed bicentennial of his death, perhaps in part from the film Amadeus, and a flood of reports discussing the circumstances of his death has resulted. Some believe that Mozart died in renal failure, but the details of the cause have resulted in much controversy. This review will present the various theories and show that no definite conclusions can be drawn.

The events of Mozart’s terminal illness are known to us from a letter by Sophie Haibel, the sister of Mozart’s wife Constanze. It was written in 1825, 33 yr after his death, to Georg Nikolaus von Nissen, Constanze’s second husband and one of Mozart’s biographers. Haibel was present during this illness and wrote that Mozart required a “night jacket which he could put on frontways, since on account of his swollen condition he was unable to turn in bed” (1). Mozart said to her “Why, I have already the taste of death on my tongue.” Cold poultices were placed on Mozart’s “burning head,” which, it seemed to Haibel, caused him to become unconscious, in which state he remained for 2 h until he died. She added: “His last movement was an attempt to express with his mouth the drum passages in the Requiem” (1).

RHEUMATIC FEVER AND SUBACUTE BACTERIAL ENDOCARDITIS THEORIES

Rheumatic fever and subacute bacterial endocarditis (SBE) have been proposed as causes of Mozart’s death. The rheumatic fever theory was originally developed by C. Bär (2) and has been supported by others (3, 4). It has been appropriately criticized (5). The basis of the theory is in several observations. Mozart’s father, Leopold, wrote a letter when Mozart was 10 yr old and described a febrile illness with arthralgias that lasted 10 days. In the English translation of Otto Deutsch’s work, this illness is described as rheumatism (1). A letter written by Leopold to his daughter Nannerl in 1784, when Mozart was 28 yr old, describes fevers and diaphoresis; Leopold writes that “… a number of people caught rheumatic fever, which became septic when not taken in hand at once” and quotes his son as writing “Four days running at the very same hour I had a fearful attack of colic, which ended each time in violent vomiting” (6). Rheumatic fever in the 18th century was a nonspecific term used to refer to any febrile illness with joint pains.

Another observation is that Mozart had several tooth abscesses (November 1770, December 1774, and May 1790). Each could have led to SBE in a patient with a heart already damaged by rheumatic fever. Dr. Mathias von Sallaba was called to see Mozart about a week before his death and diagnosed hitziges frieselfieber, which means heated military fever. This diagnosis was entered in the Register of Deaths. In the context of the time, this diagnosis is said to be completely nonspecific. There has been
much debate about whether or not a rash or petechiae are implied in the term (3,5,7–9). Constanze and Sophie did note edema, and this has been attributed to heart failure from rheumatic heart disease. Many authors note that Mozart was bled near the time of his death, which would have, no doubt, hastened his demise if he were in heart failure from rheumatic heart disease and SBE. This is the sum of the evidence for rheumatic fever/heart disease and SBE.

The letter of 1784 has been used as evidence for urinary obstruction and pyelonephritis (hence, the colic). Renal failure could have been the cause of the edema that the sisters noted and seems more likely than SBE when considered with other observations to be cited later. The notable absence of any mention of dyspnea (Mozart was said to have sung during his final illness, although Stafford doubts this story [8]) also argues for edema from a hypoontotic state rather than cardiogenic edema. In order to diagnose SBE, one would hope for more than the presence of fever, but that is all we can conclude from Haibel’s account. As for rheumatic fever in childhood, only two of the Jones minor criteria are met (fever and arthralgias). The initial illness of rheumatic fever lasts 3 to 4 wk; the illness Mozart had as a child lasted only 10 days. Other illnesses that can cause fever and arthralgias are bacterial infections (Yersinia, Salmonella, and Shigella organisms)—all unlikely with the absence of other symptoms—and viral infections (rubella, hepatitis, echovirus, and Enterovirus species—all quite possible).

HEAD TRAUMA THEORY

Recently, Puech et al. have published claims that they have examined the skull of Mozart and that it shows evidence of craniofacial dysmorphism (10,11). A healing temporoparietal fracture on the left side with the imprint from a calcified epidural hematoma is described. The veracity of their claim depends entirely on whether or not they have examined Mozart’s skull. Mozart was buried in an unmarked grave in St. Marx’s cemetery in Vienna. According to Davies, Mozart’s skull was marked with a piece of wire by the sexton of St. Marx’s, Joseph Rothmayer (12). When the grave was reopened in 1801, he removed the skull and kept it as a “sacred relic.” It was obtained by Professor Joseph Hyrtl, a Viennese anatomist and anthropologist, remained in his family’s possession until 1899, and by 1901 was acquired by the Mozarteum in Salzburg (10).

By an assessment of dental wear, the skull is thought to have belonged to someone who died between the ages of 25 and 40 yr. The skull is said to be typical of the male South German brachycephalic. A distinctive feature is premature synostosis of the metopic suture, a rare occurrence (1 in 10,000 adults). Historical sources and examination of portraits reveal that Mozart’s main facial features were a straight forehead with anteriorly placed eyes, marked cheekbones, and a prominent nose and upper lip. The cranium Puech et al. have examined is shown, by imposition of its image onto a portrait, to coincide with Mozart’s features.

A healing temporoparietal fracture on the left side with an extradural hematoma is used as an explanation for the death of Mozart. Puech et al. propose that he sustained the fracture as a result of a fall he later forgot. There are some aspects of Mozart’s terminal illness that cannot be explained. Why would he have been edematous and febrile? Banerjee proposes that this fracture may have occurred more than a year before his death and explains Mozart’s headaches, which started in the spring of 1790, his weakness, fainting spells, and paralysis that some claim occurred after he took to his deathbed on November 20, 1791 (13). Perhaps the proposed head trauma explains some of the symptoms Mozart complained of in his last year, but one is hard pressed to account for Mozart’s death on the basis of this injury.

HEAVY METAL POISONING THEORIES

The theories of Mozart having been poisoned have circulated since shortly after his death. They are based on a number of reports by people close to Mozart. Vincent and Mary Novello wrote a diary of their conversations with Constanze Mozart in 1829 (14). Vincent was a composer and publisher, and he and his wife planned a biography of Mozart. Mary wrote in her diary:

Some six months before his death he was possessed with the idea of his being poisoned—'I know I must die', he exclaimed, 'someone has given me acqua toffana and has calculated the precise time of my death—for which they have ordered a Requiem. It is for myself that I am writing this.'

Acqua toffana is a slow poison containing arsenic and lead oxide, invented by a Neapolitan woman, Tofana, and "brought to light in 1659 by a Roman police inquiry into the doings of a group of conveniently widowed women" (14).

H.C.R. Landon has reviewed the evidence for poisoning in a recent book (15). He cites the above evidence and uses the gossip that circulated in Vienna in the early 1820s, precipitated by Antonio Salieri’s unsuccessful suicide attempt and reported (although undocumented) confession to killing Mozart, to show how the poisoning theory was propagated. He cites a number of entries into Beethoven’s Konversationshefte—the book the deaf composer used to "converse" with visitors. We can learn from this book that the theory that Salieri poisoned Mozart was an item of gossip in Vienna from 1823 to 1825.
At this time, near the end of his life, Saliери was hospitalized as insane. What is the value of this evidence, much of it collected decades after Mozart’s death? How much of it is idle gossip leading people like Richard Wagner to write in 1830 that most musicians believed that Mozart was poisoned by Saliери? (13) Beyond hearsay, there is little if any evidence. Saliери himself denied the allegations (15). The motive seems to be there; these two men were rivals. Leonold wrote in 1786 to Mozart’s sister of Le Nozze di Fi-garo:

It will be surprising if it is a success, for I know that very powerful cabals have ranged themselves against your brother. Saliери and all his supporters will again try to move heaven and earth to down his opera. (6)

The two men, however, also enjoyed an amicable professional relationship. Mozart wrote to his wife in October of 1791 of taking Saliери and the great soprano Madame Cavalleri to a performance of his Magic Flute and having a very pleasant time.

In his excellent review of the various poisoning theories, Davies shows how these myths have been kept alive through the years (16). Alexander Pushkin wrote a play called Mozart and Saliери, and Rimskiy-Korsakov based an opera on this play. As recently as 1953, the Soviet musicologist Igor Belza kept the theory alive with the unconfirmed statement that the Viennese musicologist Guido Adler had discovered a written confession of Saliери’s (needless to say, no one has ever seen this document). The play Amadeus by Peter Shaffer burst upon the scene in 1979 and became a sensational film directed by Milos Fore-man; this served to keep the poisoning theory very much alive. Far from being a mediocrity, as suggested by this play, Saliери was highly regarded and successful in his time. What he truly thought of himself, we will never know. As Chamber Composer and con-ductor of the Italian Opera, he composed about 40 operas. Saliери’s pupils included Beethoven, Schub-ert, and Liszt. Although his music may sound second rate next to Mozart’s, he had a successful career. Considering all of the evidence cited above, it can only be concluded, as Mary Novello concluded, that Saliери’s guilt from having treated Mozart badly led his deranged mind to accuse himself of far greater crimes.

There remains a question: Constanze claimed that Mozart said he was being poisoned with acqua toff-fana and that this was in connection with the Re-quiem, which was commissioned by an anonymous stranger; could this have happened? This mysterious messenger, in one of those instances of history showing that fact is stranger than fiction, was an agent of a Count Franz von Walsegg, a minor aristocrat who had the habit of commissioning works anonymously and then passing them off to friends and family as his own. With the death of his wife in February 1791, he arranged to have an agent, acting on his behalf (albeit anonymously), approach Mozart and commis-sion him to write a Requiem Mass that he could have performed as his own composition in honor of his wife. Why Mozart should have thought he was being poisoned has not been explained.

Mozart’s association with the Freemasons is well known. Freemasonry was popular in late-18th century Austria, as it was in the rest of Europe and the Americas. This history as it relates to Mozart has been well reviewed by Landon (15,17) and Stafford (8). The theory that Mozart was poisoned by the Freemasons first appeared in Otto Jahn’s biography of 1891 and was propagated by Dr. Mathilde Ludendorff in 1936. This absurd theory is actually Nazi propaganda, the purpose of which was to show that Mozart was a good German and a victim of a Jewish-Christian and Masonic conspiracy (8). Ludendorff proposed that Mozart’s long-time supporter Baron van Swieten and other Freemasons plotted to poison Mozart with the help of the mysterious stranger. Fellow Mas-son Nissen covered up the murder with his biography and then married Mozart’s widow. Baron van Swieten then saw to it, according to this theory, that Mozart was buried in an unmarked pauper’s grave with the skull removed, as dictated by Masonic law. If anyone should be credited for supporting Mozart and his widow, it is Baron van Swieten. This theory is malicious nonsense.

More recently, the poisoning theory has been given new life with the proposal, by Dr. Ian James of the Royal Free Hospital in London, that Mozart died of iatrogenic antimony poisoning. He claims Mozart was prescribed an antimony compound to treat the severe depression or melancholia from which he suffered. When Mozart died, he left a large bill for medicines from the Viennese apothecaries, although there is no record of what was prescribed. Franz Xaver Nieme-scheck, an early biographer, wrote in 1808: “In Prague Mozart fell ill and dosed himself ceaselessly” (1). The symptoms of antimony poisoning are coughing, ar-thralgias, arthritis, myalgias, headache, fainting, ap-nea, abdominal pain, vascular collapse, facial edema, and skin rash (18). As with all of the heavy metals, chronic ingestion can cause renal tubular dysfunc-tion and renal failure.

Others have proposed iatrogenic mercury poisoning with the mercury given for syphilis. The idea that Mozart had syphilis is doubted by most authors (19). Mercury, as is the case with lead and arsenic, may lead to a polynuropathy if chronically ingested. These heavy metals can also cause a gait disturbance and tremors, symptoms not noted for Mozart. Moz-art’s handwriting and manuscripts have been ana-lyzed extensively, and there is no evidence of tremor or paraplegia. Mercury can also cause slurred speech,
visual changes, hearing loss, and eventually, mental deterioration, none of which were observed.

Lead and arsenic, which are the ingredients of acqua toffana, cause (for arsenic) a metallic taste in the mouth, a peripheral neuropathy, anemia, gastrointestinal disturbances, and multiple skin afflictions (18). Mozart did remark shortly before he died that he had the "taste of death" in his mouth; could this have been the metallic taste? Again, he had no evidence for a peripheral neuropathy. Lead can cause colicky abdominal pain, nausea, vomiting, a metallic taste in the mouth, constipation, limb pain, and later in chronic ingestion, a peripheral neuropathy (18). With all of these heavy metals except antimony, we would expect mental deterioration and the evidence of a peripheral neuropathy near the end. Mozart was relatively lucid until 2 h before his death and was composing until the day of his death. Of all of these substances, antimony seems the most possible. We are again confronted by a paucity of evidence; Dr James’s theory is compelling but based on the thin evidence of headache, edema, Mozart’s depression (which may have simply been normal variance of mood [20]), and records of unpaid pharmacy bills.

RENAL FAILURE THEORIES

Several authors have presented strong cases for Mozart having died of complications of renal disease (5,12,21–25). There is a divergence of opinion about the exact cause, and several have been proposed. Klein presented his case for postinfectious glomerulonephritis in 1959 (22). The evidence to support his case has been widely cited and consists chiefly of letters describing upper respiratory infections of childhood. Mozart never reported gross hematuria, and so, in the absence of a urinalysis or a renal biopsy, one is hard pressed to diagnose glomerulonephritis.

Davies has used the letter of 1784 describing fever, colic, and "rheumatic fever," along with letters written to fellow Mason Michael Puchberg between July 1789 and August 1790 describing fever, chills, toothaches, headaches, and "rheumatic pains," to propose his rather more elaborate theory that Mozart died of Henoch-Schönlein purpura (HSP), which resulted from streptococcal infections (16,21). The basis of this theory is in a number of faulty assumptions. The first is that Mozart had numerous streptococcal infections. There is no way of knowing this; many other pathogens could have caused some or all of the febrile illnesses and cases of pharyngitis that Davies cites. The second faulty assumption is that HSP and streptococcal infection are related. This once-postulated association has been convincingly disproved by many authors as long ago as 1961 (26,27). Sir William Osler even anticipated this later work in 1914; the bacterial examination of these cases has not been very satisfactory—no unanimity has been reached as to the organisms. On the other hand, there is a large group in which the lesions are an expression of perturbed metabolism (28).

Davies then claims that Mozart died during an epidemic, this based only on a letter written by Dr. Guldener von Lobes in defense of Salieri in 1824, 33 yr after Mozart’s death. He wrote that Mozart had fallen ill "with a rheumatic and inflammatory fever which had also attacked a great many inhabitants of Vienna at the time" (16). This doctor did not examine Mozart, and so, his credibility is dubious at best. Karhausen has emphasized the lack of evidence for an epidemic at the time (7) and quotes the work of Bär (2). For November and December 1791, Bär found 656 deaths in the mortality statistics of Vienna. During that period, this represents a 17% increase over the previous months. Of these 656 cases, there was only one listed with the diagnosis of hitziges frieselfieber—that was Mozart’s case. Furthermore, HSP is clearly not an epidemic illness (29). Davies goes on to assume that there was a polyarthritis and a petechial rash present with only tenuous indirect evidence. Sophie Halbtl told the Novellos that Mozart’s arms and legs were "inflamed and swollen" (14). We have no way of knowing what an untrained observer in the 18th century might mean by inflammation; it is difficult to conclude that there was a polyarthritis, although this point is certainly controversial and is being vigorously debated (7,9). As for a skin rash, none was described on Mozart. The vague diagnosis of hitziges frieselfieber is too nonspecific to make that inference (7), although Davies makes such an inference based on the terminology of 19th century pathologists (9). Davies simply states "A skin rash was also present" without citing any further evidence (21). Davies adds that HSP could have been more common in Mozart’s time. This is完全可以 speculative; there is no epidemiology, as is with rheumatic fever, showing a decline in the incidence of HSP. Considering these facts, although HSP is a possible diagnosis, it is so rare and the evidence so thin as to render the theory untenable.

Wheater explores the possibility that Mozart had renal tuberculosis as a cause for renal failure, without pulmonary involvement (5). This theory would follow from a history of erythema nodosum that Mozart may have had in childhood (30). Mozart’s edema could have resulted from tuberculous peritonitis, his chronic illness from a cerebral tuberculoma, and his death from miliary tuberculosis. It is ironic that Davies should say of this theory “the above sequence of events seems far too remote for further consideration” (21). Wheater also feels that tuberculosis does not explain all of the features of Mozart’s final illness.

Perhaps more likely and consistent with the letters
cited above is the idea that Mozart had recurrent urinary tract infections with pyelonephritis leading to chronic renal failure. This theory was first proposed by Barraud (25), with the additional proposal by Greither of obstructive uropathy (31), and has been expanded upon by Karhausen in connection with Mozart’s congenital ear anomaly (7,32,33). Mozart had a malformed left ear, a feature he tried to conceal, which explains why it was not apparent in most of his portraits. In Nissen’s biography, a work certainly read by Constanze Mozart (because she married Nissen after the death of Mozart), an illustration of Mozart’s mildly malformed left ear is shown; there is an absence of the auricular lobe, and there is a vertical groove in the helix. An illustration made in 1898, from a now-lost watercolor, is also cited by some (23). It is widely reported that Mozart had some sort of malformed ear, although this too is debated (34), and it was a heritable trait—his son, Franz Xaver, had a similar ear. It has been suggested that this malformed ear was part of a syndrome (35).

Karhausen has analyzed data from the European Register of Congenital Abnormalities (Eurocat) (7). From 770,626 births (1980 to 1983), 623 cases of ear anomaly and 911 cases of urinary tract anomaly are identified. Among those, there are 78 cases in which both appear (personal communication). By using a Yates corrected χ² test, there is a very highly significant correlation (P < 0.001). Karhausen concludes “the risk of having a congenital anomaly of the urinary tract was [one] hundred times higher with an external ear anomaly than in the general population” (7).

**CONCLUSIONS**

There are very few conclusions that can be drawn from this debate. It seems quite possible that Mozart died in renal failure, the “taste of death” he complained of may have been the foul taste of ureaemia. The presence of edema suggests nephrotic syndrome, which makes a glomerulopathy likely, or volume overload from renal insufficiency. Karhausen’s inclination to propose a relatively common renal disorder associated with Mozart’s well-described ear anomaly seems reasonable. Vesicoureteral reflux in association with a urinary tract anomaly could have caused nephrotic syndrome. Rheumatic fever and SBE cannot be ruled out and are favored by some (8,34). We cannot know what killed Mozart unless significant new information comes to light, which is unlikely. One should be gratified that Mozart’s music lives on.

**ACKNOWLEDGMENTS**

I acknowledge the generous support of J.C. Kopp, Ph.D., G.F. Dibona, M.D., and J.E. Robillard, M.D., in the preparation of the manuscript.

**REFERENCES**


"The vertebrate brain is a most wonderful mechanism for wrestling freedom out of necessity, and the vertebrate brain attains its greatest efficiency in man. But the evolution of the vertebrate brain parallels the evolution of the neuromuscular system, and the evolution of the neuromuscular system in all its complexities has been made possible by the evolution of an internal environment of constant composition. I need not emphasize that this internal environment is in effect synthesized by the kidneys, that every drop of this environment is resynthesized by the kidneys some sixteen times a day. Historically and physiologically, consciousness and urine formation are inseparable."